**ENABLING ACTIVITIES FOR THE PREPARATION OF SRI LANKA’S SECOND NATIONAL COMMUNICATION TO THE UNFCCC**

## Government of Sri Lanka

**United Nations Development Programme**

## Brief Description

Sri Lanka ratified the United Nations Framework Convention for Climate Change (UNFCCC) by a Cabinet decision in November 1993 and is among the first 50 countries to have ratified the convention. Sri Lanka submitted its Initial National Communication (INC) to UNFCCC in October 2000. Through UNDP/GEF Climate Change Enabling Activity aims to strengthen the technical and institutional capacity of Sri Lanka in mainstreaming climate change concerns into the country’s sectoral and national development planning processes. It is primarily for the purpose of preparing and submitting its Second National Communication to the UNFCCC thereby meets its obligations to said convention. The Project will further enhance the national capacities and will raise general knowledge and awareness on climate change and its effects. It will also contribute to putting climate change issues higher on the national agenda through strengthened cooperation and increased involvement of all relevant stakeholders in the process. In addition, it will strengthen and build national capacities for participation in different mechanisms related to GHG mitigation and to fulfilling other commitments to the UNFCCC.

**Signature Page**

**Country:** Sri Lanka

UNDAF Outcome and Indicator(s)

*Outcome:* Governance reform aimed towards promoting people-centred development through encouraging government to implement and monitor implementation of agreements signed at international conventions and UN conferences.

*Indicators:* Number of conventions signed and ratified; Rules/regulations enacted reflecting conventions

Expected Outcome(s) and Indicator(s)

*Outcome:* National capacity strengthened and awareness created to effectively manage adverse effects of global environmental trends and sustainable development practices in place, including the implementation and integration of global environmental conventions into governance and production systems (MYFF)

*Indicator:* Active knowledge network on global environmental concerns including international conventions and other legal instruments in place

Expected Output(s) and Indicator(s)

*Outcome:* Development of national capacities and raise knowledge and awareness as part of the framework for national action and external assistance for effective global environmental management

*Indicator:* Second National Communication for UNFCCC prepared and submitted

Implementing partner: Ministry of Environment

Other partners: UNDP

Budget: US$ 405,000 (GEF)

Total budget: US$ 405,000

Allocated resources:

* Government: US$ 40,000 (in kind)
* Regular \_\_\_\_\_\_\_\_\_\_\_\_
* Other:*(including in-kind contributions)*
  + Donor \_\_\_\_\_\_\_\_\_
  + Donor \_\_\_\_\_\_\_\_\_
  + Donor \_\_\_\_\_\_\_\_\_

Unfunded budget: \_\_\_\_\_\_\_\_\_

Programme Period: 2002-2007

Programme Component: Goal 3. Energy and environment for sustainable development; Service Line 3.1.

Project Title: Enabling Activities for the Preparation of Sri Lanka’s Second National Communication to the UNFCCC

Project Code:

Project Duration: April 2007 - December 2010

Management Arrangement: National Execution

**Agreed By (Government) :** ……………………………………………………………………...

**Agreed By (Implementing Partner):** ………………………………………………………………….…..

**Agreed By (UNDP) :**………………………………………………………………………

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#### ACRONYMS

APR Annual Progress Report

CCCS Centre for Climate Change Studies

CCD Coast Conservation Department

CCEA Climate Change Enabling Activity

CEA Central Environmental Authority

CoP Conference of the Parties

CP Country Programme

CRI Coconut Research Institute

INC First National Communication

GHG Greenhouse Gases

GoSL Government of Sri Lanka

IPCC Intergovernmental Panel on Climate Change

INC Initial National Communication

LHI Lanka Hydraulics Institute

MDGs Millennium Development Goals

MOE Ministry of Environment

NARA National Aquatic Resources & Development Agency

NBSAP National Biodiversity Strategy and Action plan

NCSA National Capacity needs Self-Assessment

NGO Non-Governmental Organization

NPC National Project Coordinator

NPD National Project Director

NPM National Project Manager

NSF National Science Foundation

RRI Rubber Research Institute

QPRs Quarterly Projects Reports

SNC Second National Communication

SLPA Sri Lanka Ports Authority

TRI Tea Research Institute

TWGs Thematic Working Groups

UNCBD United Nations Convention for Biological Diversity

UNCCD United Nations Convention for Combating Desertification

UNDAF United Nations Development Assistance Framework

UNDP United Nations Development Program

UNFCCC United Nations Framework Convention on Climate Change

V&A Vulnerability assessment and adaptation

**SECTION I**

**Part I: Situation Analysis**

Similar to the other countries in the Asia-Pacific region, Sri Lanka is very much aware and concerned about environmental degradation and global warming and their detrimental effects. The enhanced climate changes are expected to cause adverse impacts on many sectors threatening the well-being of people. According to climate models for South Asian region that includes Sri Lanka, the temperature increase has been projected to be within 1.0 to 3.0 0 C by 2100 under the different emission scenarios. It is expected that the frequency and magnitude of rainfall and humidity to rise. Temperatures are also expected to be high and generally uniform throughout the year. The models also indicate that the wet areas of the country to become wetter and dry areas to become drier through time. Country can also experience severe climatic changes such as long dry spells associated with the *El Niño* (warm) and long wet spells. Sri Lanka is also highly vulnerable to other extreme climate events; for example, coral bleaching associated with high ocean surface temperatures. The impacts of climate-related events are felt right across the nation’s economic, social and environmental systems, thus making future changes in climate, including extreme events, an issue of great national concern.

Sri Lanka ratified the United Nations Framework Convention on Climate Change (UNFCCC) on 16 March 1993, and has submitted its Initial National Communication (INC) to the UNFCCC on 27 October 2000. Following the preparation of its INC, the country has initiated efforts to create an institutional set-up that seeks to mainstream climate change issues into the national legal frameworks. Moreover, its INC provides compelling evidence that, by global standards, Sri Lanka is one of the nations most vulnerable to climate change and sea-level rise and other extreme weather conditions like drought and floods.

Ratification of the UNFCCC is one step forward in terms of committing Sri Lanka to address climate change and related issues. Sri Lanka is also a Party to many other UN conventions and protocols including UN Convention for Biological Diversity, UN Convention for Combating Desertification and Montreal Protocol. The country has also ratified the Kyoto Protocol 3 September 2002.

In addition, a number of national environmental and related policies have been prepared and adopted by the Government of Sri Lanka (GoSL), to guide the implementation of initiatives that address environmental issues, including climate variability and change. The government’s attitude towards environmental concern presents a positive support through the endorsement of policies related to environment conservation and management. All these policies had a common interest of promoting sustainable development with regards to any type of development that takes place in Sri Lanka, and most importantly minimize any adverse impact on the natural, social and cultural environment. In 1992 the Government of Sri Lanka launched its National Environment Action Plan (NEAP), which identified 12 target environmental components, which directly aimed at responding to pressing environmental problems that might have an impact on the local environment in the future and took a holistic approach in creating cooperation between government agencies to work together towards managing the 12 priority environment issues.

The Ministry of Environment (MOE) aims at achieving sustainable management of Sri Lanka’s environmental resources through a closer partnership with the private sector and civil society groups. The MOE Corporate Plan, Caring for the Environment 2003-2007, path to Sustainable Development recognizes the newly approved structure for the ministry. This includes the National Environmental Policy, Environmental Strategies for the different economic sectors, and a Programme of Action to address the environmental issues that arise in the process of economic development. This new structure is currently implementing on a national scale, by the government, the non-government organizations, the private sector and the general public. The view that environmental protection is the responsibility of a single institution or group of institutions is no longer valid. We have to accept that sound environmental management and environmental care is the responsibility of all sectors.

**Part II: Strategy**

In compliance with its obligation as a non-Annex I Party to the UNFCCC, Sri Lanka intends to prepare its Second National Communications (SNC). The proposed project will assist the GoSL in implementing activities needed to enable the country to prepare its SNC, following the guidelines adopted by the Conference of Parties (CoP).

The activities within the SNC are continuation of and an improvement of the work done under the UNDP/GEF supported Climate Change Enabling Activity (CCEA) – Phase I & II, where Sri Lanka prepared its INC and built capacities to understand the effects of climate change in number of sectors. Project plans to pay special attention to address gaps and constraints identified during the SNC stocktaking exercise, making good use of the information derived and utilization of the results of relevant previous or ongoing national or international activities related to the climate change issues.

The proposed project is fully in line with the Sri Lanka’s national development objectives, and its pursuit of improving natural resource management and promoting environmental sustainability. The GoSL recognizes the need to conserve and protect the natural environment, as this is an essential component in the country’s sustainable development strategy. The UNDP is assisting Sri Lanka in achieving sustainable environmental management and energy development that will improve the livelihoods and security of the poor. This is achieved through strategic areas of focus covering: development of institutional frameworks for sustainable environmental management and energy development; supporting monitoring and assessment of environmental sustainability; and developing national capacity for participation in global conventions, regulatory regimes and funding mechanisms for environmentally sustainable development. The SNC, which is the main output of the project, as well as activities for improvement of the country’s capacities to implement the UNFCCC, would facilitate further the sustainable development process of Sri Lanka.

At the national level, the proposed project will develop synergies with a number of recently completed and on-going UNDP/GEF enabling activities such as Climate Change Enabling Activity and the National Capacity Self-Assessment (NCSA) for global environmental management, as well as with other UNDP funded activities in the area of sustainable development. It will also have inherent linkages with other donor-assisted climate change projects in the country. At the regional level, Sri Lanka is participating in a number of multi-country energy interventions, which directly addresses climate change issues, particularly the UNEP funded Greenhouse Gas Emission Reduction from Industry in Asia – Pacific (GERIAP) project, Promotion of Renewable Energy, Energy Efficiency and Greenhouse Gas Abatement (PREGA) funded by Asian Development Bank and the WB/GEF Renewable Energy for Rural Economic Development(RERED) Project, and the Renewable Energy and Energy Efficiency Partnership ( REEP)

The project will engage the best local expertise available in the country and the region, to assist in the project implementation. The project will make use of linkages and cooperation with ongoing climate change and relevant environment projects that are addressing the national development priorities, and will strengthen the dialogue, information exchange and cooperation among all the relevant stakeholders including governmental institutions, non-governmental organizations, academia and private sectors. By doing so, it is expected that the climate change related issues would be accorded high priority on the agenda and ensuring its integration in the national planning and development strategy formulation processes in the country.

The project will make use of the capacity built and institutional arrangements that were set up during CCEA project. However, capacity building activities will still form part of the project and will be provided through training workshops, research activities and information exchange between the national and relevant regional and international institutions. This is to augment the existing capacity, as well as address capacity gaps that were identified during the SNC stocktaking exercise and NCSA project and in the ongoing regional climate change mitigation projects participated by Sri Lanka.

* + 1. Objectives

The proposed project aims to strengthen the technical and institutional capacity of Sri Lanka in mainstreaming climate change concerns into the country’s sectoral and national development planning processes. It is primarily for the purpose of preparing and submitting its Second National Communication to the UNFCCC thereby meets its obligations to said convention.

* + 1. Project Activities (details provided in Appendix B)

The project will contain the following main components.

* Information on national circumstances
* Greenhouse Gas Inventory
* Programme containing measures to facilitate Adequate Adaptation to climate change
* Programmes Containing Measures to Mitigate Climate Change
* Other Information Considered Relevant to the Achievement of the Objective of the Convention including the following:
  + - Development and Transfer of Technologies
    - Research and Systematic Observation
    - Education, Training and Public Awareness and Information and Networking
    - Improved Information Technology
    - Capacity-building
* Constraints and Gaps, and Related Financial, Technical and Capacity Needs
* Technical Support
  + 1. Risks and Risk mitigation measures
* Focal point changes within the Ministry of Environment affecting the management mechanisms: With the submission of this proposal for funding, MOE is endorsing their full cooperation to ensure the successful and timely delivery of project components
* Recruitment of experts for technical inputs and delivery in time: Project intends to have a very strong workplan and will ensure that institutional support for the experts’ affiliated institutions is obtained prior to recruitment process

**Part III: Management Arrangements**

The project will be executed by the Ministry of Environment in close collaboration with other relevant ministries and institutions, particularly those that make up the country’s National Steering Committee (NSC) on Climate Change. The National Climate Change Secretariat (NCCS) will work closely with the Global Environment Facility (GEF) and UNFCCC focal points and UNDP.

The main oversight and high-level coordination will be the responsibility of the NSC. It will steer the project team and monitor the project activities and will be chaired by Secretary of MOE (Executive/National Project Director) and will be represented by other relevant stakeholders. The NSC will also ensure that the recommendations of the project are integrated into overall national development planning process. The Director, Technical Assistance in External Resources Department will be the Senior Supplier and Director, Global Affairs Division in MOE will be the main beneficiary. Assistant Resident Representative of UNDP will provide project assurance. National Project Coordinator (NPC), National Project Manager (NPM), Environment Analyst of UNDP and Thematic Working Groups will form the project management team for the preparation of second national communication. The Project Management Team (PMT) will work and undertake its tasks under the auspices of the MOE, with other relevant government departments, the private sector, and NGOs.

The following thematic working groups will be formed to assist with the preparation of various components of the national communication: (i) National Greenhouse Inventory, (ii) Vulnerability and Adaptation and Mitigation; (iii) Technology transfer, Research and systematic observation; (iv) Education, training, public awareness and information and networking and Capacity-building; and (v) Compilation of national communication and integration. Each thematic working group will comprise of a number of experts both from public and private sectors, communities, and NGOs, as appropriate.

The NCCS and NSC will provide technical and policy oversight to the project, facilitated by the NPC-National Project Coordinator. The NPC will report to the Secretary of the MOE/NPD and be responsible for the operational programme of project implementation and will be located in Environmental Economics and Global Affairs Division of the MOE (National focal point of UNFCCC).

As in the case of the INC, the SNC preparation project will be executed by the MOE, with the support of various government ministries: Agriculture, Plantation and Industries, Power and Energy, Transport, Disaster Management, Petroleum and Petroleum Resources Development, Science and Technology, Health and Nutrition, Industrial Development, Irrigation and government departments of Coast Conservation, Wild Life Conservation, Agriculture, National Planning, Motor Traffic, Meteorology, Survey, Census and Statistic, Forest, Animal Production and Health, and other institutions: Central Environmental authority, Urban Development Authority, National Physical Planning Department, Energy conservation fund, Ceylon Electricity Board, Sri Lanka Railway, Water Resources Board, Universities, Rubber Research Institute, Coconut Research Institute, Tea Research Institute, Industrial Technology Institute, National Building Research Organization, Sri Lanka Land Reclamation and Development Corporation, Private Sector, Chamber of Commerce and NGOs.

Additional assistance will be taken from regional and international organizations based in Sri Lanka Where needed.

A National Project Manager will be appointed to coordinate the day-to-day execution of activities to be carried out by thematic working groups, which will include experts both from public and private sectors, education institutions, local communities and NGOs.

**part iv: Monitoring and Evaluation**

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UNDP guidelines and procedures on reporting, monitoring and evaluation will be followed throughout the project cycle. In addition, the project’s National Coordinator will provide regular progress reports to UNDP and copy to all members of NSC and other relevant institutions who will be hosting and executing the project. These reports will enable the NSC and UNDP to evaluate the progress of the project on a regular basis and identify difficulties and shortcomings with a view of overcoming them during the period of project implementation. These reports will be reviewed by UNDP for their quality and standard, comprehensiveness, and conformity to the proposed terms of reference and dates of completion. In addition, a mid-term review between UNDP and the MOE may be conducted. An independent evaluation by a qualified consultant will be conducted at the end of the project.

The NSC will meet on a bi-monthly basis to review project implementation and provide scientific, technical, policy and strategic guidance. The minutes of these meetings will be shared with all participating institutions.

An independent financial audit will be conducted according to the UNDP rules and procedures. During the implementation of the project, regular financial statements will be prepared and provided to UNDP for accessing funds for project activities.

A detailed schedule of project review meetings will be developed by the project management, in consultation with project implementation partners and stakeholder representatives and incorporated in the Project Inception Report. Such a schedule will include: (i) tentative time frames for Steering Committee Meetings, (or relevant advisory and/or coordination mechanisms) and (ii) project related Monitoring and Evaluation activities.

Day-to-day monitoring and implementation progress will be the responsibility of the NPM and should report to the executing agency in a monthly basis through the NPC. The implementation of activities should be based on the project’s Annual Work Plan and its indicators. The PMT will inform the UNDP of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely and remedial fashion.

Periodic monitoring of implementation progress will be undertaken by the UNDP through quarterly meetings with the project proponent, or more frequently as deemed necessary. This will allow parties to take stock and to troubleshoot any problems pertaining to the project in a timely fashion to ensure smooth implementation of project activities.

Project Monitoring Reporting

The National Project Manager in conjunction with the UNDP-GEF extended team will be responsible for the preparation and submission of the following reports that form part of the monitoring process.

(a) Inception Report (IR)

A Project Inception Report will be prepared immediately following the Inception Workshop. It will include a detailed First Year Work Plan divided in quarterly timeframes detailing the activities and progress indicators that will guide implementation during the first year of the project. The Report will also include the detailed project budget for the first full year of implementation, prepared on the basis of the Annual Work Plan, and including any monitoring and evaluation requirements to effectively measure project performance during the targeted 12 months time-frame.

The Inception Report will include a more detailed narrative on the institutional roles, responsibilities, coordinating actions and feedback mechanisms of project related partners. In addition, a section will be included on progress to date on project establishment and start-up activities and an update of any changed external conditions that may effect project implementation.

When finalized the report will be circulated to project counterparts who will be given a period of one calendar month in which to respond with comments or queries. Prior to this circulation of the IR, the UNDP Country Office and UNDP-GEF’s Regional Coordinating Unit will review the document.

(b) Quarterly Progress Reports and Financial Reports

Short reports outlining main updates in project progress will be provided quarterly based on the quarterly work plan through UNDP Country Office to the UNDP-GEF by the PMT. The PMT will also prepare financial reports at the end of each quarter together with next quarterly work plan and the request for advances.

(b) Technical Reports

Technical Reports are detailed documents covering specific areas of analysis or scientific specializations within the overall project. As part of the Inception Report, the project management team will prepare a draft Reports List, detailing the technical reports that are expected to be prepared on key areas of activity during the course of the Project, and tentative due dates. Where necessary this Reports List will be revised and updated, and included in subsequent Annual Progress Reports.. Technical Reports may also be prepared by external consultants and should be comprehensive, specialized analyses of clearly defined areas of research within the framework of the project. These technical reports will represent, as appropriate, the project’s substantive contribution to specific areas, and will be used in efforts to disseminate relevant information and best practices at local, national and international levels. The PMT will submit a copy of each of the technical report prepared to the UNDP country office before the end of the preparation year.

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The PMT will also prepare progress report annually and will be submitted to UNDP Country Office.

Audit Clause

The Government of Sri Lanka will provide the UNDP-Sri Lanka Resident Representative with certified periodic financial statements, and with an annual audit of the financial statements relating to the status of UNDP (including GEF) funds according to the established procedures set out in the Programming and Finance manuals. The Audit will be conducted by the legally recognized auditor of the Government, or by a commercial auditor engaged by the Government.

**Part IV: Legal Context**

This document shall be the instrument referred to as such in Article 1 of the Standard Basic Assistance Agreement between the Government of Sri Lanka and the United Nations Development Programme, signed on 20 March 1991.  The host country-implementing agency shall, for the purpose of the Standard Basic Assistance Agreement, refer to the government co-operating agency described in the Agreement. The following types of revisions may be made to this document with the signature of the UNDP Resident Representative only:

* Revisions in, or additions to, any of the annexes of the document.
* Revisions which do not involve significant changes in the immediate objectives, outputs, or activities of the Programme, but caused by the rearrangement of inputs already agreed to, or by cost increases due to inflation, and
* Mandatory annual revisions, which re-phase the delivery of agreed inputs or increased expert or costs due to inflation or take into account agency expenditure flexibility.

UNDP acts in this Project as Implementing Agency of the Global Environment Facility (GEF), and all rights and privileges pertaining to UNDP as per the terms of the SBAA shall be extended mutatis mutandis to GEF.

**Section II**

1. **Results and Resources Framework**

|  |  |  |  |
| --- | --- | --- | --- |
| **Intended Outcome:** Governance reform aimed towards promoting people-centered development through encouraging government to implement and monitor implementation of agreements signed at international conventions and UN conferences (UNDAF)/National capacity strengthened and awareness created to effectively manage adverse effects of global environmental trends and sustainable development practices in place, including the implementation and integration of global environmental conventions into governance and production systems (MYFF) | | | |
| **Outcome indicator:** Second National Communication for UNFCCC prepared and submitted to understand and address climate change issues | | | |
| **MYFF Service Line (If applicable):**  Goal 3: Energy and Environment for Sustainable Development; SL 3.1: Frameworks and Strategies for Sustainable Development | | | |
| **Partnership Strategy:** UNDP collaborates with key national agencies, NGOs, academics and the private sector to develop core capacities of national implementers and their partners, as well as to set up the necessary mechanisms to improve environmental services and promote sustainable development at all levels. | | | |
| **Project Number and Title:** Enabling Activities for the Preparation of Sri Lanka’s Second National Communication to the UNFCCC | | | |
| **Intended\Outputs** | **Output Targets** | **Indicative Activities** | **Inputs** |
| 1. SNC Project Management Plan and National Endorsement | *Months 1-6; Year 1:*   * + Lists of specific key partners and stakeholders   + Inception workshop   + SNC Management Plan | 1. Identification of the NPC by the MOE with UNDP participation 2. Recruitment of the NPM by the MOE with UNDP participation 3. Establishment of the PMT at MOE 4. Recruitment of the support staff to handle the routine administrative and financial activities of the project. 5. Identification of NSC members and establishment of the NSC. 6. Identification Key partners. 7. Preparation of the SNC Project Management Plan 8. Carry out the Inception workshop | Funding from GEF as per attached budget, staff and office counterpart from government agencies  US$ 55,000 |
| 1. Documentation of National Circumstances in reference to climate change | *Year 1-2:*   * + Analysis of national development priorities and policies that are relevant to addressing climate change in Sri Lanka | * 1. Identification of a suitable local consultants to carry out the analysis   2. Recruitment of the consultants   3. Analyses of development priorities, objectives and national circumstances to address climate change   4. Examine possibilities for incorporation of climate change concerns into the national and/or regional development objectives, priorities, circumstances and programmes   5. Update information on the features of national geography, climate, natural resources and socio-economic conditions   6. Establishment of an institutional framework for the preparation of SNC   7. Compilation of information from existing sources on national circumstances | Funding from GEF as per attached budget, technical assistance  US$ 10,000 |
| 1. National Greenhouse Gas Inventory | *Year 134:*   * Document on Key source categories of emissions * National Greenhouse Gas Inventory | * 1. Formation of the thematic working group on GHG inventory   2. Revise the input data, taken into consideration data gaps and areas needing improvement identified in the stocktaking exercise   3. Conduct training workshop on the use of IPCC technical guidelines   4. Identify key-source categories of emissions   5. Gather available data from national sources to fill inventory data gaps and identify and develop methods for overcoming inventory data gaps if there is no available data   6. Undertake national GHG inventories   7. Describe procedures and arrangements undertaken to collect and archive data for the preparation of national GHG inventories, and efforts to make this a continuous process, including information on the role of the institutions involved   8. Organize workshop for presentation and discussion on the results obtained from the GHG inventory   9. Prepare final GHG Inventory following the UNFCCC guidelines | Funding from GEF as per attached budget, technical assistance  US$ 58,000 |
| 1. Programs with measures to facilitate adequate adaptation to climate change | *Year 1-3:*   * Methodologies and tools for vulnerability and adaptation assessments (risk-based) * Data management system * Adaptation measures * Data on climate change adaptation | * 1. Formation of the thematic working group on vulnerability and adaptation (V&A) assessment   2. Organize a training workshop for the TWG on V&A on the use of available methods and tools for conducting V&A assessment   3. Review the scenarios for climate change, applying the most recent updated data and models   4. Analyze the climate changes for the period 1961-2000 to identify trends for temperature, precipitation, wind, cloudiness and sunshine hours   5. Analyze the time series data for climate extremes   6. Analyze anecdotal evidence of impacts of climate change and sea-level rise in communities/villages building   7. Undertake impact assessment in key vulnerable sectors s   8. Describe links between climate, and socio-economic baseline conditions of the country in the most vulnerable sectors   9. Identify high priority adaptation strategies and measures   10. Carry out cost-benefit analysis of proposed adaptation measures   11. Synthesize information and prepare a national adaptation plan of action building programmes   12. Organize workshop to discuss the results from V&A   13. Final Vulnerability assessment and national adaptation plan following the UNFCCC guidelines | Funding from GEF as per attached budget, technical assistance  US$ 120,000 |
| 1. Programs with measures to facilitate adequate mitigation of climate change | *Year 1-3:*   * Data on mitigation * Mitigation measures | 1. Formation of thematic working group on Mitigation 2. Review previous work on mitigation and renewable energy development building on projects results 3. Conduct training workshop for the TWG on the use of methods and tools for mitigation analyses and assessment 4. Based on the results from the GHG Inventory, develop a baseline scenario for mitigation and adaptation 5. Develop a series of mitigation scenarios to abate the increase of the GHG emissions in terms of sustainable development objectives 6. Prepare a draft mitigation and adaptation plan | Funding from GEF as per attached budget, technical assistance  US$ 27,000 |
| 1. Knowledge products on climate change | *Year 1-3:*   * Research papers and technologies to respond climate change | * 1. Formation of thematic working group on technology transfer and research and systematic observation   2. Conduct training workshop for TWG on technology transfer and research and systematic observation on how to conduct TNA   3. Assess the technology needs for adaptation and mitigation   4. Prepare a synthesis report on the TNA   5. Review needs and priorities for research and systematic observation (RSO)   6. Prepare a report on RSO using the UNFCCC guidelines   7. Compile and analyze information on activities relating to the implementation of Article 6 of the Convention and the New Delhi work program   8. Compile and analyze information on capacity-building activities in accordance with the UNFCCC’s capacity-building framework.   9. Prepare an analysis of financial, technical and capacity needs while undertaking the activities, measures and programmes to implement the Convention and improve the national communication on the continuous basis   10. Compile and analyze information on financial and technical resources or other in-kind contributions made available by Sri Lanka for the preparation of SNC   11. Compile and analyze information on financial resources and technical support provided by GEF, Annex II Parties, bilateral/multilateral institutions, for activities related to climate change   12. Prepare project proposals on adaptation and mitigation for funding   13. Prepare proposals for pilot demonstration projects on adaptation focusing on barriers and ways to overcome these barriers   14. Compile and assess information on technology and local know-how development needs | Funding from GEF as per attached budget, technical assistance  US$ 50,000 |
| 1. Second National Communication | *Year 3:*   * + - Second National Communication | * + - 1. Compile a draft national communication and circulate it for comments       2. Hold a national workshop to consider and endorse the draft SNC       3. Translation of the executive summary to local languages       4. Finalize and submit SNC | Funding from GEF as per attached budget, technical assistance  US$ 10,000 |
| 1. Technical assistance | *Year 1-3:*   * + - Second National Communication | 1. Identification of suitable regional/global experts 2. Recruitment of consultants | Funding from GEF as per attached budget, technical assistance  US$ 65,000 |
| 1. Monitoring and Evaluation | *Year 1-3:*   * + Quarterly monitoring reports   + Quarterly financial reports   + Annual Progress Reports   + Technical reports   + Minutes of NSC and management team meetings   + Internal/external evaluation report | * + 1. Preparation of quarterly monitoring reports by PMT     2. Preparation of quarterly financial reports by PMT     3. Preparation of APRs by PMT     4. Preparation of technical reports by experts     5. Organize NSC meetings (bi-monthly)     6. Organize Management meetings     7. Preparation of evaluation report | Funding from GEF as per attached budget, management support  US$ 10,000 |

1. **Budget and Work Plan**

**Award ID:**

**Award Title: SNC Climate Change Enabling Activity**

**Project ID:**

**Project output Title: SNC Climate Change Enabling Activity**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **GEF Outcomes/ Atlas Activity** | **RESPONSIBLE PARTY** | **Budget** | | | | | | |
| **Source of Funds** | **Atlas Code** | **Budget Description** | **2007 (US$)** | **2008 (US$)** | **2009 (US$)** | **Total Budget (US$)** |
| Project management |  | GEF Trustee | 71400 | Contractual services-individuals | 15,000 | 20,000 | 20,000 | **55,000** |
| Documentation of National Circumstances in reference to climate change | MOE | GEF Trustee | 71300 | Local Consultants | 5,000 | 5,000 | - | **10,000** |
| National Greenhouse Gas Inventory | MOE | GEF Trustee | 71300 | Local consultants | 15,000 | 20,000 | 20,000 | **58,000** |
| 74200 | Printing and publication | - | - | 3,000 |
| Programs with measures to facilitate adequate adaptation to climate change | MOE | GEF Trustee | 71300 | Local consultants | 20,000 | 30,000 | 30,000 | **120,000** |
| 72100 | Contractual services | 5,000 | 10,000 | 10,000 |
| 71600 | Travel | 5,000 | 5,000 | - |
| 72200 | Equipment | 5,000 | - | - |
| Programs with measures to facilitate adequate mitigation of climate change | MOE | GEF Trustee | 71300 | Local consultants |  | 7,000 | 7,000 | **27,000** |
| 72100 | Contractual services |  | 5,000 | 5,000 |
| 72200 | Equipment |  | 3,000 |  |
| Knowledge products on climate change | MOE | GEF Trustee | 71300 | Local consultants | 11,500 | 20,000 | 13,500 | **40,000** |
| 74500 | Miscellaneous |  | 2,500 | 2,500 |
| Second National Communication | MOE | GEF Trustee | 71300 | Local consultants |  |  | 7,000 | **10,000** |
| 74200 | Printing and publication |  |  | 3,000 |
| Technical Assistance | MOE / UNDP | GEF Trustee | 71200 | International consultants | 9,000 | 18,000 | 12,000 | **65,000** |
| 71600 | Travel | 6,000 | 12,000 | 8,000 |  |
| Monitoring and Evaluation | MOE / UNDP | GEF Trustee | 74100 | Management and reporting | 2,000 | 3,000 | 5,000 | **10,000** |
| **GRAND TOTAL** |  |  |  |  | 98,500 | 160,500 | 146,000 | **405,000** |

**APPENDIX A: SUMMARY REPORT OF THE SELF-ASSESSMENT EXERCISE**

**A. Description of the Process and Approach Adopted for the Stocktaking Exercise**

The objective of the stocktaking exercise is to build upon existing activities, institutions and knowledge relating to the preparation of the national communication to the United National Framework Convention on Climate Change (UNFCCC) and to identify gaps and additional stakeholders who could contribute to the national communication process.

A team of consultants and staff members of the Environmental Economics and Global Affairs Division of the Ministry of Environment, Government of Sri Lanka and the Environment & Management Lanka (Pvt) Ltd. consultants carried out the stocktaking exercise, which involved several stakeholder consultations. Three approaches were used to solicit and collect information from various ministries, agencies, institutions of government and non-government organizations:

1. Gathering of information (including policy documents) relating to the activities of the INC and other similar activities that were already available to the team members,
2. Meetings and/or consultations with relevant divisional members of the Ministry of Environment.
3. Meetings and/or consultations with relevant divisional members of the various ministries, agencies institutions of government and non-government organizations,
4. A national consultation workshop on Second National Communication (SNC).

The first two methods (a and b) helped define and identify the focus of the consultations and the relevant ministries and institutions to be consulted. The consultations were focused on the activities relating to the preparation of the INC of Sri Lanka, institutional arrangements, and opportunities for promoting synergy between the various activities and organizations, priorities for the SNC and information gaps, consistent with the UNDP guidelines on stocktaking and national stakeholder consultations. Specific issues covered in the meetings and consultations included all elements of information relating to the preparation of a second national communication, as contained in decision 17 of the Eighth Conference of the Parties (CoP) to the UNFCCC.

The elements of information covered in the consultations included work carried out under previous climate change enabling activities (e.g., CCEA Phase I and II, NCSA), gaps/uncertainties identified, new areas of work to be undertaken, priorities for SNC, opportunities for promoting synergy/linkages with related programmes like NCSA and lessons learned and or best practices in INC process that would be useful for the preparation of SNC. The discussions with various ministries, agencies, and institutions/organizations were centered on the following components of the national communication:

1. National circumstances (development priorities, geography and climate, information needs for adaptation, and mitigation, capacity needs and constraints, institutional arrangements);
2. Greenhouse gas (GHG) inventories (main sources of emissions and removals, data sources, adequacy and reliability, accessibility, availability and management of data, capacity needs and constraints);
3. Programs containing measures to facilitate adequate adaptation to climate change (vulnerable sectors, gaps and uncertainties, methods and tools, methods for assessing adaptation options, capacity needs and constraints, priorities for vulnerability and adaptation in the SNC);
4. Programs containing measures to mitigate climate change (main sectors, methods and tools, and priorities to be addressed and the linkages to the other development priorities);
5. Other information such as technology needs and other tech transfer-related issues, PICCAP Phase II outcomes, research and systematic observation, education, training and public awareness needs and the linkages to NCSA and other capacity building activities
6. Constraints and gaps, and related financial, technical and capacity needs (areas for improvement and any new information to be included).

**Institutions and individuals involved**

A total of 15 ministries, agencies and institutions of intergovernmental, government and non-government organizations in Sri Lanka involving 40 experts were consulted during the stocktaking and stakeholder consultations. Many of the individuals and/or organizations are also members of, or are represented on, the National Steering Committee on Climate Change (NSC). These consultation meetings concluded with a national workshop which brought together all the individuals and organizations to discuss the main findings of the stocktaking and stakeholder consultation meetings and to consider some of the common elements including gaps, new areas of work and priorities for the second national communication.

**B. Main Outcomes of the Stocktaking, Including Priorities Identified**

The work carried out under the previous enabling activities such as the Climate Change Enabling Activity Phase I and II Programme (CCEA Phase I and II), and the NCSA indicate that a great deal of information is now available for the preparation of the SNC.

NATIONAL CIRCUMSTANCES

While the physical geography of Sri Lanka remains the same as was previously reported in its INC, some of its physical and socio-economic characteristics are being influenced by the interactions of the ocean-atmosphere system and the development priorities it wants to pursue. The way in which Sri Lanka will implement the UNFCCC will depend partly on how well it can respond to the vagaries of climate change, climate variability and sea-level rise and the need for economic development.

Sri Lanka is a small island developing State, prone to tropical cyclones, drought, floods, and El Nino- phenomenon. Sri Lanka’s population, despite the high natural growth rate, has shown a low net increase, which is a direct consequence of the strong emigration process that Sri Lanka has experienced in the last three decades. The 2001 population census in Sri Lanka showed an increase in population about 18, 797,000. Its urban population is growing and it poses a serious threat to the biophysical, economic, and social environments. Rural-urban migration is stimulated by seemingly greater opportunities and access to better education and health services, which is putting a lot of pressure on the limited natural resources as well as the social and economic fabric within the communities.

Sri Lanka’s economy depends largely on its natural resources, foreign aid and remittances, although tourism and small manufacturing industries, agricultural products (tea, rubber, coconut) are gaining importance. Sri Lankan exports are mainly from agriculture, which is highly vulnerable to external factors such as price instabilities, high transport costs of overseas markets, and climate extremes. Subsistence economy is still considered a norm for the majority of the population.

Sri Lanka’s climate is typical of small tropical islands, geographically isolated from big land masses, usually with high rainfall and humidity and a distinctive wet and dry seasons. Temperatures are mild and generally uniform throughout the year and range between 25-33 0C and central highlands have lower temperature.

Since the completion of its INC, Sri Lanka has embarked on an ambitious economic growth policy which is focused on improving its economic performance, education, private sector development and creation of employment, agricultural opportunities, social structure, infrastructure and services, tourism and public sector efficiency. It has also produced numerous documents as part of its contribution to the 2002 World Summit on Sustainable Development and the Johannesburg Plan of Implementation (JPoI). Sri Lanka has prepared other documents pertaining to its obligations under various multilateral environmental agreements (UNCCD, CBD, Montreal Protocol, Basel, Ramsar, etc).

Some of the pertinent information from these reports and documents will be useful for incorporation in the national circumstances section of the SNC. This will include analyses of national development priorities and policies that are relevant to addressing climate change in Sri Lanka as well as incorporating climate change concerns in sectors such as energy, transport, industry, tourism, agriculture, fisheries, health and waste.

NATIONAL GREENHOUSE GAS INVENTORY

Non annex I parties were expected to estimate national GHG inventories for the year 1994 for the Initial National Communication or alternatively was to provide data for the year 1990. In the Initial National Communication, Sri Lanka submitted the inventory for 1994, calculated mostly based on the IPCC Guidelines.

Sri Lanka’s first GHG inventory as presented in its INC highlighted some of the most pertinent problems and constraints in the preparation of its SNC. These problems and constraints are:

1. The inability to recruit experts on a full time basis. The needed expertise was available only with the academic and technical institutions. Being full time staff members of these institutions, they were able to contribute only during their spare time.

2. The limited availability of specific studies and relevant research. In the preparation of the GHG Inventory for example, reliable data were not available for all aspects. There were also gaps in activity data. In addition, there were no country specific emission factors to be used and default values were taken from IPCC guidelines. These however may not represent the real values for the country. Likewise, very few studies had been undertaken on Vulnerability and adaptation Assessments.

3. The inadequate time and funds available for undertaking specific studies and research on impacts of climate change. These could not be done because the experts had previous commitments. Furthermore, there was no mechanism by which their services could be obtained on a full time basis to undertake the necessary research. However, every effort has made to collect available information both published and unpublished.

Given the problems and constraints outlined above, it may be necessary to focus emissions estimates on those categories of emissions for which data are available and accessible and whose emissions provide a significant share to the total GHG emissions in Sri Lanka. In this regard, a key source analysis will be undertaken to determine key source categories of emissions for the inventory work. Additionally, capacity building and training on the use and application of the methodologies and tools for conducting a national GHG inventory will have to be conducted in order to train sufficient numbers of people to undertake the inventory work.

TECHNOLOGICAL NEEDS

*Coastal Zone*

* Preparation of a coastal data base and examining the influence of increased salt water intrusion and vulnerability of coastal areas through case studies.

*Energy Sector*

* Exploring natural gas as an energy option, harnessing the total identified hydro power potential and introduction of DSM measures.

*Industry and Transport*

* Development of emission factors for vehicles; control vehicular and industrial emissions; enforcement of GHG related emission standards in the industrial sector; adoption of energy efficient building codes and proper solid waste management techniques; improvement of traffic management systems and integration of bus-rail operations through network planning.

*Agriculture Sector*

* Identification of agro-ecological zones sensitive to climate change impacts; promotion of rainfed farming and; development of integrated farming systems in relation to climate change.

*Forestry Sector*

* Preparation of a data base to understand linkages between climate change and forestry- ecosystems and examining the potential for carbon sequestration.

*Water Resource Sector*

* Assessment of the (a) extent of land that will be affected by Sea Level rise and (b) the impacts of climate change on river flow regimes.

*Health Sector*

* Establishment of work environment standards for local conditions and the undertaking of studies on diseases relevant to climate change.

*Human Settlement*

* Mapping of flood plains and flood hazards for selected major rivers; development of strong wind and cyclone resistant building standards and guidelines and identification and prioritization of vulnerable areas for human settlements.

VULNERABILITY AND ADAPTATION ASSESSMENT

Previous work on vulnerability and adaptation assessment provides pertinent information for the preparation of SNC, including, inter alia:

1. About 70% of Sri Lanka’s population and infrastructure are located in the coastal areas/zones, rendering them highly vulnerable to climate change and sea-level rise. Their vulnerability is exacerbated by their exposure to extreme events such as Tsunami (26 December 2004)
2. Sri Lanka is also highly susceptible to extreme climate events, such as, prolonged droughts, high intensity rain falls.
3. Most vulnerable sectors included coastal zone, water resources, agriculture and bio-diversity, which are considered vital to the welfare and livelihoods of communities.
4. A “no-regrets” approach to adaptation (including least-cost options) to climate change is seen as a necessary first step developing a national policy framework to raise awareness about the need for adaptation and mitigation actions.

SYNERGY BETWEEN ENABLING ACTIVITIES AND OTHER PROJECTS

Adaptation and capacity building are considered as being key cross cutting issues that would promote synergy between and among the UNFCCC and the UN Convention on Biological Diversity (UNCBD) and the UN Convention on Combating Desertification (UNCCD). Adaptation to climate change has very close linkages with activities relating to the preparation of the National Biodiversity Strategy (NBSAP) under UNCBD and National Action Plans under the UNCCD. Activities relating to the preparation of vulnerability and adaptation assessments for national communication will therefore have closer links on adaptation and capacity building issues with other reporting requirements.

NEW AREAS OF WORK FOR SECOND NATIONAL COMMUNICATION

A number of new areas have been identified which will form part of the programme for the preparation of the SNC. The new areas of work include:

*Vulnerability*

1. Vulnerability assessments in the following human systems or sectors identified CCEA ( Phase II) Project process: vulnerable communities, infrastructure development, tourism, fisheries, energy, forests and, trade, health and industry,
2. Assessment of sea level rise.
3. Application of Geographic Information System (GIS) for the impact assessments.
4. Estimation of emissions from vehicles and
5. Estimation of emissions from the soils (Andosols) which have a high carbon content given that clearing of forests for cultivation is likely to increase in the future,
6. Conduct a key source analysis in order to determine the sectors with significant emissions where resources can be targeted,

*Mitigation*

1. Development of biological mitigation options such as conservation of existing carbon pools, identification of forest species which are most suitable for carbon sequestration and mitigation of urban heat island effect.
2. Development of appropriate mitigation options and development of sustainable transportation system.
3. Reduction of Methane Emissions
4. Establishment of fuel switching technologies for the reduction of GHG emissions.

*Adaptation Measures*

1. Adaptation to scarcity of water resources
2. Adaptation measures for extreme weather impacts like resettlement for vulnerable communities.
3. Identification of stress tolerant crop species and rearranged the cropping pattern to suit the different environments.
4. Training in the use and application of various models in vulnerability and adaptation assessments, the IPCC Good Practice Guidance on National Greenhouse Gas Inventories and Uncertainty Management, IPCC Good Practice Guidance on Land Use, Land Use Change and Forestry and related applications of geographic information systems and remote sensing techniques.
5. Strengthen existing and, where appropriate, establish data management systems to ensure preparation of good quality inventories and to enable vulnerability and adaptation assessments over the long term.
6. Identify technology transfer issues relating to energy efficiency and energy conservation as well as opportunities for renewable energy technologies.
7. Education and awareness

Opportunities already exist for promoting and strengthening synergy with related programmes such as NCSA, BACP and CCEA Phase II in the process of the preparation of SNC. The SNC will build on other related projects (e.g., NCSA, CCEA PII) and other national activities carried out under other relevant international conventions (e.g., UNCBD and UNCCD). This is especially important for vulnerability and adaptation activities. Adaptation issues transcend many of the activities of the three Conventions thus increasing the potential for cooperation and collaboration among the various ministries, agencies, institutions and individuals who are already involved in their implementation. Given that many activities of the SNC and other related programmes have overlaps between the various sectors, there are bound to be many cross-sectoral synergies.

CAPACITY BUILDING

The NCSA project was developed to identify capacity needs for implementing MEAs. Country level priorities and needs for capacity building to address global environmental issues, in particular biological diversity, climate change, and land degradation and the cross cutting needs and synergies in fulfilling national obligations to the three Rio Conventions were addressed. Project process is an initiative by UNDP and GEF and was developed for Sri Lanka by the Ministry of Environment which importantly, functions as the national focal point for UNCBD, UNFCCC, and UNCCD. Project has been completed and the final capacity assessment and action plan has been prepared.

PRIORITIES FOR SNC IDENTIFIED UNDER VARIOUS COMPONENTS

NATIONAL CIRCUMSTANCES

Information on national circumstances concerning the physical (geography, topography and climate) and socio-economic (economy, education, population, health, livelihoods) characteristics of the country and how these might affect the way in which Sri Lanka deals with climate change and sustainable development issues in the long term is currently being developed. The preparation of the second national communication will strengthen the linkages and facilitate better understanding of the nexus between climate change and development. This will involve analyses of policies and plans that are currently being pursued by Sri Lanka and their relevance in dealing with climate change concerns.

Coordination, cooperation and synergy between the key stakeholders in developing actions and strategies to cope with the impacts of climate change are crucial for the sustainability of project implementation. It is envisaged that the preparation of the various components of the SNC will help strengthen and where appropriate, build synergies among and between activities relating to the reporting requirements of other MEAs. The NCCCC epitomizes a strong institutional arrangement under which many of the activities/tasks will be carried out in the preparation of second national communication.

NATIONAL GREENHOUSE GAS INVENTORY

As previously mentioned, many of the problems relating to the preparation of national greenhouse gas inventory are lack of quality data and its associated problems of access, availability, management and retrieval systems; lack of expertise and capabilities to undertake inventory work and the lack technical, financial, human and institutional capacities to carry out inventory work on a sustainable (continuous) basis. Therefore good capacity building and training of personnel and institutions is necessarily critical in order to ensure high quality inventories.

Training and capacity building is required in data collection, analysis, archiving and management, and the use and applications of geographic information systems and remote sensing techniques as they relate to estimations of emissions and removals from land use change and forestry sector. Identification of key source categories of emissions is considered important in determining resource allocations in GHG inventories and therefore training is needed in this area as well as on the use Revised IPCC guidelines on national greenhouse gas inventories, the IPCC good practice guidance on the National GHG inventories and Uncertainty Management and the IPCC Good Practice Guidance on Land use, land-use change and forestry.

STEPS TAKEN OR ENVISAGED TO IMPLEMENT THE CONVENTION

Measures to facilitate adequate adaptation

Much of early work has focused on vulnerability and adaptation assessments, which identified a number of critical actions, and measures that could contribute to enhancing adaptive capacity and towards achieving adequate adaptation to climate change. The preparation of the INC, the activities of the Phase II enabling activities (top-up) NCSA have highlighted many of the needs and concerns relating to vulnerability and adaptation, including the need for:

1. Enhancing networking and information sharing/exchange amongst all stakeholders i.e., NGO’s, private sector, Government, communities and the general public to develop appropriate measures to address climate change, climate variability and sea-level rise.
2. Strengthening the institutional arrangements and enhance capacity to support efforts in addressing issues and concerns relating to climate change, climate variability and sea-level rise. Recommended areas including information dissemination through communication networks and public outreach, training, strategic planning and participatory consultation workshops, the creation of expert panels to provide technical information as well as logistical support, equipment and materials.
3. Reviewing of existing laws and legislation to assess their appropriateness in accommodating vulnerability and adaptation to climate change and climate variability for key sectors and communities.
4. Conserving and protecting of breeding grounds and habitats and species that are considered vulnerable to impacts of natural disaster and human induced activities.
5. Conducting studies on the impacts of El Nino on the fisheries and tourism sectors.
6. Monitoring the use of chemicals and fertilizers and its impact on fisheries, and their habitats.
7. Improving water management efforts with better supply-side and demand-side management. This should also include national campaigns and education on water quality issues and its associated risks posed by climate extremes.
8. Establishing a Climate Change and Climate Variability Database to collect data on sectors and relevant indicators to monitor and evaluate climate Change and Climate Variability and their impacts.
9. Carrying out studies on the vulnerability of climate change on Sri Lanka’s trade and industry sector and its overall impact on international trade.
10. Promoting integrated planning or zoning to decentralize utilities and operations from being concentrated in Apia and exposed to coastal flooding and erosion and sea level rise as well as the promotion of Integrated Coastal Zone Management in managing its coastal resources.
11. Improving climate monitoring, research and systematic observation, develop and manage databases necessary for vulnerability and adaptation assessment and to enhance the capabilities and capacities of experts and institutions in the use and applications of analytical, integrated and process-based methods and tools for assessment work.

CCEA Phase II Project provides a good basis for developing a policy framework for adaptation that is country driven, economically viable and socio-culturally sensitive to the needs and concerns at the various levels of integration of society. The preparation of vulnerability and adaptation assessment will build on these frameworks and plans in enhancing adaptive capacity and improving the coping strategies.

A lot of information has been generated in the area of vulnerability and adaptation assessments during the preparation of the INC and in the CCEA P II formulation. These studies have been predicted that agriculture, water resources and health sectors are the most vulnerable sectors to climate change in Sri Lanka. However, significant gaps still exist in the areas of data collection, monitoring, expertise, skills and know-how required to conduct vulnerability and adaptation assessments on a continuous basis. Therefore, there is an urgent need for training and capacity building in the following areas:

1. Development and use of appropriate methodologies and tools for conducting vulnerability and adaptation assessments at the community, national and sectoral levels. The training would include downscaling of global circulation models to reflect projected changes in specific sectors and or communities within timeframes that are relevant and appropriate for decision-making.
2. Strengthening of existing and where appropriate development of data management systems to ensure that a vulnerability and adaptation assessment is carried out on continuous basis.
3. Evaluation (including cost-benefit analysis), prioritization and costing of adaptation options, strategies and measures.
4. Incorporation of vulnerability and adaptation assessment work into development planning. This would include risk-based assessment methods.
5. Research, systematic observation and data collection, analysis and dissemination.
6. Enhancement of the capacity of communities to identify capacity building and training needs as they relate to vulnerability and adaptation assessments. This could build on the community vulnerability and adaptation assessments currently being carried out in several communities.

Measures to mitigate climate change

To address climate change impacts INC of Sri Lanka has considered some mitigation and adaptation measures considering the vulnerable sectors such as Energy, Industry, Transport, Agriculture, and Forestry. Proposed mitigation measures are given below

*Energy*

As INC mentioned also mentions that the main energy source for Sri Lanka is biomass. The other two significant sources are hydropower and fossil fuel. INC also suggests that hydropower and biomass based energy supply will remain virtually fixed during this period as the development efforts pertaining to these primary energy supply will remain virtually fixed during this period as the development efforts pertaining to these primary energy sources are still limited. Petroleum oil and coal consumption on the other hand have gradually increased necessitating a greater emphasis on mitigation of environmental impacts. To verify the impacts and the extent of impacts study of vulnerability of energy sector was proposed to study under the following subcategories.

a) Fuel switching

Under fuel switching it was proposed to replace existing use of fossil fuel with low GHG emitting fuels in electricity generation and in the industrial, commercial and household sectors.

In order to achieve the proposals Government Energy Policy has been set a target of replacing 10% of fossil fuel that supplies grid electricity with renewable energy by 2020.

Target of industrial heat generating fuel which shall be switch to bio fuel has been set at 75%.

b) Use of energy efficient technologies

Energy efficient technologies have been created (Energy Conservation Fund ECF). To further assist the efforts of ECF, government has decided to convert it to an Authority with the intention of giving more mandate and function to implement the plans.

In order to save the utilization of electricity for lighting CFL bulbs are being introduced and there are incentives given by Ceylon Electricity Board (CEB) for using CFL bulbs.

c) Loss Reduction

INC recommends to adopt loss reduction measures at generation, transmission and distribution levels that would reduce GHG emissions per unit of energy consumed.

CEB has planned to reduce the losses from the current levels (loss 18% to 14%)

1. Renewable energy systems

To reduce use of fossil fuel INC suggested to promote renewable energy technologies in place of fossil fuel fired plants wherever they are technologically and economically feasible. Mitigation measure biomass fired thermal power plants are being introduced on a pilot scale. *Gliricidia* sp. has been declared as a national crop since it is one of the biomass generation sources.

e) Energy plantations

In energy plantations INC suggests to encourage commercial fuel wood plantations. as mentioned above declaring *Gliricidia* as a national crop is a favorable step taken to help mitigation. A policy has been formulated to adopt on biomass as a source of fuel for electricity.

f) Pricing modifications

INC under the pricing modifications suggest incorporating environmental and social impact mitigation costs in pricing of electricity generated with different technologies. Petrolium products are to be priced at their true costs considering environmental and social costs/benefits. Government has initiated a payment scheme through the ECF to pay higher tariff to biomass based energy an extra fee to encourage it.

g) Energy conservation

One of the mitigatory proposals INC has is to encourage energy conservation through consumer education in industrial, commercial and domestic sectors. As a part of this effort and other issues related to energy production and consumption a separate body called Energy Conservation Fund (ECF) has been established. Understanding the independence needed for efficient implementation of their action plan Government has decided to enhance power and mandate for ECF and covert it to an authority. Public awareness are being carried out through electronic media and public sectors. A recently announced Government loan scheme e-frauds aimed at encouraging industries to adopt clean technologies for pollution control has included energy conservation technologies and practices also as entitled for such assistance.

h) Other

INC suggests that research should look in to feasible technology and propagate such technologies as biogas technology that is being developed by the National Engineering Research and Development Centre (NERD) and Energy forum. This technology was in use for many years in Sri Lanka. Small plants are in use in house hold levels and in farms. As a measure of quality control, there are standards being set by SLS and Practical Action (formally known as ITDG).

*Industrial sector*

As a major consumer of energy the industrial sector its mitigation measures are very significant in addressing climate change issues. The steps to be taken in mitigation climate change by the industrial sector have been discussed and measures are recommended in INC under four given sub areas.

a). Industrial policy

INC suggests whenever possible to encourage “soft industries “ with relatively low specific energy consumption. Also locate new industries in industrial estates where feasible.

Ministry of Industrial Development in 2000 developed a Master Plan for Industrialization with the funds and assistance through JICA and UNIDO. In this master plan priority areas such as Electronics which are less polluting and low energy use are specifically provided. Recommendations were made to locate specific industries in different estates and are now in implementation in several industrial zones.

b) Emissions

In INC suggestions have been made to develop and emission standards related to GHGs in the Industrial sector.

Emission standards from stationary sources (Power and Industries) have been drafted by CEA As the most recent development, public comments were invited in 2005; the recommended new standards are being in the process of announced through the gazette notification for implementation.

c) Energy efficiency

Mitigation measure that INC has suggested to achieve energy efficiency is to adopt energy efficient building codes and the standardization and labeling of energy consuming end use equipment. Further, if suggested to encourage the manufacturing sector to replace high energy consuming equipment. Further, if suggest to encourage the manufacturing sector to replace high energy consuming equipment with modern energy efficient devices.

Under the alternate methods suitable for a country like Sri Lanka, INC has proposed to encourage the use of railways through financial incentives. Railway fares are already significantly low compared to the other available sources of public transport systems. A regular traveler is given incentives for purchasing monthly or quarterly passes and the government employees are receiving even more incentives for being government employees.

c) Incentives.

INC proposes to offer financial and other incentives aimed greater use of public transport systems. A program governed by AirMac proposed to implement a system called Bus Rapid Transit (BRT) in which there is a dedicated bus lane for mass transport systems. Private bus owners with the Ministry of Transport is planning to implement dedicated bus service for office employees which in tern is expecting to reduce private vehicle usage on daily basis to work.

*Agricultural Sector*

Not only INC but also the global community this is involved in assessing vulnerability has predicted that the sector of Agriculture is particularly is a vulnerable sector. The Mitigation measures suggested by INC have proposed to prioritize the sub sectors below.

a) As one of the long term mitigation methods INC recommends establishing forests or any other vegetation (perennials and grass) on degraded or non- forested lands.

There are programs initiated to introduce forest or crop plants to marginal areas. Plantation sector has launched one such program to plant *Gliricidia* which will help increasing vegetation that can increase that CO2 sequestration as well as to feed in to the renewable fuel sources. Australian National Research Project and upper watershed management projects such as the one implemented in Kotmale are some of such programs achieving a similar purpose.

b) Promoting mixed cropping and agro -forestry instead of monoculture wherever possible was suggested as a mitigation measure. Though this was not implemented as a mitigatory measure for climate change, this has been a practice for many years in the agriculture sector for other benefits can be extended to climate change concerns as well.

c) Since methane is more harmful to the environment special attempts needed to be paid to cut down methane emissions from livestock with mechanisms such as introducing new feed mixtures. Attempts of such studies or even any pilot sale implementation is not been recorded in Sri Lanka.

d) It has been suggested to introduce changes in irrigation and fertilizer use to reduce methane emissions from wet rice cultivation. A few ideas have been tried to avoid unnecessary water logging situations in paddy cultivation. In Rajanganaya, meter-based water distribution has been tried to limit the overuse of water in paddy fields. Trails have been successfully completed and seem to be a feasible option to reduce water use. The implementation is scheduled to commence upon public approval.

Another aspect that has been tried is to re introduce they dry cultivation of paddy like in the ancient times (“ Kekulan” cultivation) where there is only rain water being utilized. Another modified version of this system called “SRI” method has been in the process of introduction. In this irrigation will be done but no water logging in the cultivated land.

e) Minimize nitrous oxide emissions from agriculture with new fertilizers and practices to mitigate climate change have been suggested as a mitigation measure. Though new fertilizer sources are being researched to reduce the pollution contribution to the water table and to reduce the cost for chemical fertilizer, no work has been known related directly to reduce N2O emissions.

f) Mitigating the impact of high CO2 levels in the atmosphere was considered to be possible by altering breeding criteria for crop varieties with high carbon dioxide sequestration.

Research is being done at the faculty of Agriculture, University of Peradeniya to study the behavior of crops in the presence of high concentrations of CO2 in the atmosphere. Selecting rice varieties for high yielding is also under investigation in the Rice Research Institute of Bathalagoda.

*Forestry sector*

Forestry sector is a viral consideration to the climate change mitigation due to its susceptibility to the change as well as a proper management plan can bring about importance in increasing sink of GHG hence reduce release of such emissions to the atmosphere.

a) Afforestation is one of the mitigation measures proposed to improve the beneficial contribution of the forestry sector.

Declaring is *Gliricidia* as a national crop has not only helped in the energy sector to use as a alternate fuel but also have helped in increasing the sink in forestry sector. Other re-plantation efforts are also underway with the direct intention of increasing the CO2 sink or with other benefits to be recovered.

Coconut cultivation board has set aside funds to introduce forest trees in marginal and abandon land, for 10000 ha of such land.

b) It has been suggested to promote cultivating fuel replacing trees such as fast-growing fuel wood in place of coal or oil in order to preserve the carbon reservoir contained in fossil fuels.

The steps taken to promote *Gliricidia* is a favorable step taken to promote cultivating fuel replacing wood.

Jetropa cultivation is a new and up coming idea as a source for bio diesel, which in addition will contribute to increase the forest cover especially in the dry zone where there is minimum forest cover. Several companies have tried Jetropa cultivation for bio diesel, with different level of success. The plantation sector and some NGOs have selected several forest species that are fast growing in high CO2 conditions hence consuming more CO2.

Adaptation Responses

Adaptation measures to face the impacts of climate change also have discussed based on sectors.

The sectors are:

* Coastal zone
* Transport
* Agriculture
* Forestry
* Water resource
* Health
* Human settlement and public utilities

These sectoral topics have been discussed with sub sectors that are priorities of suggesting adaptation measures under the relevant climate change impacts.

As part of its overall development strategy, Sri Lanka is in the process of developing an energy policy that will reflect its future development trajectory. In this regard efforts are being made to promote energy efficiency and conservation as well as issues relating to renewable energy development and technologies.

Training and capacity building is required in the use of appropriate technologies, methodologies and tools for assessment of mitigations options and development of mitigation scenarios particularly in sectors with significant mitigation potential.

OTHER INFORMATION CONSIDERED RELEVANT FOR THE ACHIEVEMENT OF THE OBJECTIVES OF THE CONVENTION

Technology transfer

There is a need to carry out technology needs assessments to identify the barriers and ways to promote renewable energy technologies for renewable energy development. Other issue relating to technology transfer includes, capacity building needs, enabling environment, technology information and mechanisms for the transfer of technology.

Research and systematic observation

Strengthening of the capabilities and expertise of Sri Lanka to contribute to and participate in research and systematic observation, data collection and processing, archiving, analysis and dissemination is crucial in dealing with climate change issues. Therefore, there is a need to enhance the capacity of the institutions and personnel responsible for Sri Lanka’s contribution to and participation in the global climate observing system and other global observation systems.

Capacity-building

Capacity building is regarded as a key issue in all areas of work relating to the preparation of national communication. It is therefore important that sufficient resources are provided for this activity on an on-going basis so that activities/tasks required are implemented in an effective manner. Opportunities already exist for collaboration and synergy between the various Convention processes as they relate to capacity building and technology transfer and therefore it is important to ensure these are further strengthened.

Education, training and public awareness

In respect of education, training and public awareness Sri Lanka is in the process of incorporating climate change issues within the education curriculum. Such efforts are highly commendable and will need resources (human and financial) to continue this work as the priorities and needs for climate change science evolve.

There is a need to continue and improve the efforts in training and awareness-raising on climate change issues at the community and national level. Existing networking and information exchange between the various levels of society should be strengthened and where relevant new networks and information exchange mechanisms should be explored.

Needs and constraints, and related financial, technical and capacity gaps

Great efforts are being made to fulfill and overcome some of the needs and constraints relating to financial, technical and capacity gaps with the assistance of bilateral and multilateral organizations. However, there are many more needs and constraints that are being identified and for which no or very limited resources are available to help address these evolving issues and priorities. Therefore it is recommended that resources (human, technical and financial) made available should be commensurate with the evolving priority needs and concerns.

**C. Main Lessons Learned from the Self-Assessment Exercise**

LINKAGE WITH FIRST ENABLING ACTIVITIES INCLUDING TOP-UP ACTIVITIES

A number of lessons learned from the previous work relating to the preparation of the INC and on-going work currently being carried out under various projects include the following:

1. Strong institutional arrangement is critical in the management of the projects and their implementation. Despite high turnover of staff on the NCCS in the last few years, it continued to work efficiently on many related projects.
2. The main issues/concerns that may arise in the preparation of SNC and its various components relate to the clarity over roles and responsibilities of various Ministries, agencies and institutions and the need to strengthen institutional arrangements, and to develop in-country capacity and in-country training.
3. The level of collaboration and cooperation between and among the various agencies, institutions of government and non-government organizations and communities in the implementation of projects is quite high in Sri Lanka, a factor that will facilitate effective implementation of the various components of the SNC.
4. Many activities relating to the implementation of the various components of national communication will require capacity building and training. This could include skills upgrading and outsourcing experts and institutions to carry out the tasks/activities in a timely manner.
5. Sri Lanka has made good progress on activities relating to education, training and public awareness through declaration of Climate Change Day, radio programmes, videos, commemoration days, environment day, national and community workshops and training. This will continue to play a stronger role in awareness campaigns on various issues relating to climate change for the general public and in the communities in particular.
6. There was concern that a long time had elapsed since the submission of the first national communication and there has been no follow-up work on the priorities identified. Thus, there is a need to implement actions or priorities identified in the INC of Sri Lanka, for example in renewable energy development.
7. A number of government ministries, agencies, institutions and non-government organizations will play a key role in the preparation of the SNC. These include:

Ministry in charge of

* + Environment
  + Agriculture, Forests, Fisheries and Meteorology
  + Women, Culture and Social Development (MWCSD)
  + Foreign Affairs and Trade
  + Health
  + Education
  + Works, Infrastructure and Transport

Private sector

1. Although good progress has been made in Sri Lanka to develop its human resources there is still limited number of staff available to deal with diverse environmental issues. This has a direct effect on the capacity to deliver environmental benefits at the national and local levels. It also affects the capacity of institutions to carry out the required tasks/activities in the preparation of national communications in an effective manner.

SYNERGY WITH RELEVANT INITIATIVES

The NCSA formulation process involved the preparation of the country’s plan action to identify its capacity needs. NCSA formulation process represents a very good example on how various ministries, agencies, institutions of government and non-government organizations work together in a collaborative manner towards developing a national plan of action. The approach used in the NCSA formulation is similar to what is being proposed for the SNC preparation, whereby the immediate needs and concerns relating to identification and prioritization of adaptation options, strategies and measures are highlighted and collectively addressed by the stakeholders.

As in the NCSA process, the SNC preparation (particularly the adaptation component) is based on multi-stakeholder consultations, which identified a number of important sectors of the economy and livelihoods, which would be adversely affected, by climate change, climate variability and sea-level rise. Moreover, adaptation and capacity building are key crosscutting issues that would promote synergy between and among the UNFCCC and the UNCBD and the UNCCD. Activities relating to the preparation of vulnerability and adaptation assessments for the SNC will therefore have closer links on adaptation and capacity building issues with other reporting requirements.

REGIONAL COMPONENT

In recognition of the capacity constraints in Sri Lanka and the region, it is envisioned that the SNC preparation in Sri Lanka can make use of regional technical support, which can provide Asian Countries, technical advice and support (expertise, skills and know-how); nationally-adapted methods and tools; a roster of regional experts who could be used to assist the countries undertake some of the activities relating to the national communication; training and capacity building institutes on various elements of the national communication, and methodologies for prioritization and ranking of adaptation actions/activities.

Regional training, while focusing on vulnerability and adaptation assessments, national GHG inventories, mitigation analysis, should also focus on data management systems for various elements of the national communication. The training should also include best practices such as those initiated by the CIDA-sponsored work on adaptation and programmes implemented by other regional organizations and the evaluation (and costing) of adaptation options, strategies and measures.

**D. Stakeholder Consultations**

The Government of Sri Lanka is fully committed to the implementation of the UNFCCC, and hence the goals and objectives of this project. The strengthening of scientific, technical and institutional capacities of Sri Lanka in various aspects of the proposed activities, as well as the leading role taken by the Ministry of Environment, to execute the project would enable the country to fulfill its obligations and commitments under the UNFCCC on a sustainable basis. Indeed, the whole project management structure is designed to fully engage participation by local experts in all aspects of activities so that further activities in the future are sustainable.

Public participation in certain aspects of the project activities will be encouraged where appropriate and possible. For example, the promotion and development of indigenous technologies in the proposed Component 5 of the SNC Project would require the participation of local communities and the private sector. The outreach activities to be undertaken in the SNC Project’s Component 7 would also need the extensive support of not only the government education department, but also local communities and NGOs in order for the activities to be effective and successful. Local communities, NGOs and the media will be invited to participate in all national workshops as appropriate.

On the completion of the SNC preparation, it is expected that further institutional and technical capacity of the country would have been considerably strengthened to enable Sri Lanka to better respond to the challenges and opportunities presented by climate change, as well as to better fulfill its commitments under the UNFCCC.

**APPENDIX B: TECHNICAL COMPONENTS OF THE PROJECT PROPOSAL**

**1. Background/Context**

Sri Lanka is a tropical island in the Indian Ocean with an area of about 65,610 square kilometers. It lies between 6oN and 10oN latitude and between 80oE and 82oE longitude. The 1585 km coast line comprises sandy beaches, extensive lagoons and estuaries, mangroves, coastal marshes and dunes. The country’s Exclusive Economic Zone extends 200 nautical miles beyond the coastline. The country's total population is around 20 million and its population density of 314 persons per sq km is one of the highest in the world. Over 40% of the people are engaged in activities directly dependent on the environment and about 25% people live in urban or semi urban areas. The development efforts of successive governments during the last five decades have led to an increase in the standard of living of its people. Sri Lanka’s GDP per capita is US$ 1197 which is ahead of some South Asian countries. The high population density and sustained efforts to improve living standards have created tremendous pressure on the natural environment of the country.

Sri Lanka ratified the UNFCCC by a Cabinet decision in November 1993 and is among the first 50 countries that have ratified it. An important obligation to the UNFCCC is to submit national communications periodically incorporating an inventory of anthropogenic emissions by sources and removals by sinks of all greenhouse gasses and a general description of steps taken or envisaged to implement the Convention

The 8th Session of COP/UNFCCC has decided (Decision 17) the none-Annex 1 Parties should use the set of new guidelines contained in an Annex to the decision for the preparation of second and where appropriate, third National Communications. It further states that the frequency of submissions of Second National Communications by Non-Annex shall be determined by the conference of the parties at its ninth session and second national communication should incorporate the GHG inventory prepared for 200. This action is still due for Sri Lanka and stocktaking of INC recommendations were used to the proposal of Preparation of Second National Communication.

As mandated by UNFCCC Sri Lanka submitted Initial National Communication in year 2000. Non-Annex 1 parties were required to submit to the Conference of the Parties through the Secretariat, an INC containing the following information, within 3 years after entry into force of the Convention or after availability of financial resources, and subsequent National Communications at frequencies as decided by the COP (Article 12). Most updated national inventory of anthropogenic emissions by source and removal by sink is expected to be included in the national communications.

Furthermore a general description of steps taken or envisaged by non- Annex 1 Party to implement the Convention, any other information that the non-Annex 1 Party considers relevant to the achievement of the objective of the Convention and suitable for inclusion its communication, including, if feasible, material relevant for calculations of global emission trends are to be reported.

Following the new guidelines for the preparation of the National Communications Sri Lanka will prepare and submit Second National Communications to the UNFCCC. The activities within the SNC are continuation of, and an improvement of the work done under INC preparation. During this stocktaking exercise, identifying gaps and constraints and utilization of results of relevant previous or ongoing national or international activities related to the climate change issues were done.

In the agenda of Sri Lanka Initial National communication submitted in year 2000, present status of Sri Lanka in terms of climate change and a series of proposals to address the climate change impacts were made. They have been presented under eight topics.

They are:

* National Circumstances
* Greenhouse Gas Inventory
* Impact and Vulnerability
* Mitigation Options and Adoption Responses
* Policies and Measures
* Education, Training and Awareness
* Recommended Research Studies and Portfolio of Projects
* Constrains and Technological Needs

**2. Project Objectives**

The proposed project aims to strengthen the technical and institutional capacity of Sri Lanka in mainstreaming climate change concerns into the country’s sectoral and national development planning processes. It is primarily for the purpose of preparing and submitting its Second National Communication to the UNFCCC thereby meets its obligations to said convention.

**3. Project Activities**

**3.1 National Circumstances**

Information on national circumstances will include the analyses of national and or regional development priorities and objectives that Sri Lanka is pursuing and those that would serve as the basis for addressing climate change and sea-level rise issues. Information on national circumstances will be linked to information provided in other chapters of the national communication. The analyses of development priorities and objectives should be of interest to other national stakeholders investigating the benefits of specific activities and policies and the linkages between the activities and policies relating to climate change and those of other two Rio Conventions, such as the CBD and the UNCCD.

The light of the Natural circumstances is very important to comprehend Sri Lanka’s vulnerability to the adverse effects of climate change, its adaptation capacity adaptation options, and how it can face the GHG emissions with sustainable development perspective.

Being ratified three Rio Conventions and many other Multilateral Environment Agreements, Sri Lanka has set her country priorities to comply with Sustainable Development.

*Proposed Activities*

This section is based on Secondary data available on most demographic and economic features. National population has risen to 19.2million according to the census taken in year 2001. In year 2002 the GDP is Rs1570260 million. Paddy production statistics show an increase in yields from year 2001 to 2005 in both Yala and Maha seasons except for the year 2004 (Dept. of Census and Statistics). Recently drafted policies in some sectors have taken climate change aspects in to consideration showing that the country administration is in good understanding of the situation and supporting the activities.

Information will include:

* Geographical characteristics, including climate, forests, land use and other environmental characteristics,
* Population: growth rates, distribution, density and other vital statistics;
* Economy, including energy, transport, industry, and tourism, agriculture, fisheries, waste, health and services sector,
* Education, including scientific and technical research institutions,
* Any information considered relevant by the Party, e.g., information relating to Article 4.8 and 4.9, of the Convention
* A description of institutional arrangements relevant to the preparation of the national communications on a continuous basis including distribution of responsibilities within government departments, universities, research institutions, etc.
* NCCCC as a relevant coordinating body
* Involvement and participation of other stakeholders;
* Thematic Working Groups on GHG inventory, vulnerability and adaptation assessment, mitigation, etc.

**3.2 Greenhouse Gas Inventory**

All parties were to develop, periodically update, and publish national inventories of anthropogenic emissions specified by UNFCCC by sources and removals by sinks of all greenhouse gases, using comparable methodologies. Further each non-Annex I Party is to prepare, in accordance with Article 4, paragraph 1 (a), and Article 12, paragraph 1(a) of the Convention, communicate to the Conference of the Parties a national inventory of anthropogenic emissions of all greenhouse gases (GHGs) not controlled by the Montreal Protocol, to the extent its capacities permit, following the provisions in the guidelines given.

Non-Annex I Parties were expected to estimate national GHG inventories for the year 1994 for the Initial National Communication or alternatively was to provide data for the year 1990. In the Initial National Communication, Sri Lanka submitted the inventory prepared in 1994, calculated mostly based on the methodology provided by the IPCC guidelines. The inventory for the year 2000 should be prepared by Sri Lanka before the submission of the Second National Communication. Though the complete inventory is not yet prepared, sector based data are available for methane emission from paddy cultivation, carbon dioxide sequestration by forests and all sources in the energy sector. The gaps can be filled by using the IPCC guidelines for preparation of the GHG inventory for the year 2000 and action need to be initiated in this regard before commencing the SNC.

Sri Lanka’s first GHG inventory in its INC highlighted some of the most pertinent problems and constraints in the preparation of its second national communication. These problems and constraints were:

* Lack of data or reliable data, including difficulties in accessing accurate data and the lack of GHG database that is required for a better understanding of its estimation of its GHG emissions, which is considered vital in social and economic development planning.
* Lack of reliable data from land use change and forestry sector and application of default emission factors used that might not be suitable to national conditions. Use and applications the geographic information system and remote sensing techniques would help alleviate this shortcoming in estimating emissions and removals from the land use change and forestry sector.
* No estimation of uncertainties for sources and removals of emissions
* Capacity-building is still needed in GHG inventory
* The lack of quality data and poor data management has been singled out as the most pressing problem and there is an urgent need to address this problem as it will affect emissions estimates of GHGs and also other elements of information for the preparation of national communication
* Lack of appropriate hardware and software to develop and, or improve data management systems for the preparation of national communication would help the country fulfill its obligations, not only under the UNFCCC but also, other reporting requirements of the various multilateral environmental agreements.

*Proposed Activities*

On the basis of the previous inventory, national GHG Inventory for direct greenhouse gases carbon dioxide (CO2), methane (CH4) and nitrous oxide (N2O) and for indirect greenhouse gases carbon monoxide (CO), nitrogen oxides (NOx) and non-methane hydrocarbons (NMVC), as well as sulfur dioxide (SO2), will be undertaken for the year 2000 in five source categories "Energy" (i.e.,, fuel combustion, energy industries; transport; residential; solid fuels), "Industrial Processes", "Agriculture" (i.e.,, enteric fermentation from domestic livestock; manure management; agricultural soils and field burning of agricultural residues), "Land-Use Changes and Forestry" (i.e.,, changes in forest and other woody biomass stock; forest and grassland conversion; abandonment of managed lands) and "Waste" (i.e.,, solid waste disposal on land; wastewater handling; human sewage), using the IPCC 1996 Revised Guidelines for National Greenhouse Gas Inventories.

A better estimation of emissions from the soils under Agriculture and Land Use Change and Forestry sectors, as appropriate, will be undertaken given that clearing of forests for cultivation is likely to increase in the future in Sri Lanka.

A key-source analysis will be carried out to determine the sectors with significant emissions where resources can be targeted. This activity will also include training in and capacity building on the use and application of the IPCC 1996 Revised Guidelines for National Greenhouse Gas Inventories, the IPCC Good Practice Guidance on National Greenhouse Gas Inventories and Uncertainty Management, and the IPCC Good Practice Guidance on Land Use, Land Use Change and Forestry and related applications of geographic information systems and remote sensing techniques.

Existing data management systems will be strengthened to ensure preparation of good quality inventories over the long term. Emissions of methane and nitrous oxide from international bunkers and aviation will also estimate for the year 2000. In addition, some attempt will be made to estimate the GHG emissions from slash and burn, which has been a common practice by communities. The activity data of hydro fluorocarbons (HFCs), per fluorocarbons (PFCs), and sulfur hexafluoride (SF6) will also be collected for the same period where available.

An improved factor of CO2 emission/sink from/to soils in Land-Use Change and Forestry in Sri Lanka will be assessed and identified, as well as methane emission factor from agricultural soils, with a view to reducing the uncertainties and enhancing the data quality in these sources and sinks.

This component will aim to improve the GHG inventory by reducing the uncertainties through the use of improved emission factors in the above-mentioned sectors. In particular, it will apply quality assurance and quality control (QA/QC) procedures based on the IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gases Inventories, so as to ensure that the results of the inventory will be as reliable as possible. The reduction of uncertainties in the national GHG inventory will allow the reconsideration of national priorities for mitigating measures and the effective use of limited financial resources. It will fill in gaps of the previous inventories, especially in the "Land-use changes and forestry" sector.

While the database for carbon dioxide (CO2), nitrous oxide (N2O), methane (CH4) oxides of nitrogen (NOx), carbon monoxide (CO), non-methane volatile organic compounds (NMVoC) and sulphur dioxide (SO2), will be updated, a new database for hydro fluorocarbon (HFCs), per fluorocarbon (PFCs) sulphur hexafluoride (SF6) (where available) will be established. An efficient and user-friendly database system will be developed for these gases and their emission factors for ease of archiving, updating and maintenance. A manual on the database and its use will be developed.

UNFCCC Guidelines (annex to decision 17/CP.8) will be used for reporting the national GHG inventory. This activity will be coordinated with any regional efforts wherever possible.

At the end of the proposed activities, a workshop will be held to review the results. Policy makers and other stakeholders will be invited to participate in the workshop, so as to enhance their awareness on the importance of GHG inventory, which should be taken into consideration in national development planning. If possible, a long-term programme on the improvement of future GHG inventories will be developed.

The Thematic Working Group (TWG) on GHG Inventory will undertake the above mentioned activities. Further capacity building for the group on the application of IPCC methodology, including data collection, analysis and management, is needed, as they will be new members to be engaged to the team. In addition, there is a need for a training workshop on IPCC Good Practice Guidance and Uncertainty Management in National GHG Inventories.

The capacity-building activities may include the participation of the TWG on GHG Inventory, especially those new members, in the sub-regional, regional and international training workshops on GHG inventory, so as to share gain from exchange of experiences and lessons learned with other countries. It is hoped that this team will be maintained in a sustainable manner even after the project cycle.

Major Outputs and Indicators

The major outputs and indicators of this component will be:

* Establishment of Thematic Working Group on GHG inventory;
* Updated and improved inventory data for CO2, N2O, CH4, CO, NOx, NMVoC and SO2, and new inventory data for HFCs, PFCs and SF6 for the year 2000;
* An updated, improved and user-friendly GHG inventory database;
* New region/country-specific emission factors "Land-Use Changes and Forestry" sector; and new methane emission factor from agricultural soils where possible;
* An updated GHG inventory report, including technical annexes that detail the inventory procedures and calculations;
* Further identification of shortcomings and gaps of the IPCC Guidelines in relation to the local conditions;
* A description of any original research needed to develop and/or apply new emission factors for specific activities;
* Recommendations on areas of targeted research to improve future inventories and to suggest revisions to the existing IPCC GHG inventory methodology;
* Strengthened human, scientific, technical and institutional capacity to undertake a GHG inventory; and,
* The review workshop report, including major papers presented.

**3.3 Programme containing mesures to faclitate Adequate Adaptation to climate change**

The following adaptation measures are proposed to face the impacts of climate change. Brief descriptions of these sectors are given bellow.

The sectors are:

* Coastal zone

Transport

Agriculture

Forestry

Water resource

Health

Human Settlement and Public Utilities

These sectoral topics have been discussed in terms of activities that are priorities for suggesting adaptation measures under the relevant climate change impacts.

## 3.3.1 Proposed Action for the Coastal Zone

In addressing the impact on coastal zone, the following sub sectors are considered priority. The adaptation measures suggested in INC and the actions taken upon and proposed actions are presented in this section.

### *Contour Maps*

Under assessment of vulnerability and overall management, several adaptation responses are being proposed. Proposal was made to prepare contour maps at suitable resolution (at least 0.5m contour interval). A 1M contour map has been created by the Survey Department. After the 2004 tsunami, a map of 100 M distance from the coast around the island has been prepared. This map includes a 200 M distance line in the north eastern region which is the worst affected area from the tsunami. Improvement and compilation of these maps will be done using GIS and remote sensing.

### *Identifying available resources*

Identifying human population, natural resources, infrastructure and assets in the coastal zone has been set as a priority in adaptation. Under the Climate Change Enabling Activity project implemented by this ministry, some research studies have been done to identify some of the concerns mentioned above. But after the tsunami a thorough studies are being conducted via several organizations to assist rehabilitation programs in affected areas. Comprehensive identification of vulnerable populations and resources will be done and possible adaptation measures will be identified through out a sectoral consultative process.

### *Assessing Economical Cost for Vulnerabilities of the coastal area*

Assessing vulnerability to sea level rise along the coastal area of the country and estimating the economic cost of climate vulnerability will help in adaptation measures to climate change. Some studies are being done in Hambanthota area under the research projects conducted for the Climate Change Enabling Activity projects. Complete analysis will be done to the entire costal zone in the country and economic cost of coastal zone vulnerability will be estimated.

### *Area Management Plans*

Though it was suggested to delineate critical areas and prepare special area management plans no action has been taken in this aspect in relation to vulnerable zones due to climate change. However several other Special Area Management plans (SAM) under Coastal Resources Management Project funded by ADB, proposed for some land areas such as Kaduwella, Rekena, Hikkaduwa, Kalpitiya are useful for planned activities. Climate change concerns including vulnerabilities and adaptations will be incorporated in area management plans.

### *Monitoring Methodology*

Under the adaptation needs, monitoring meteorological parameters in all coastal districts are being proposed and coast implemented in several locations. This method will be made more systematic and application will be done to the entire zone.

### *Integrated Coastal Management*

To formulate coastal database for implementing integrated coastal area management has been proposed. Incorporating greater consideration of climate change impacts in the next revision of the Coastal Zone Management Plan (CZMP) was suggested. The last updated action plan was submitted in 2003 and some reference to potential sea level rise inputs have been taken into account.

### *Wetland Conservation*

It was suggested to incorporate climate change concerns in wetland conservation programmes as adaptation measures to climate change. Government has initiated such projects in areas such as Muthurajawela, Bundala, Aththidya and Batticaloa lagoon. Also, implementation of the wetland policy with respect to the climate change and initiation of the projects in other wetlands as well needs to be addressed.

### *Salt Water Intrusion*

Taking salt water intrusion in to consideration adaptation measures were studied in evaluating engineering interventions needed to counter threat. In a project funded by UNEP – GPA, coastal department studied the possibility of using mangrove as an engineering intervention; a buffer to reduce salt water intrusion. Further analysis will be done to estimate level of saltwater intrusions and possible impacts and adaptation measures.

### *Fresh Water Intakes*

Fresh Water Intakes due to sea level rise is a major concern that an island country like Sri Lanka has to be aware of. In proposing adaptation measures it was suggested to review the performance of existing water intakes taking sea level rise into consideration. There is a proposal to put a salt barrier at the point of Kelani River falling in to sea in order to prevent or minimize the sea water coming in and mixing with the fresh water. The concept is still under study and recommendations for adaptation in relation to other rivers can be made with the results obtained from this study.

It was also suggested that it will be beneficial to design new water intakes giving due consideration to climate change impacts. Though discussions are in progress in the Water Supply and Drainage Board more details on the actual plan and implementation need to be gathered. Further studies will be carried out in other rivers in the country to identify vulnerability and impacts.

### *Fishery Industry*

Fishery Industry is a leading industry in an island country like Sri Lanka and the impact of sea level rise is direct and could be tremendous.

In order to minimize the impact it is proposed to conduct sectoral assessment on climate change impacts on fisheries development including fishery harbors, fishery settlements and sustainable use of fishery resource as a basis for long term planning. Studies are being carried out to understand these aspects, independent of evaluating impacts of climate change. Wider study will be done in order to identify impact of fishery by climate change and to develop the long term adaptative measures since the contribution of fisheries sector to the GDP is higher.

### *Near-Shore Infrastructure*

Establishing sea defense structure and near-shore infrastructure has been a concern for Sri Lanka for many years. Assess vulnerability and prepare emergency response/contingency plans have been suggested in INC. However not much work has been done yet other, than assessing the vulnerability of these infrastructure.

After the tsunami most of these aspects are being discussed and need to be pursued. Another proposal that was prioritized in the coastal zone in adaptation measures to accommodate sea level rise in the design of new coastal structures. Though it was not considered directly as coming under the climate change new plans such as coastal area power plant construction has taken these in to consideration after the tsunami experience.

### *Near-shore Land Reclamation*

Near-shore Land Reclamation plans were also to be considered in adaptation to sea level rise.

Screening near-shore reclamation against sea level rise impacts is now being enforced strictly after the tsunami. Assessment of vulnerabilities and impacts and adaptation measures in case of near- shore land reclamation will be done.

### *Tourism*

Tourism has always been a very profitable industry and happens around the beautiful beaches in Sri Lanka. Impacts on sea level rise will directly affect tourism and can impact the sustainable development.

As an adaptation measure set back limits have established to take account of sea level rise. A plan called coastal nourishment plan is in place. New set backs are being developed and may restrict construction in some places in the coastal zone and beyond.

Other proposals are to formulate tourism development guidelines to highlight for investors the potential problems arising from climate change and to update /revise Master Plan on Tourism to incorporate climate change concerns.

### 3.3.2 Physical Plan for Climate Change

The National Physical Planning Department has initial preparation of the latest physical plan for the country and has considered Climate Change Criteria in its proposed projects as an adaptations measure. Further consultations will be done to develop sectoral guidelines in National Physical Planning considering climate change issues.

## 3.3.3 Proposed Action for the Transport Sector

Transport has been considered a sector to prioritize under adaptation measures. This is mainly because Sri Lanka is an island country which unavoidably has a long range of coastal road and railway sections that can be vulnerable to climate change. Also being a tropical country road surfaces are also vulnerable to climate changes in the form of increased temperature and high intensity or long spells of rainfall.

### *Improving Infrastructure*

Proposed Adaptation measures for this problem is to consider improving road/railway infrastructure design standards to incorporate climate change considerations. Though there are new roads being planed and some are already under construction, how much of climate change concerns are being taken in to account is not known. Studies will be carried out to identify the direct impact on infrastructure and adaptation measures.

## 3.3.4 Proposed Action for the Agriculture Sector

Vulnerability of the agriculture sector to the climate change has been reported locally as well as globally. Agriculture is the main source of income in the rural Sri Lanka and impacts on this sector will have multitude of implications. Suggested adaptation measures are discussed under eight main areas. They are:

1. Increase agricultural productivity by introducing improved varieties and
   * 1. Improved management practices
2. Increase productivity in the plantation and minor export crop sectors, and diversify agricultural production and the food habits of the people
3. Change cropping patterns to offset any unpredicted weather changes by developing tree crop agriculture in the Dry Zone; promote conservation farming techniques in areas vulnerable to soil erosion; develop tree-crop agriculture on degraded agricultural lands and promote agro-forestry on lands over 60% slope
4. Develop drought resistant rice varieties with high yields
5. Introduce better water management by strengthening the institutional base to manage water resources economically and increase the efficiency of irrigation by adopting water conserving technology such as sprinkler irrigation methods and drip irrigation systems
6. Introduce and promote water harvesting techniques
7. Change soil conservation criteria land use patterns in landslide prone areas to improved practices such as forestry and other vulnerable areas and discourage settlement in such areas
8. Initiate land use planning to ensure the proper utilization of land
9. Make farmers aware of climate change and instruct them in ways of adapting to it.
10. Special attention should be focused on the poorer sections of the farming population because of their greater vulnerability to climate change impacts

By a highly consultative process and using workshops, round tables and brain storming prevailing situations will be assessed and research needs and further adaptation measures will be investigated

## 3.3.5 Proposed Action for the Forestry Sector

### *Adaptation to depleting forest land*

Impact of climate change due to reduction in forest land is a major concern because it is a significant source of sink in GHG control. Adaptation measures are proposed in order to lessen the impact in the future by way of improving forest cover.

### *Contingency plans for re-forestation*

Out of the priority areas identifying vulnerable areas and preparing contingency plans for reforestation are being all ready considered by the plantation sector. In their efforts marginal lands are being identified and fast growing fuel crops are being introduced in to those areas. Assessing the prevailing situation in reforestation process and identification of further potential areas will be done.

### *Use of alternative traditional timber species*

A proposal has been made to promote use of alternative traditional timber species. This was being practiced entered as an alternate timber crop as the forest harvesting is now controlled with more enforcement. Climate change adaptations measures have given importance to this process. Wider awareness will be created about alternative timber species and there cultivation will be promoted. Further studies will be done to assess the real impact on adaptation.

### *Assessing vulnerability of coastal vegetation*

Assessing vulnerability of coastal vegetation/mangroves and other ecologically critical areas and evaluating response strategies, in adaptation major action needed Mangrove cultivation in coastal marginal land has already being initiated as a land reuse program because of the salinity problem created in some inland areas after the tsunami. Studies will be carried out to identify impact climate change in coastal ecosystem and potential areas will be identified for further replanting and improvements.

Conservation of natural forests and banning the clearing of natural forests for commercial purposes is already being enforced under law.

## 3.3.6 Proposed Action for Water Resources Sector

In water management adaptation to climate change, drought and flood scenarios shall be considered. The following areas have been identified as priorities.

### *Rain Water Harvesting*

In case of a drought condition in a place like dry zone a fall back option is rain-fed water supply. Rain water harvesting is a well known phenomenon regardless of the level of the technology involved. Sri Lankans have traditionally done that for many years. The energy forum is planning on launching some projects in dry zone. Wider awareness will be created regarding rain water harvesting since it is not widely spread in the island. Many government and non government organizations promoting rain water harvesting and stock taking will be done abut the prevailing technology and further studies will be encouraged.

### *Promote Minor Storage Reservoirs*

There are other programs in Hambanthota and Trincomalee districts and implemented by the urban development program encouraging minor storage reservoirs in order to save rain water. Expanding this concept to other dry zone areas will be done

### *Conserve in-situ seasonal water bodies*

To conserve in-situ seasonal water bodies having valuable biological resources, and to rehabilitate irrigation water tank networks in dry and intermediate zones and storage/diversion water supply, a special project has been implemented to re-establish 10,000 tanks in villages. The PEACE project under JBIC assistance has been commenced in North Central and North Western Provinces to rehabilitate small tanks for irrigation. Stocktaking of existing situation of village tanks will be identified and development needs are assessed in the context of adaptation to climate change.

## 3.3.7 Proposed Action for Health Sector

Impacts of climate change on human health could be categorized as direct and indirect. The direct effects result from changes in climate characteristics or short-term weather extremes that impinge directly on human biology. The indirect effects are those that do not entail a direct causal connection between a climatic factor (such as heat, humidity, or extreme weather event) and human biology.

A number of adaptation measures are possible to reduce the impacts of climate change on human health. Some of these are given below. One of the important adaptation measures in the health sector is the creation of awareness among the people in all aspects of human health affected by climate change, e.g. health risks due to natural disasters, heat related illnesses, health effects of exposure to UV-B light, precautions to be taken during the occurrence of lightning and thunder, spread of infectious diseases, such as water born and vector born diseases.

The following adaptation measures will be taken.

1. Prepare baseline maps of disaster risk areas for specific extreme weather events
2. Develop early warning systems (using, for instance, GIS techniques) for monitoring of natural disasters
3. Develop institutional facilities and provide the necessary financial inputs for the
4. Implementation of Natural Disaster Management Plans
5. Upgrade health facilities in vulnerable areas, especially remote areas with difficult terrain and limited transport
6. Formulate and enforce regulations to building design (public/private, households) to withstand/minimize structural damage and injury to people
7. Motivate people to accept and heed to safety measures at individual household level
8. Providing (a) free engineering/architectural advice and consultations and (b) soft loans to construct health friendly buildings for alterations to dwellings
9. Establish database on health facilities at provincial level
10. Heat Stress, Heat Related Illnesses and Disorders: Establish local standards for ‘hot’ working environments and enact laws for effective enforcement of such safety standards
11. Encourage house/work place designs to suit hot climate; well-ventilated, good air circulation, less glass and if cost permitting, fans and air-conditioners.
12. Create zones with shade trees, parks and fountains, etc., in urban areas.
13. Monitor indices of ill health, e.g. cataract, pterygium, keratitis, skin malignancies at sentinel and control locations. Identify any shifts in age group pattern especially for incidence of cataract
14. Promote the use of antioxidants in diet, e.g. vitamin A and vitamin C to improved body resistance
15. Promote wearing of wide brimmed hats outdoors and sunglasses conforming to effective light filter standard
16. Promote use of sunscreen applications and limit outdoor behavior to direct exposure to sun in light skinned individuals
17. Establish RS/GIS information systems in areas prone to outbreaks/epidemics
18. Develop baseline maps with local epidemiological information for specific diseases
19. Develop epidemiological forecasting/early warning systems using ranges of criteria relevant to each disease
20. Upgrade health manpower resources and facilities in high-risk areas to meet increased needs in curative/preventive actions and control of disease
21. Monitor specific disease patterns at Health Care Centres in sentinel stations where climate change predictions are significant
22. Upgrade safe drinking water and sanitation facilities in the rural sector
23. Monitor the growth of pre-school children at sentinel stations
24. Educate people on low-cost nutritive foods which are being promoted for cultivation
25. Promote dietary supplementation of high risk groups such as pregnant mothers, infants,
26. pre-school children and the elderly

Though there is a long list of adaptation measures proposed under the health sector, not much has been done in relation to climate change impacts and its adaptation measures. Some of these issues are being addressed independent of the climate change. However some of the ongoing projects, government actions can be considered as inline with the above recommendations. A Dengue epidemic distribution study using GIS initiated by the Colombo Municipal Council and some other vector born diseases has been done. Above listed areas can be further stated in SNC since they need further studies.

## 3.3.8 Proposed Action for Human Settlement and Public Utilities Sector

Impacts of climate change on human settlements and public utilities may be direct as well as indirect. The direct effects could result from displacement due to sea level rise and extreme events in the case of floods, droughts, cyclones and landslides. The indirect effects could be impacts on other sectors due to experience in development activities such as agriculture, water resources, health, etc. Several adaptive mechanisms are suggested to address these effects.

* 1. Develop and establish RS/GIS/early warning systems in vulnerable areas
  2. Integrate suitable adaptation measures into all urban development plans
  3. Prepare and update national disaster management plan with adequate coverage on climate change
  4. Integrate climate change concerns/responses in relevant national policies
  5. Relocate people from vulnerable locations
  6. Develop storm, wind and cyclone resistant building standards and guidelines for different building categories
  7. Conduct flood plain mapping for different return periods and delineate flood plains for conservation
  8. Take steps to conserve natural drainage network including depression storage areas in all areas of the country
  9. Formulate “climate change coefficient” for estimation of flood and drainage design.
  10. Develop early warning systems and prepare emergency response/contingency plans for vulnerable areas
  11. Undertake hazard area mapping
  12. Take steps to conserve natural drainage networks at macro and micro levels
  13. Introduce vegetative silt traps to reduce siltation of water courses
  14. The adaptation responses proposed above need to be prioritized because of the limited availability of resources.

Although the recommended adaptation list is not being discussed under individual headings, action on some adaptation measures under the human settlements and public utility proposed are being followed up. Continuation should be done regarding addressing above areas and more in-depth analysis is proposed.

# 3.3.9 Policy and Measures

As per Article 4, Paragraph 1f, all Parties are required to take climate change considerations into account, to the extent feasible, in their relevant social, economic and environmental policies and actions. In this respect, a national climate change policy is in formulation.

Sectoral policy need is clearly understood in evaluating climate change vulnerabilities. Although climate change benefits were not made priority in policy making for some sectors, environmentally friendly policies are in place. Newly formulated or amended policies do take climate change impacts in to consideration in policy making. However for one of the mechanisms developed to address effects of climate change; The draft CDM policy is prepared to implement CDM in Sri Lanka and now in the process of going through necessary approval process.

The country action plan to address the climate change impacts, several policy measures were recommended. They are also being discussed under the priority sectors according to the degree of vulnerability of the particular sector. Some recommendations are made on general basis while some specific recommendations are also been made.

Relevant global and/or regional circulation models may be used to construct climate change scenarios for the region that includes Sri Lanka. Where possible, integrated assessment modeling may be used to assess the impacts of climate change in Sri Lanka. An integrated Water Evaluation and Planning System (WEAP model) may be used to simulate water demands and supplies. Based on these quantitative analyses, appropriate cost-effective adaptation options and measures are to be assessed. The impacts of climate change on national development strategies; plans and programmes will be evaluated. Appropriate policy options will be identified and developed for response strategies.

Furthermore, the SNC will include (i) an integrated assessment of impacts and adaptation options including (ii) the identification of least-cost adaptation measures; (iv) a climate change-induced disaster prevention, preparedness and management plan; (v) development of spatial information materials (e.g.,, maps, diagrams, decision matrices) for policy makers; (vi) the list of high priority measures recommended for inclusion in sustainable development strategy; (vii) analysis of barriers and opportunities for integration of adaptation measures in the medium and long-term national development plans. These assessments will take into account the priorities and recommendations identified.

At the end of the assessment, a workshop will be held to review the results of the adaptation option and strategies. Policy makers and other stakeholders will be invited to participate in the workshop, so as to enhance their awareness on the various adaptation options, which should be taken into consideration in national development planning.

The major outputs and indicators of this component will be:

* Strengthened and/or developed human, scientific, technical and institutional capabilities and capacities to undertake vulnerability and adaptation assessments will be developed and strengthened;
* A wide range of stakeholders involved in the preparation of vulnerability and adaptation assessments. The involvement and participation of communities in the assessment work will ensure heightened awareness of the risks imposed by climate change, variability and sea-level rise and also facilitate development of adaptation options, strategies and measures that would be viable and culturally acceptable.
* An improved, and/or better understanding of the key vulnerabilities and the risks imposed by climate change, climate variability and sea-level rise on various sectors, communities and infrastructure;
* A comprehensive analysis (i.e., cost-benefit analyses, evaluation and prioritization) of the various adaptation options, strategies and measures for key/priority socio-economic sectors based on established methodologies, including possible least-cost adaptation options and adaptation technologies;
* Identification of targeted research on climate variability, climate change, tropical cyclones, drought and precipitation trends and their relation with other climatic factors.
* Policy options for adequate adaptation and response strategies for climate change impacts on key socio-economic sectors, including a draft National Climate Change Adaptation Action Plan;
* Further activities, gaps, constraints and research needs, as well as specific financial, technical and institutional and research needs for capacity-building will be identified and highlighted;
* The review workshop report, including major papers presented.

**3.4 Programmes Containing Measures to Mitigate Climate Change**

Although Sri Lanka is not required to take on emission reduction commitments, undertaking climate change mitigation and assessment could provide ancillary benefits for sustainable development, such as particulate pollution reduction, increase in technological efficiency and effectiveness, improvements in the security and availability of power supply, reduction in road congestion when a shift from private to public transport takes place, and increase in employment resulting from mitigation projects.

Under the INC project Sri Lanka participated in the regional analysis of mitigation options, which highlighted some of the demand, and supply side management options in the energy sector. However, no comprehensive assessment of GHG mitigation had been carried out for Sri Lanka due to a lack of studies with detailed cost-benefit analysis to assess the feasibility of the mitigation options.

Significant constraints relating to the availability of data and information and, specific institutional arrangements to handle data acquisition and database maintenance for climate change mitigation remain problematic.

Mitigation assessment entails the generation of information on the national or regional analysis of the potential costs and impacts of the various technologies and practices to mitigate climate change. This information should be relevant for sustainable development and useful for policy makers, and should also help formulate and prioritize mitigation programmes.

*Proposed Activities*

In order for Sri Lanka to undertake mitigation assessment as part of its development strategy, the Thematic Group on Mitigation, including inter alia, will carry out a number of pertinent activities:

* Collection, collation, analysis and archiving of data for the different sectors of the economy, where appropriate and relevant;
* Training and capacity building for national experts and institutions to undertake the preparation of the mitigation assessment;
* Training of personnel in the use of methods, models and tools for the generation of climate and socioeconomic scenarios, at both the national and sectoral levels; and,
* Preparation of mitigation projects for funding.

Sectoral Proposed Activities

*Energy*

* Replace existing (or planned) use of fossil fuel with low GHG emitting fuels in electricity generation and in the industrial, commercial and household sectors.
* Use new technologies such as efficient combined cycle plants, combined heat and power systems, efficient lighting and air-conditioning systems with higher overall energy efficiency to replace the existing less efficient systems and in developing new systems
* Adoption of loss reduction measures at generation, transmission and distribution levels would reduce GHG emissions per unit of energy consumed.
* Promote renewable energy technologies in place of fossil fuel fired plants wherever they are technologically and economically feasible.
* Encourage commercial fuel wood plantations
* Incorporate environmental and social impact mitigation costs in pricing of electricity generated with different technologies.

*Industrial Sector*

* Encourage ‘soft industries’ with relatively low specific energy consumption. Also locate new industries in industrial estates where feasible.
* Develop and enforce emission standards related to GHGs in the industrial sector
* Adopt energy efficient building codes and the standardization and labeling of energy consuming end use equipment. Encourage the manufacturing sector to replace high energy consuming equipment with modern energy efficient devices.
* Promote proper solid waste management practices
* Enhance productivity in the industrial sector

*Transport Sector*

* Introduce traffic management measures to minimize private and low occupancy vehicles.
* Encourage the use of railways through financial incentives
* Offer financial and other incentives aimed at greater use of public transport systems.
* Implementation of vehicle emission testing programme to control the polluting vehicles
* Controlling importation of 2-stroke three wheelers

*Agriculture Sector*

* Establish forests or any other vegetation (perennials and grass) on degraded or non-forested lands.
* Promote mixed cropping and agro-forestry instead of monoculture wherever possible
* Introduce changes in irrigation and fertilizer use to reduce methane emissions from wet rice cultivation.
* Alter breeding criteria for crop varieties with high carbon dioxide sequestration.

*Forestry Sector*

* Establish forests on degraded or non-forested lands so that carbon could be stored in trees and soils.
* Use fast-growing fuel wood in place of coal or oil to preserve the carbon reservoir contained in fossil fuels.

Training and capacity building is required in the use of appropriate technologies, methodologies and tools for assessment of mitigations options and development of mitigation scenarios particularly in sectors with significant mitigation potential.

Several methods and models that may be used in mitigation assessment, ranging from a broad description of main development trends and statistics to formalized modeling at sector and macro-economic levels. Many of these methods and models are provided in a number of technical resource such as Such as Technologies, Policies and Measures for Mitigating Climate Change (IPCC Technical Paper I); Greenhouse Gas Mitigation Assessment: A Guidebook by the U.S. Country Studies Program and Climate Change 2001: Mitigation (Contribution of Working Group III to the Third Assessment Report of the IPCC). Given the likely dominance of the energy sector (including transport) in terms of emissions, models such as LEAP, ENPEP and MARKAL will be used to undertake mitigation assessment.

Based on the above analyses, a draft National Mitigation Plan for key socio-economic sectors will be developed. The Plan will most likely highlight the barriers for adopting cleaner technologies, as well as for promoting cleaner production and consumption. Both legal (e.g., law and legislation) and economic (e.g., tax incentives) instruments may be necessary for promoting mitigation measures. A list of environmentally friendly mitigation technologies, including renewable energy technologies, will be identified and assessed. Appropriate mitigation projects will also be identified for bilateral and multilateral funding.

The growing private sector in Sri Lanka can play an important role in GHG emission reduction. Mechanisms will be explored to promote the participation of private sector in mitigation measures, perhaps through a public-private sector partnership. For example, in the hotel industry, eco-practice, such as the avoidance of washing towels and bed-sheets on a daily basis, will be promoted, so as to save energy and water resources.

At the end of the proposed activities, a workshop will be held to review the results and the draft National Mitigation Strategy for GHG Emission Reduction. Policy makers and other stakeholders will be invited to participate in the workshop, so as to enhance their awareness on the importance of GHG emission reduction, which should be taken into consideration in national development planning.

The capacity-building for the Mitigation Working Group on the application of the above-mentioned methodologies and models, including data collection, analysis and management, will be further strengthened and enhanced. The capacity-building activities will include the participation of the selected team members in the sub-regional, regional and international training workshops on mitigation assessment, so as to share experiences and lessons learned with other countries. Training workshop on the application of macro-economic models and relevant energy models will be organized with the assistance of both national and, where appropriate, regional or international consultants as well as the use of expertise available from the UN agencies.

Major Outputs and Indicators

The major outputs and indicators of this Component will be:

* Important baseline data for key socio-economic sectors required for assessing GHG mitigation options;
* A comprehensive quantitative mitigation options assessment for key socio-economic sectors based on established methodologies, including possible least-cost mitigation options and environmentally friendly mitigation technologies;
* A draft Mitigation and Renewable Energy report including appropriate legal and economic instruments, and public-private partnerships for mitigation measures will be drafted;
* Strengthened human, scientific, technical and institutional capacity for mitigation assessment;
* Further constraints and specific financial, technical and institutional needs for capacity-building on mitigation and renewable energy technologies and on the development of mitigation measures and strategies will be identified and highlighted;
* The review workshop report, including major papers presented

**3.5 Other Information Considered Relevant to the Achievement of the Objective of the Convention**

**3.5.1 Development and Transfer of Technologies**

According to the NCSA project report, the Departments of Agriculture and Department of Wildlife Conservation and Tea Research Institute have been dealing with to introduction of new technologies for the adaptation measures. The Ministry of Industry, NERD, ISB (for Desiccated Coconut mills and service stations) and University of Moratuwa have also been involved in developing new technology especially for mitigation measures.

***Proposed Activities***

* Prioritization of policies & implementation of programmes.
* Inter-Ministerial coordination.
* Make available necessary budgetary allocations.
* Increase cadre in relevant institutions.
* Establishment of inter and intra institutional linkages for sharing information and resources. Capacity building of each training institute.
* Search for new technology developed abroad for possible adaptation.
* Capacity building of relevant personnel in institutes on new technology and transferring technology.
* Take necessary steps to acquire technology from overseas and enhance research and development in relevant institutions
* Train institutional staff to develop or adapt technologies.
* A comprehensive analysis and assessment of the country-specific technological requirements and opportunities of their use, transfer and introduction in key socio-economic sectors, as well as their social, economic and environmental impacts for adaptation and mitigation;
* Capacity-building and training will include learning how to implement the measures. The barriers to the adoption of environmentally sound technologies in Sri Lanka will be identified, with a view to facilitating their removal.
* Various public awareness programmes focusing on the benefits of these programmes (e.g., CFL rather than incandescent lights, eco-labeling, etc) and a number of demonstration technology projects will be implemented in communities/villages.

The feasibility of other technological options, such as cogeneration of power by means of solar power and dendro power that do not have grid connection; and the electric-powered car using solar power to supply electricity (assuming that a solar battery cells will come on line in the next decade) will be assessed and evaluated.

It is necessary to build or strengthen the human, scientific, technical and institutional capacity for identifying, assessing, designing, developing, monitoring, evaluating and hosting technological projects, including targeted research projects, for bilateral and multilateral funding.

At the end of the proposed activities, a workshop will be held to review the results and outcomes, of technology needs assessments, which will serve as important inputs for implementation of the National Mitigation Plan.

Further constraints and specific financial, technical and institutional needs for capacity-building on development and transfer of ESTs in Sri Lanka will be identified and highlighted.

Major Outputs and Indicators

The major outputs and indicators of this Sub-Component will be:

* Completion of technology needs assessment;
* Completion of a report including priorities for adaptation and mitigation;
* Important inputs for the National Mitigation Plan;
* Technology information networks;
* Strengthened human, scientific, technical and institutional capacity;

**3.5.2. Research and Systematic Observation**

Some researches have already been conducted at the CCCS especially in rubber, coconut and tea sectors through the NSF and GEF funds. In addition, individual Departments, boards and institutions have started to conduct research on climate change.

The Department of Meteorology is mandated to do systematic observations since it’s inception in 1861. Departments of Agriculture, Irrigation and RRI, TRI, CRI, SRI, Universities and private sector plantation companies have also been taking systematic observation of atmospheric data such as rainfall, temperature, etc. since mid seventies. NARA, LHI and SLPA measure the oceanographic data such as sea water levels, wave heights and other relevant data.

*Proposed Activities*

Within the availability of funds following activities are envisaged:

* Changes in financial policy at systemic level for promoting research and systematic observations.
* Take necessary steps to negotiate with foreign donors to increase foreign funds for research.
* Trend analysis in existing temperature and rainfall data;
* Facilitate establishment of early warning systems to natural disasters due to climate change
* Analysis of the impact of climate change on the frequency of extreme climatic events. This work will also be part of the vulnerability and adaptation assessment work
* Climatic information networking with relevant regional and international organizations
* Access and coordinate with the agencies involved in research and make available necessary data.
* Training on conducting research, proposal writing (scientists).
* Build consensus on importance of quality of the observational data

Major Outputs and Indicators

The major outputs and indicators of this component will be:

* Improved climate database
* Early warning systems for natural disasters
* Climatic information networks with regional and international organizations
* Strengthened human, scientific, technical and institutional capacity
* The reports of the review workshop, including major papers presented.

**3.5.3. Education, Training and Public Awareness and Information and Networking**

The school level curriculum has been changed by incorporating climatology, basic concepts of meteorology, environment, biodiversity and climate change. At the University undergraduate level climate change has been included as a subject in the field of climatology and at the post graduate level environment, oceanography and climate change have been included as special subjects.

Several awareness-raising campaigns / programmes on climate change and their impacts have been carried out by Ministry of Environment, Centre for Climate Change Studies (CCCS) of Department of Meteorology, NGOs and respective organizations in collaboration with different sector institutes / organizations and their line Ministries.

*Proposed Activities*

* Changes in financial policies to allocate more budgets for relevant institutions.
* Awareness creation among policy makers on climate change issues. Prioritization of existing policies & implementation programmes.
* Make arrangements to strengthen and periodically update the school curriculum with the latest findings on climate change issues; make arrangements to incorporate climate change as a separate subject in university curriculum including science degree programmes.
* Incorporation of climate change issues into non-formal education and into the different levels of curricula of the formal education systems
* Preparation of outreach materials (leaflets, booklets, calendars, posters, quarterly newsletters, video, CD) and dissemination of these materials through mass media (TV, radio, newspapers, magazines, Internet, etc.).
* Establishment of a local website for climate change – This will facilitate information dissemination and sharing of experiences and lessons learned among communities. Capacity-building for updating and maintaining this website is essential in order to ensure its sustainability even after the completion of the project;
* Identification of further constraints, gaps and specific financial, technical and institutional needs for capacity-building on public awareness, education and training will be identified and highlighted at the end of the activities.

Major Outputs and Indicators

The major outputs and indicators of this component will be:

* Educational and public awareness programmes at national and local village levels;
* Outreach materials in English and Sinhala and Tamil;
* Strengthened primary, secondary and post secondary school curriculum on climate change;
* Strengthened human, scientific, technical and institutional capacity;

**3.5.4. Improved Information Technology**

Access to and the use of information technology, such as Internet, will be essential to ensure efficient exchange and sharing of information both within and outside the country. Information networking is an important activity in any project cycle. However, during the INC project, acquisition of computers and access to Internet has been fairly limited due to financial constraints.

*Proposed Activities*

* Formulation of a national policy on data sharing and networking. Changes in financial policies to facilitate networking: make available financial resources to facilitate networking and sharing data and information.
* Training on technical know-how of database management.
* Change attitudes on the importance of data and information networking for national development.
* Participation and contribution to sub-regional and regional information networks on climate change issues, especially those relating to national communications;
* Provision of a list of national experts, including their expertise, who will participate in the preparation of the SNC
* Assessment of current capacity in information communication technologies;
* Institutional strengthening, including human resources development, technical and technological capabilities on the use of information technology for climate change information sharing.

Major Outputs and Indicators

The major outputs and indicators of this component will be:

* Information networks and regular exchange of information among thematic working groups and between other countries of the region;
* Strengthened human, scientific, technical and institutional capacity in information networking.

**3.5.5. Capacity-building**

The process of the preparation of the INC has highlighted limited human, scientific, technical, technological, organizational, and institutional and resources capabilities in Sri Lanka for fulfilling its commitments, including the reporting requirements.

*Proposed Activities*

Within the constraint of the limited financial resources, this proposal aims to address the specific needs that have been identified in the INC to the extent possible, taking into consideration of decision 2/CP.7, which provides that “Capacity building is a continuous, progressive and iterative process, the implementation of which should be based on the priorities of developing countries.”

As far as capacity building is concerned, it would be appropriate to maximize the synergies for implementing the UNFCCC and other global environmental agreements, such as UNCBD and UNCCD. The NCSA would provide a good basis for such synergies.

Every effort will be made to address some of the priority areas relating to the preparation of national communication (GHG inventory, V&A assessment, technology transfer, mitigation, research and systematic observation) as identified in the initial scope of the capacity building framework of the UNFCCC.

Major Outputs and Indicators

The major outputs and indicators of this component will be strengthened human, scientific, technical and institutional capacity at all levels on major aspects relating to climate change.

**3.6 Constraints and Gaps, and Related Financial, Technical and Capacity Needs**

New gaps and constraints if any, identified while undertaking each section of the SNC, would be reported along with related financial and technical capacity needs. Special attention will be paid to the previously identified gaps and needs under the previous activities such as INC and NCSA process. Explanations on whether and how they have been addressed under the SNC and their status will be reported. In addition, gaps and constraints relating to the implementation of the UNFCCC will be reported.

Main Outputs

* Status of the constraints and gaps (technical, institutional, methodological, financial, capacity) from previous studies
* New constraints and gaps (technical, institutional, methodological, financial, capacity), if any related to each thematic area (inventory, abatement analysis, V&A) and elaborate needs to overcome and fill them.

Constraints and gaps (institutional, financial, and capacity) related to Article 6 activities, which are crosscutting the NC preparation exercise.

**3.7 Technical Support**

Although good progress has been made in Sri Lanka to develop its human resources there is still a shortage of staff available to deal with diverse environmental issues. This has a direct effect on the capacity to deliver environmental benefits at the national and local levels. It also affects the capacity of institutions to carry out the required tasks/activities in the preparation of national communication in an effective manner.

In recognition of the capacity constraints a regional support component is being proposed to provide, inter alia, technical advice and support (expertise, skills and know-how); nationally-adapted methods and tools; tool-kits, a roster of regional experts who could be used to assist the countries undertake some of the activities relating to the national communication; training and capacity building institutes on various elements of the national communication, and methodologies for prioritization and ranking of adaptation actions/activities.

Regional training, while focusing on vulnerability and adaptation assessments, national GHG inventories, mitigation analysis, should also focus on data management systems for various elements of the national communication. The training should also include best practices such as those initiated by the NCSA recommendations.

UNDP, as the GEF Implementing Agency for this SNC preparation project, will be consulted on all aspects during the execution of the project. It will be fully informed of all activities and invited to actively participate in all technical and policy workshops related to the project, so that it can provide useful inputs and contributions to ensure the successful implementation of the project.

Technical assistance from other national, regional and international organizations, consultants and experts will be sought where and when necessary and appropriate.

**4. Assessing Project Impact**

UNDP guidelines and procedures on reporting, monitoring and evaluation will be followed throughout the project cycle. In addition, the National Project Manager will provide a six-monthly progress report to UNDP and copy to all members of NSC and the Division of Environmental Economics and Global Affairs who will be hosting and executing the project. If possible, these reports may be compiled into electronic newsletters that will be distributed to all participating institutions. These reports will enable the NSC and UNDP to evaluate the progress of the project on a regular basis and identify difficulties and shortcomings with a view to overcoming them during the period of project implementation. These reports will be reviewed by UNDP for their quality and standard, comprehensiveness, and conformity to the proposed terms of reference and dates of completion. In addition, a mid-term review between UNDP and the MOE may be conducted. An independent evaluation by a qualified consultant will be conducted at the end of the project.

An independent financial audit will be conducted according to the UNDP rules and procedures. During the implementation of the project, regular financial statements will be prepared and provided to UNDP for accessing funds for project activities.

The project’s goals and objectives include development and expanding technical and scientific capacity to allow Sri Lanka to fulfill its obligations under the Convention, including adaptation to climate change; to make the public and decision makers more aware and informed about climate change and global warming issues; and to mainstream climate change into the national development processes. The assessment of the impacts of the project will be done against this background.

Climate change is crosscutting and deals with a number of issues affecting national development. This must be made clear and included in any assessment of the project impact. Baselines will be established and targets set for evaluation to determine progress towards achieving project goals and objectives.

With respect to capacity building, the project’s impact will be assessed based on the following:

* To what extent has the climate change office been established and is functioning efficiently?
* What is the level of the Government support, including personnel, towards the implementation of the project?
* Are trained personnel still in place and functioning within the climate change program?

With respect to public awareness and education the project’s impacts will be assessed based on the following:

* What is the level of public understanding and involvement/participation in the climate change activities?
* Have public awareness and education materials been produced and disseminated?
* To what extent are training programs (formal and informal) developed and implemented by the project?

With respect to mainstreaming climate change into national development mechanisms the project’s impact will be assessed based on the following:

* What policies and strategies have been adopted at the national, local or sectoral levels as a result of the findings of the Second National Communications process?
* What institutional, legal or policy changes have been made at different government levels to address climate change issues?

**5. Budget**

As the proposed activities are standard enabling activities required for the preparation of national communication, so the incremental cost for undertaking these activities are also full cost, and hence no incremental cost analysis is required.

Thus, the total requested funding of US$405,000 as itemized in the budget in the main part of the project document reflects the current real needs and concerns of the country in order to cope with adverse effects of climate change. Although some capacity has already been built during the INC and its Phase II top-up funding project, further capacity-building, including training, for the project team members, especially those new members, are still very much needed. A significant portion of the funding requested would be used for human and institutional capacity building or strengthening, with a view to slowly building up a solid technical team that would be responsible for preparing future national communications in a sustainable manner.

**6. Work Plan**

It is expected that the proposed three-year project will commence in April 2007 and end in December 2009. The detailed work plans for each component will be developed by the National Project Manager in full consultation with the NSC after the approval of the project, with the guidance and assistance of UNDP, which will be consulted throughout the project cycle.

APPENDIX 3: TERMS OF REFERENCES FOR PROJECT MANAGEMENT AND TECHNICAL SUPPORT

**Post: National Project Coordinator**

**I. Project background information**

Sri Lanka ratified the UNFCCC by a Cabinet decision in November 1993 and is among the first 50 countries to have ratified the convention. Sri Lanka has submitted its Initial National Communication (INC) to UNFCCC in October 2000. The country has received financial assistance from the Global Environmental Facility (GEF), US Country Studies Program, and the United Nations Environmental Program (UNEP), Channeled through the Global Change System for Analysis, Research and Training (START) Secretariat for undertaking enabling activities in compliance with the UNFCC. A second grant was also received from GEF to undertake studies to gather data for inclusion in the Second National Communication (SNC). The National Focal Point for the UNFCCC is the Ministry of Environment.

The project for preparation of the Second National Communication on climate change is a logical continual step towards further implementation of the UNFCCC at national level. Its main objective is to prepare a comprehensive report on the climate change related issues. The analysis conducted within the INC will be updated and upgraded/extended, which will result in preparation of a comprehensive national report. Furthermore, it will work towards ensuring that climate change issues are not considered as separate to national and local environmental concerns by integrating objectives into national and local strategic planning processes.

Duration of the project is 36 months.

**II. Scope of the assignment**

The NPC will manage the project on a day-to-day basis and is accountable to the executing agency for the planning, management, quality control, timeliness and effectiveness of the activities carried out, as well as for the use of funds. The NPC will ensure the regular monitoring and feedback from activities already under implementation.

The NPC will be located within the Project Management Unit (PMU) within the Global Affairs Division of the MOE. The NPC will work closely with the UNFCCC focal point, UNDP and the National Steering Committee for Climate Change (NSC).

**III. Duties and Responsibilities**

The National Project Coordinator (NPC) will have the following duties:

* Prepare a detailed work plan and budget;
* Prepare and submit to UNDP and the MOE, regular progress and financial reports;
* Coordinate and oversee the preparation of the outputs of the SNC;
* Ensure effective communication and adequate information flow with the relevant authorities, institutions and government departments in close collaboration with the NSC;
* Ensure appropriate stakeholder participation in the project implementation and coordinate the work of all stakeholders under the guidance of the MOE and NSC and in consultation with the UNDP office;
* Ensure that information is available to the NSC about all Government, private and public sector activities, which impact on capacity development;
* Maintain and establish additional links with other related national and international programs such as, CC Enabling Activity Phase 1 and Phase 2, NCSA, and other national projects;
* Prepare the Terms of Reference for consultants and experts and ensure their timely hiring;
* Guide the work of consultants and experts and oversee compliance with agreed work plan and timely completion of tasks;
* Organize and coordinate the procurement of services and goods under the project;
* Coordinate, manage and monitor the implementation of the Project activities/tasks undertaken by the various thematic working groups, local experts; consultants, sub-contractors and co-operating partners;
* Assume overall responsibility for the proper handling of logistics related to all project workshops and events;
* Manage the Project finance, oversee overall resource allocation and where relevant submit proposals for budget revisions with the help of the UNDP officer;
* Undertake any other actions related to the Project as requested by the MOE and UNDP.

**IV. Qualifications and Skills**

* Advanced university degree in the fields related in project management and administration
* Minimum of 5 years of working experience in climate change field and environmental management.
* Substantial involvement in the preparation of the national GHG inventory, vulnerability and adaptation assessment and the preparation of first national communication
* Demonstrated ability in managing projects, and in liaising and cooperating with all project stakeholders including government officials, scientific institutions, NGOs and private sector;
* Familiarity with international organizations operations and structure;
* Substantial experience in Government and in interdepartmental procedures
* Familiarity with international negotiations and processes under the UNFCCC
* Fluent written and oral communication in Sri Lankan and English
* Strong communications and interpersonal skills
* Excellent computer knowledge (MS Office, Internet)
* Sri Lankan citizenship

**Post: National Project Manager**

**I. Project background information**

The preparation of SNC will involve a multitude of tasks/activities ranging from project management, financing and administration to the implementation of day-to-day activities or tasks, which would be carried out, by numerous individuals and organizations. In the light of the implementation of the project a National Project Manager (NPM) will be required to work closely with the NPC in managing and supporting the implementation of the activities/tasks relating to the preparation of SNC. The NPM will be located in the PMU of the Global Affairs Division of the MOE who is responsible for the implementation of the UNFCCC.

Duration of the project is 36 months.

**II. Scope of Work**

The NPM will assist the NPC in the coordination of daily activities and the organization of local travel for national experts. He/she will also be responsible for all administrative (contractual, organizational and logistical) and all accounting (disbursements, record-keeping, cash management) matters under the Project.

**III. Duties and Responsibilities**

The NPM will have the following duties:

* Manage the day-to-day operations of the Project Management Unit (PMU), particularly with respect to the provision of technical services and support;
* Prepare internal and external correspondence for the PMU
* Maintain files and assist in the preparation of documentation in advance of and following all meetings, edit reports and other documents for correctness of form and content;
* Organize meetings, training workshops, etc for the project personnel and the thematic working groups,
* Organize and coordinate information exchange between participating institutions and internationally
* Maintain and update the established national web site;
* Provide oral interpretation and written translation as required;
* Assist in the preparation of documents related to project activities; and,

**IV. Qualifications and Skills**

* University degree ;
* Minimum of 3 years of working experience in the area of climate change and environmental management, and project administration;
* Experience in Government and in interdepartmental procedures;
* Familiarity with environmental issues and UNFCCC procedures
* Fluent written and oral communication in Sri Lankan and English;
* Strong time-management, organizational and inter-personal skills;
* Excellent computer knowledge (Word, Excel, Power Point, etc );
* Experience with preparation of information for presentation on web site;
* Sri Lankan citizenship.

**Post: Administrative / Finance Manager (AFM)**

**I. Project background information**

The preparation of SNC will involve a multitude of tasks/activities ranging from project management, financing and administration to the implementation of day-to-day activities or tasks, which would be carried out, by numerous individuals and organizations. In the light of the implementation of the project a Administrative/Finance Manager (AFM) will be required to work closely with the NPC & NPM in managing and supporting the implementation of the activities/tasks relating to the preparation of SNC. The AFM will be located in the PMU of the Global Affairs Division of the MOE who is responsible for the implementation of the SNC.

Duration of the project is 36 months.

**II. Scope of Work**

The AFM will assist the NPM in the coordination of daily activities and the organization of local travel for national experts. He/she will also be responsible for all administrative (contractual, organizational and logistical) and all accounting (disbursements, record-keeping, cash management) matters under the Project.

**III. Duties and Responsibilities**

The AFM will have the following duties

* Install the project financial systems and procedures, in accordance with UNDP’s existing guidelines on national execution and government procedures;
* Proper recording of financial transactions and submit a regular report on the project’ financial status;
* Certifies as to the correctness of journals, vouchers, bills, statement of accounts, trial balance, budgets estimates and other financial statements and records;
* Sign certification of the availability of funds and or allotment of expenses, vouchers and requisition for supplies, materials, etc.
* Consolidate and prepare annual and quarterly budgets and work plans, including the necessary budget revisions;
* Establish project account and ensure appropriateness and proper record keeping of transactions;
* Preparation of documentary requirements for disbursements.
* Prepare updated reports on disbursements made by the project and advice the National Project Manager on the overall financial status of the project.
* Prepare quarterly and annual work progress reports in consultation with the NPM and NPC, reporting on progress in achieving project targets. The Quarterly Progress Reports (QPR’s) would provide a brief summery of the status of input procurement and output delivery, explain variances from the work plan, and present work-plans for each successive quarter for review and endorsement. Annual Progress Reports (APR’s) would provide a more in-depth summery of work-in-progress, measuring performance against both implementation and impact indicators. APR’s would inform decision-making by the Project Management Bored, which would evaluate whether any adjustment in approach is required. A terminal report would be completed prior to the completion of the project detailing achievements and lessons learned.
* Manages the day-to-day administrative activities of the PMU such as manning the office, Scheduling of meetings, coordinating with concerned offices, record keeping, etc.

**IV. Qualifications and Skills**

* The candidate for the Finance Officer post must have a Bachelor’s degree in Accounting, Business Administration, Economics, or other related field
* At least two (2) years professional experience in related financial management services; experience in Government – executed project procedures an advantage.
* Written and oral communication skills (report preparation and business communication experience essential) including the capacity to relate to both the internal and external constituencies of the project.
* Good human relation skills.
* Excellent computer skills including Word and Excel.
* Experience in procurement and clerical work.
* Proven ability to work with teams of people.
* Ability to work autonomously and as a member of a team.
* Patience and tolerance for other perspectives.
* Capacity to work under pressure.

**NATIONAL STEERING COMMITTEE FOR CLIMATE CHANGE**TheNational Steering Committee for Climate Change (NSC) will be responsible for supervising the project execution. This will include evaluating project outputs to ensure that project activities are being carried out in a timely manner and to acceptable levels of quality, and reviewing the status and needs of countries throughout project implementation. The NSC will provide a policy and technical platform for the project and in that context it will have the following duties.**III. Duties and Responsibilities** The NSC responsibilities will include the following:Ensuring that national climate change policies and programmes are consistent with national development priorities and objectives;

* + Ensuring that all relevant stakeholders in the country are kept informed and consulted on the development of climate change issues and policies;
  + Lay down policies defining the functions, responsibilities and delegation of powers for the local implementing agency and the MOE;
  + Overseeing national policies on climate change and of the implementation of the UNCCC at a national level;Coordinate and manage the overall project activities and the budget;
  + Facilitate coordination of project activities across institutions;Review the project activities, and their adherence to the work plan set forth in the project document;
  + Review and comment on each year’s proposed work plan and budget;
  + Take decisions on the issues brought to its notice by UNDP and other cooperating institutions, and provide advice regarding efficient and timely execution of the project;
  + Initiate remedial action to remove impediments in the progress of project activities that were not envisaged earlier;
  + Developing negotiating positions and strategies for the Government of Sri Lanka for meetings of the COP of the UNFCCC;
  + Monitoring and reviewing the progress of the project against its stated outputs, including progress reports prepared by the PMU;
  + Reviewing and approving the project work plan;
  + Reviewing and approving the monitoring and evaluation timetable;
  + Making modifications, as necessary, to the number and scope of workshops being organized under the project;
  + Providing strong political support and overall policy advice for the development and realization of the project;
  + Assisting in mobilizing available data and expertise;
  + Endorsing the detailed work plan, produced thematic reports, Final SNC Report and Action Plans;
  + Proposing to the Government to adopt the SNC for submission to the UNFCCC Secretariat.

**THEMATIC WORKING GROUPS**

**THEMATIC WORKING GROUP ON GHG INVENTORYI. Scope of Work**The Thematic Working Group on National GHG Inventory will be formed to carry out the inventory of GHG emissions in Sri Lanka. The group will consist of experts from relevant ministries, institutions and agencies of government and non-government organizations. The group will ensure that specific tasks relating to the national GHG inventory is carried out in a timely manner and will ensure efficient coordination of outputs of consultants and national institutions. The activities undertaken by the national institutions will contribute to strengthening institutional arrangements for compiling, archiving, updating and managing GHG inventories.**II. Duties and Responsibilities** Particular duties may be as follows:

* Undertake national GHG inventories for the year 2000, according to the guidelines for the preparation of National Communications (17/CP.8);
* Participate in the training workshop on the use of IPCC guidelines;
* Include information on the other non-direct GHGs such HFCs, PFCs and SF6 as well as CO, Nox, SOx and VoCs;
* Revise the input data, taking into consideration data gaps and areas needing improvement identified in the stocktaking exercise;
* Collect/gather available activity data from national sources to fill inventory data gaps;
* Identify and develop methods for overcoming inventory data gaps if there is no available data;
* Identify barriers to obtaining existing data for key sources and propose solutions;
* Archive relevant data for the project duration;
* Calculate emissions for the year 2000 for all sectors;
* Describe procedures and arrangements undertaken to collect and archive data for the preparation of national GHG inventories, as well as efforts to make this a continuous process, including information on the role of the institutions involved**;**
* Organize (in cooperation with the PMU) workshop for presentation and discussion on the results obtained from the GHG Inventory

**III. Qualifications and Skills**The institutions and/ or expert individuals contracted for undertaking project activities should meet the following minimum criteria:Sound and broadly-recognized scientific expertise on climate research in Sri Lanka;

* Prior experience in inventory preparation, through involvement in the First National Communication;
* Highly qualified scientists working in the fields of emission factor development or data collection methods;
* Familiarity with the UNFCCC and IPCC technical guidelines

**vi. Expected output:**A report of the National GHG Inventory in accordance with the UNFCCC guidelines. The report should include information on other non- direct GHGs: HFCs, PFCs and SF6 as well as CO, NOx, SOx. **B. THEMATIC WORKING GROUP ON VULNERABILITY ASSESSMENT AND ADAPTATIONI. Scope of Work**The TWG on V&A will be established for SNC project in Sri Lanka. The group will ensure implementation of specific activities outlined below, as well as coordination of the outputs of other consultants engaged outside the institution. The activities undertaken by the national institutions will also strengthen institutional arrangements for systematic climate observation, data management and control, processing and updating of meteorological and hydrological services data.**II. Duties and Responsibilities** Particular duties may be as follows:

* Participate in the training workshop on V&A methods and tools available for V&A assessment work;
* Revise the scenarios for climate change,
* Analyze the climate changes for the period 1961-2000 for existing stations of the following parameters: temperature, precipitation, wind, cloudiness and sunshine hours,
* Identify the data needs, availability and suitability, and establish datasets baselines of the assessment;
* Analyze the existing climate data and parameters, by months and years
* Prepare climate maps using GIS technology;
* Review the vulnerability assessment of the following sectors: agriculture, water resources, natural ecosystems, forestry, and human health, including identification of vulnerable areas that are most critical;
* Describe links between climate, and socio-economic baseline conditions of the country in the most vulnerable sectors;
* Based on the output of the vulnerability assessment, evaluate the feasibility of available adaptation measures to meet their specific needs and concerns arising from the adverse effects from the climate change;
* Prepare a national adaptation action plan to implement those measures being of highest priority including clear distinction of responsibilities among the relevant stakeholders, timeframe for fulfillment/implementation of the recommended measures, financial means for implementation of the measures, and identification of possible barriers and risks;
* Liaise and consult with the TWG on Technology Transfer and Research and Systematic Observation on issues relating to technology needs assessment and climatic conditions of Sri Lanka;
* Organize (in cooperation with the PMU) a workshop to present the results from V&A;
* Prepare comprehensive report on Vulnerability assessment and national adaptation Action plan;
* Prepare a chapter on “Programmes containing measures to facilitate adequate adaptation to climate change,” in accordance with the UNFCCC guidelines.

**III. Qualifications and Skills**The institutions and experts contracted for undertaking project activities should meet the following minimum criteria:

* Sound and broadly-recognized scientific expertise on climate research in Sri Lanka;
* Prior experience in vulnerability assessment and adaptation process, through involvement in the First National Communication;
* Highly qualified scientists working in the fields of climate observation and vulnerability analysis in the specific sectors;
* Familiarity with the UNFCCC, IPCC methodology

**IV. Expected output:**Completed report on vulnerability assessment and adaptation strategy for the following sectors: agriculture, water resources, natural ecosystems, forestry and human health.

**C. THEMATIC WORKING GROUP ON MITIGATIONI. Scope of Work**The thematic Working Group on Mitigation will be responsible for carrying out GHG mitigation analyses and identifying mitigation options for Sri Lanka. It will ensure timely and effective implementation of specific activities outlined below, as well as coordination with the outputs of other consultants engaged outside the institution. **II. Duties and Responsibilities**

* Based on the results from the GHG Inventory and future development plans, particularly in the energy and land use change and forestry sectors, develop a baseline and mitigation scenarios to abate the increase of GHG emissions;
* Consider the main national economic and social development trends in the analysis, including expected GHG emissions in energy, agriculture, land-use change and forestry and waste management;
* Extend the analysis on the side of energy consumption, including energy consumption in the industry (for heating, for technological processes), in the public sector and in the residential sector;
* Revise the measures contained in the INC according to the latest economic development, including quantitative measures in all sectors;
* Identify, formulate and prioritize programmes containing measures to mitigate climate change within the framework of sustainable development;
* Finalize the GHG mitigation analysis using the selected tools and additional background information in order to finalize the cost-benefit analysis of the different measures, develop a series of mitigation scenarios to abate the increase of the GHG emissions;
* Liaise and consult with the TWG on GHG Inventory and the TWG on Technology Transfer and Research and Systematic Observation on matters relating to GHG inventories and on technology needs for mitigation;
* Formulate a final national action plan to abate the GHG Emissions including information cost analysis,
* Assessment of technology options for the different mitigation options in various sectors;
* Institutional capacity-building needs to sustain mitigation work and the related legal and institutional frameworks;
* Organize (in cooperation with the PMU) a workshop to present the results of the GHG;
* Mitigation and draft national action plan;
* Prepare final report on GHG mitigation and national action plan, including comments from the stakeholders

**III. Qualifications and Skills**The institutions contracted for undertaking project activities should meet the following minimum criteria:

* Sound and broadly-recognized scientific expertise on climate research in Sri Lanka;
* Experience in preparing scenarios for GHG mitigation through involvement in the First National Communication;
* Qualified scientists working in the related areas: Energy, Agriculture, Transport , Industry, Land Use Change and Forestry, Waste

**IV. Expected output:**A Completed GHG Mitigation report and National action plan for effective response to the GHG emissions. The proposed activities will be undertaken in appropriate sequence so as to maximize the synergies between each component of the proposed activities, as well as the efficiency and cost-effectiveness for the implementation throughout the project cycle. Some proposed that are not related to each other, such as GHG inventory and vulnerability assessment, will be undertaken in parallel, as indicated in Table 5.Good practices in project implementation, such as the efficient use of financial and human resources, the engagement of qualified local and regional consultants, public participation throughout the project cycle, will be adopted where appropriate. Established guidelines will be followed, while established tools and methodologies will be used.**D. THEMATIC WORKING GROUP ON TECHNOLGY TRANSFER AND RESEARCH AND SYSTEMATIC OBSERVATIONI. Scope of Work**The thematic Working Group on Technology Transfer and Research and Systematic Observation will be responsible for carrying out technology needs assessment for mitigation and adaptation; and for assessing the needs and priorities for research and systematic observation in Sri Lanka. The group will ensure timely and effective implementation of specific activities outlined below, as well as coordination with the outputs of other consultants engaged outside the institution.

**II. Duties and Responsibilities**

* Participate in a training workshop on the technology needs assessment and the use of the UNFCCC guidelines on research and systematic observation;
* Carry out technology needs assessment for Sri Lanka;
* Prepare an analysis of the climatic conditions of various stations in Sri Lanka;
* Liaise closely and consult with the TWGs on GHG inventory, Vulnerability and Adaptation, and Mitigation on issues of relevance, especially on climate data, technologies and capacity building;
* Provide substantive input to the work of TWGs on Vulnerability and Adaptation and Mitigation;
* Formulate an action plan for technology needs for mitigation and adaptation including assessment of technology options in various sectors, institutional capacity-building needs, related legal and institutional frameworks;
* Organize (in cooperation with the PMU) a workshop to present the results of the technology needs assessment and research and systematic observation;
* Prepare final report on technology transfer issues and research and systematic observation, including comments from the stakeholders

**III. Qualifications and Skills**The institutions and or expert individuals contracted for undertaking project activities should meet the following minimum criteria:

* Sound and broadly-recognized scientific expertise on various technologies and climate research in Sri Lanka;
* Experience in preparing a report on technology, research and systematic observation through involvement in the First National CommunicationQualified scientists working on issues relating to climate, weather, meteorology and hydrological services;
* Familiarity with the methodologies for technology needs assessment and the UNFCCC guidelines.

**IV. Expected output:**

A completed technology needs assessment for Sri Lanka and a final report on Research and systematic observation including emerging needs and priorities.

**E. THEMATIC WORKING GROUP ON EDUCATION, TRAINING AND PUBLIC AWARENESS, INFORMATION AND NETWORKING AND CAPACITY-BUILDINGI. Scope of work**The TWG on ETPA, INFNET and CBT will be responsible for compiling information on the needs and priorities for ETPA, INFNET and CB. The group will examine ways to promote climate change education, training and public awareness building on the work already done on this issue during NCSA process. The group will ensure timely and effective implementation of specific activities outlined below, as well as coordination with the outputs of other consultants engaged outside the institution. **II. Duties and responsibilities**

* Compile and analyze information on activities/tasks relating to the implementation of the New Delhi work program on Article 6 of the Convention;
* Compile and analyze information on activities/tasks relating to the implementation of the Capacity-building framework of the UNFCCC;
* Identify the needs and priorities for climate change education, training and public awareness and capacity-building as they relate to GHG inventory, vulnerability and adaptation assessment, mitigation, technology transfer, research and systematic observation and other emerging priorities;
* Liaise and consult with the various TWG under SNC project and the task team on National Capacity Self Assessment;
* Prepare a draft National plan for implementation of Article 6 of the Convention and the UNFCCC capacity building framework;
* Identify technology needs for information and networking;
* Conduct a workshop (in collaboration with PMU) on ways to promote climate change education, training and public awareness;
* Prepare a chapter on: (i) Education, Training and Public Awareness, (ii) Information and Networking, (iii) capacity-building for inclusion in the compilation of the SNC.

**F. THEMATIC WORKING ON NATIONAL COMMUNICATION AND INTEGRATION OF SUSTAINABLE DEVELOPMENTScope of work**The TWG on National Communication will be responsible for drafting the Second National Communication with input from the various thematic working groups. The group will ensure that all information pertaining to the SNC is compiled and disseminated for review and comment in a timely manner. **Duties and Responsibilities**

* Compile the SNC in accordance with the UNFCCC guidelines based on information and or reports provided by the various TWGs;
* Liaise and consult with the various TWGS on issues relating to their respective competencies;
* Promote the integration of climate change concerns and issues into various TWG reports;
* Identify and highlight evolving needs and priorities relating to the preparation of second national communication and the implementation of the Convention;
* Prepare a final draft of the SNC including a 10-page executive summary and technical annexes (if any);
* Conduct a national workshop in collaboration with NSC and the TWGs on the SNC;
* Prepare final draft of SNC, print and submit to the UNFCCC secretariat and disseminate through CD-ROMs and a dedicated site on the MOE website.