Lampiran 3

UNDP Project Document

Government of Malaysia

United Nations Development Programme

ENABLING ACTIVITIES FOR THE PREPARATION OF MALAYSIA'S SECOND NATIONAL COMMUNICATION TO THE UNFCCC

Brief Description

The project will enable Malaysia to prepare its Second National Communication to the Conference of the Parties of the UN Framework Convention on Climate Change. The activities within the Second National Communication are continuation and upgrade of the work done under the Initial National Communication. The main components of the project are: a) Inventory of GHG b) assessment of potential impacts of climate change on the most vulnerable sectors, c) analysis of potential measures to mitigate GHG emissions. The Project will further enhance the national capacities and will raise general knowledge on the climate change. 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. Additionally, it will increase national capacities for participation in different mechanisms related to GHG mitigation and help Malaysia fulfils other commitments to the UNFCCC.

Table of Contents (Indexed)

Acronyms

CDM	Clean Development Mechanism
CEMD	Conservation & Environmental Management Division
COP	Conference of the Parties
DANIDA	Danish International Development Agency
FRIM	Forest Research Institute Malaysia
GCM	Global Climate Model
GEF	Global Environmental Facility
GHG	Greenhouse Gases
INC	First National Communication
IPCC	Intergovernmental Panel on Climate Change
LULUCF	Land-Use, Land Use Change and Forestry
MARDI	Malaysia Agricultural Research and Development Institute
MDG	Millennium Development Goal
MEDIS	Malaysia Energy Database and Information System
NC2	Second National Communication
NGO	Non-Governmental Organisation
NRE	Ministry of Natural Resources & Environment
NSCCC	National Steering Committee on Climate Change
PMG	Project Management Group
PSC	Project Steering Committee
PTM	Pusat Tenaga Malaysia (Malaysia Energy Centre)
QA/QC	Quality Assurance/Quality Control
RegHCM-PM	Regional Hydroclimate Model for Peninsular Malaysia
TAR	Third Assessment Report of the IPCC
V&A	Vulnerability assessment and adaptation
UNDP	United Nations Development Program
UNDP-CO	United Nations Development Program-Country Officer
UNDAF	United Nations Development Assistance Framework
UNFCCC	United Nations Framework Convention on Climate Change

Chemical symbols

CO_2	Carbon Dioxide
N_2O	Nitrous Oxide
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2-eq	Carbon dioxide equivalent
CH_4	Methane
N_2O	Nitrous oxide
NMVOC	Non Methane Volatile Organic Compound
HFCs	Hydrofluorocarbons
PFCs	Perfluorocarbons
SF_6	Sulphur hexafluoride

1. Elaboration of the Narrative

1.1 Situation Analysis

Rapid economic development in both urban and rural areas has led to environmental challenges. As in other countries, dealing with these has been a learning process, but the need to balance environmental and developmental demands has been recognised since the 1970s to ensure that the costs of environmental change are not compromising the benefits of development. From this, the principles of sustainable development have gradually been integrated into national development policies at the highest level of planning and policy making.

The environmental challenges that have to be faced ahead basically require the country to manage and sustain economic growth, ensure equitable distribution of the benefits of such growth, and balance the economic growth with effective protection of the environment and natural resources. Reconciling environmental sustainability and rapid economic development that reduces poverty calls for informed policies and strategies that achieve designated goals and minimize unfavourable trade-offs. The National Millennium Development Goals (MDGs) 2015 Report, launched in January 2005, provides baseline information on the achievement of the MDG 7 in the country. MDG 7, on ensuring environmentally sustainability, outlines the targets, programmes and challenges for achieving sustainable development in Malaysia.

Malaysia ratified United Nations Framework Convention on Climate Change (UNFCCC) on 13 July 1994. Under the stewardship of National Steering Committee on Climate Change (NSCCC), Malaysia submitted its Initial National Communication (INC) to UNFCCC in 2000. The INC was an output of the UNDP/GEF Project "Enhancement of Technical Capacity to Develop National Response Strategies to Climate Change". The INC process provided an opportunity for the development of expertise in each sector involved in the preparation of the national communication, enhanced the institutional capacity in these fields, and increased the awareness of public and institutions concerning the UNFCCC and the global warming issues.

Malaysia ratified Kyoto Protocol on 4 September 2002. As a developing country, Malaysia is not subject to any quantitative greenhouse gas (GHG) reduction commitments under the Protocol. However, through one of its flexible mechanism, i.e., Clean Development Mechanism (CDM), it offers options to Malaysia to avail of, and utilize financial resources for carrying out climate change mitigation projects, which bring about GHG emission reductions.

1.2 Strategy

Basically, the project will be implemented with the idea of making use of synergies with a number of on-going UNDP-GEF climate change projects in Malaysia. 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, non-governmental, academic, and private sectors. By doing so, it is expected that the climate change related issues would be accorded higher 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 the INC preparation. However, capacity building activities will still form part of the project and will be provided through training workshops, and encouragement of the 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 NC2 stocktaking exercise, and in the ongoing climate change mitigation projects in Malaysia. The project will be executed by the NRE in close collaboration with other relevant ministries and institutions.

1.3 Management Arrangements

Please refer to the following sections on the proposed institutional setup for preparing NC2:

a) Appendix B – Technical components of the project proposal: Section 5 – Institutional Framework and Project Implementation (page 21); and
b) Appendix C – Terms of Reference (page 29).

1.4 Monitoring and Evaluation

Monitoring responsibilities and events

A detailed schedule of project reviews meetings will be developed by the PMG, 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 PSC Meetings, (or relevant advisory and/or coordination mechanisms) and (ii) project related Monitoring and Evaluation activities.

Day to day monitoring of implementation progress will be the responsibility of the PMG based on the project's Annual Work Plan and its indicators. The PMG will inform the UNDP-CO 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-CO through quarterly meetings with the PMG, 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 PMG 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

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 finalised 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 the circulation the Inception Report, the UNDP-CO and UNDP-GEF's Regional Coordinating Unit will review the document.

(b) Quarterly Progress Reports

Short reports outlining main updates in project progress will be provided quarterly to the local UNDP-CO and the UNDP-GEF regional office by the PMG.

(c) 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 PMG 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 APRs. 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.

1.5 Legal Context

This Project Document shall be the instrument envisaged in the Supplemental Provision to the Project Document, attached hereto. The Supplemental Provisions to the Project Document is a standard annex to project documents that is used in countries which are not parties to the Standard Basic Assistance Agreement (SBAA). The Supplemental Provisions outlines the specific basic conditions under which UNDP assists the Government in carrying its development programmes. It specifies the UNDP privileges and immunities, the forms of assistance, the management arrangements, the role of the Government and the executing agency, resources, costs and general provisions. The host country implementing agency shall, for the purpose of the Supplemental Provisions to the Project Document, refer to the Government cooperating agency described in the Supplemental Provisions.

All activities stipulated in the Project Document shall be implemented accordingly. However, should there be a need to make changes/modifications to any of the agreed activities; all signatories of the Project Document must concur, before such changes are made.

The following types of revisions may be made to this project document with the signatures of UNDP principal project representatives and the Government of Malaysia, provided he or she is assured that the other signatories of the project document have no objection to the proposed changes:

a) Revisions in, or addition of, any of the annexes of the Project Document [with the exception of the Standard Legal Text for non-SBAA countries which may not be altered and the agreement to which is a pre-condition for UNDP assistance].
b) Revisions which do not involve significant changes in the immediate objectives, outputs or activities of a project, but are caused by the rearrangement of inputs already agreed to or by cost increases due to inflation; and
c) Mandatory annual revisions which re-phase the delivery of agreed project inputs or increased expert of other costs due to inflation or to take into account agency expenditure flexibility

Audit Requirements

As with all nationally executed projects, the project must be audited at least once in its lifetime, in accordance with UNDP procedures as approved in writing by the Government of Malaysia from time to time. The objective of the audit is to provide the UNDP Administrator with the assurances that UNDP resources are being managed in accordance with:

a) The financial regulations, rules, practices and procedures prescribed for the project:
b) The Project Document and work plans, including activities, management and the project implementation arrangements, monitoring, evaluation, and reporting provisions
c) The requirements for execution in the areas of management, administration and finance.

While the Government is responsible for ensuring that the audit requirements are met, the project may be subject to audit by the auditors of UNDP, and UNDP shall have right of access to the relevant records.

The Government of Malaysia auditors (i.e., the Auditor-General's Office) will be appointed as directed by the Economic Planning Unit (EPU) to conduct the audit. The Government must ensure that the audit is performed in accordance with the generally accepted standards and ensure that the audit report is duly reviewed and will reach UNDP Headquarters via the UNDP Malaysia office by 30th April of each year.

Confidentiality

The Parties shall undertake that neither Party shall disclose or distribute any confidential information, documents or data received or supplied to the other Party in the course of the implementation of this Project Document and any other agreements made pursuant to this Project Document, to any third party except to the extent as authorised in writing to do so by the other Party.

Both the Parties agree that the provisions of this Article shall continue to be binding between the Parties notwithstanding the expiry or termination of this Project Document.

Suspension

Each Party reserves the right for reasons of national security, national interest, public order or public health to suspend temporarily, either in whole or in part, the implementation of this Project Document which suspension shall take effect immediately after notification has been given to the other Party in writing.

Revision, Modification and Amendment

Any Party may request in writing a revision, modification or amendment of all or any part of this Project Document. Any revision, modification or amendment agreed to by the Parties shall be reduced into writing and shall form part of this Project Document. Such revision, modification or amendment shall come into force on such date as may be determined by the Parties. Any revision, modification or amendment shall not prejudice the rights and obligations arising from or based on this a Project Document prior or up to the date of such revision, modification or amendment.

Arbitration

Any dispute, which cannot be resolved amicably, shall be settled by arbitration in accordance with the Arbitration Act 1952 [Act 93] and the rules of arbitration as adopted by the Regional Centre for Arbitration at Kuala Lumpur.

The number of arbitrators shall be three (3), with one (1) arbitrator to be appointed by UNDP and one (1) arbitrator by the Government and the third to be agreed between the two (2) nominated arbitrators. If the two (2) arbitrators fails to agree on the person to be nominated, on the application of either Party hereto the same shall be appointed by the Director of the Regional Centre of Arbitration in Kuala Lumpur.

Any such reference to arbitration shall be deemed to be a submission to arbitration within the meaning of the Arbitration Act 1952.

The decision of the panel of arbitrators shall be final and binding on both Parties.

The arbitrator shall have the power to order specific performance of any obligation under this Project Document.

Entry into Force, Duration and Termination

This Project Document shall enter into force on the Starting Date and shall remain in force until the Completion Date unless one of the Parties notifies the other Party of its intention to terminate this Project Document by a notice in writing, at least six (6) months prior to the date of the intended termination.

The termination of the Project Document shall not affect the implementation of ongoing activities/programmes which have been agreed upon prior to the date of the termination of this Project Document.

Protection of Intellectual Property Rights

The protection of intellectual property rights shall be enforced in conformity with the national laws and regulations of Malaysia and with other international agreements signed by the Parties.

The use of the name, logo and/or official emblem of any of the Parties on any publication, document and/or paper is prohibited without the prior written approval of Party concerned.

Notwithstanding anything in paragraph 1 above, the intellectual property rights in respect of any technological development, products and services development, carried out:

a) Jointly by the Parties or the research results obtained through the joint effort of the Parties, shall be owned by the Parties in accordance with the terms to be mutually agreed upon; or
b) Solely and separately by the Party or the research results obtained through the sole and separate effort of the Party, shall be solely owned by the Party concerned.

2. Appendices

Appendix A: Summary Report of the Self-Assessment Exercise

1. Description of the process and approach adopted for the stocktaking exercise

There are two main objectives that were targeted in the stocktaking exercise. Firstly is to identify the gaps and constraints from the INC preparation, and later overcome those deficiencies to improve the NC2 preparation. Secondly is to update information presented in the INC and gather additional input for inclusion in the NC2.

Methodology applied in the stocktaking exercise includes reviewing related documents as well as consultation with relevant stakeholders. Activities carried out during the exercise are as follows:

1.1 Assessment of INC

The INC itself is clearly the most important document as reference in identifying gaps, shortfalls and recommendations of previous national communication preparation process. The assessment ensures the essential information identified will be used for further development and the formulation of the NC2. The review also identified information which needs to be updated and followed up for reporting in NC2.

1.2 Review of international experience and best practices

National Communication from other Countries: The purpose of this assessment is to learn from other countries' experience in preparing their national communications. Targeted countries included Non-Annex I Party (South Korea, which is one of the three Non-Annex I countries to have submitted a NC2) and Annex I Party (Denmark, through collaborations of DANIDA-funded activities). The information obtained from the review served as an inspiration and a good reference to NC2 development work through analysis of the format & contents of their national communication, and the country's reference in collecting the required data.

Project Documents submitted to GEF: Particular attention was given on project documents from Non-Annex I countries applying for GEF fund for preparing their NC2, although references were also made to other applications for funding INC activities. Those countries included Macedonia, Uruguay, Argentina, China and India.

1.3 Interviews

Direct consultations were conducted with 16 selected agencies/individuals from various sectors or expertises, including energy, forestry, agriculture, waste, water resources, coastal resources, public health, climate modelling and NGO. Criteria considered for their selection was either their previous involvement in the INC preparation, or as potential contributor to the NC2 preparation. Inputs gathered from the interviews include gaps and constraints of the INC, recommendations for NC2, activities to be carried out for NC2 formulation, additional information for inclusion in NC2, sources for gathering information and also comments on the institutional arrangement for NC preparation.

1.4 Workshops

Two workshops were organized as part of the stakeholder consultation activity. Generally the participants invited to the workshop were those involved in the INC preparation and also those potential stakeholders of the NC2 who are well-known for their commitments in addressing climate change related issues. The participants came from various government agencies, private sectors, academics and NGO.

The first workshop was conducted on 17 January 2005 and served two purposes. Firstly to identify the gaps and lesson learned in preparing the INC and, secondly to gather inputs for the NC2. The second

workshop was held on 26 April 2005, which aimed to gather feedback from respective stakeholders on the content and overall presentation of the draft UNDP Project Document. Both workshops gathered national and international experts (from Annex I and non-Annex I parties) in delivering relevant papers and sharing experience on NC preparation.

2. Main outcomes of the stocktaking, including priorities identified

Information on the gaps and lessons learned in preparing the INC were the main focus of the stocktaking exercise. It was acknowledged that constraints and difficulties were faced in preparing the report either in following the guidelines or in collecting input for the report. In addition, the issue of the institutional arrangement for the continuous reporting of national communication was recognized as a main concern area that should be addressed.

The NC2 will continue to focus on the five main sectors of GHG emissions/removal, namely energy, industrial processes, agriculture, land-use change and forestry and waste. Moreover, the NC2 will also address issues concerning adaptation to climate change, and these will involve sectors that have been identified as vulnerable to climate change: agriculture, forestry, biodiversity, water resources, coastal resources, public health and energy sector.

National Circumstances: The information on national circumstances covered in the INC needs to be revised and updated when preparing the NC2, taking into consideration data generated (and gathered) in previous and ongoing projects related to the sectors to be covered in the NC2. Issues discussed include features of national geography, climate, land-use and water resources, social framework, social integration, government structure, economy, energy balance and renewable energy.

GHG Inventory: The data gaps, uncertainty of some of the data and non-availability of related local emission factors are the main problem related to the GHG inventory. Further to the efforts in estimating GHG inventory for INC, it showed a need for strengthened institutional capacities in the collecting and collating of data, and further research is necessary to establish local emission factors to improve future national GHG inventories. IPCC default values for the estimation works are clearly insufficient to gauge the precise extent of GHG emissions resulting from anthropogenic activities, which are influenced by cultural practices and government policies. Therefore, local capacity needs to be developed to determine local emission factors for more accurate estimates.

Several national activities have been initiated to develop the GHG inventory and investigate ways to improve local emission factors. A preliminary assessment on second national GHG Inventory on the energy sector was conducted by PTM in 2004. It identified the strengths and weaknesses of the country's database pertaining to the inventory and ways to improve emission factors in key source categories. Apart from that, FRIM has recently initiated a study to estimate carbon sequestration potential of Malaysia's natural forest, rubber and forest plantations which aims to establish national default values and provide an estimation of emissions and removals in key land-use categories

Based on the main findings and recommendations from the stocktaking exercise, the main priority of the upgraded GHG Inventory within the NC2 include ascertaining the results of the initial GHG through reducing identified uncertainties, the emphasis on verification and interpretation of the collected data, and development of a user-friendly database system on GHG inventory.

Programmes containing measures to facilitate adequate adaptation to climate change: Information presented in the INC was based mainly on individual knowledge, experience and expertise, where no empirical research was done, which could provide more accurate data and further confirm the results. The problems encountered in assessing the impacts of, and measures to adapt to, climate change could be attributed mainly to inconsistencies of scenarios from the various climate models, lack of information, limited relevant research, and inadequacy in national capacity. The difficulties and shortcomings in the specific sectors encountered are as follows:

a) Agriculture: The greatest difficulty encountered during the process was attributed mainly to availability of the right/accurate data for the model simulations. Due to scarcity of information, assessments made during the INC were mainly compiled based on previous research by MARDI and other sources. Despite the problem, no further works subsequent to those done in preparing INC was continuously done, due to and leading to, lack of awareness/knowledge on the vulnerability of agriculture sector to climate change and the potential impacts faced by the sector.

b) Forestry: The analyses on the responses of the forestry system to climate change were limited within the INC due to inadequacy of relevant data. As such, the INC had provided a review on the potential impacts of climate change on forests in Malaysia through the collation of available information. It was noted during the stocktaking exercise that the predicament encountered in the INC has not been moderated upon its submission due mainly to climate change concerns have not been tackled directly in local studies and lack of a local research fund for this rather new discipline.

c) Water resources: Within the context of INC, a study was conducted to provide insight into the developments of GCMs in predicting future climate change scenarios with respect to water resources assessment, assess the current water resource related stresses in the country and implication of a change in climate on these stresses, and finally to recommend future directions in handling the issues of climate change. Although great uncertainties were found in simulated results from GCMs, the potential adverse impacts on water resources were recognised.

d) Coastal resources: Several problems/difficulties were encountered during the preparation of the INC, which inter-alia include difficulty in aggregating local/project-based assessments to yield national estimates, uncertainty in future forcing scenarios (such as sea level rise, storm tracks, etc.), paucity of relevant data for analysis of long-term trend in wave climatology, and lack of finely resolved digital terrain information of coastal belt which hampered the delineation of inundation zone resulting from future sea level rise and the consequent cost estimation. Furthermore, the assessment carried out was almost entirely on Peninsular Malaysia.

e) Public Health: During the INC researchers had reviewed relevant published literature on the effects of climate change on public health in Malaysia. Both the data on several diseases and climate were assessed for linkage on climatic effects on public health. The study had preliminarily suggested that climate change has a causal role in the emergence of the diseases analysed. Although a preliminary account of the situation was obtained, the study pointed out the lack of both the diseases and climatic data as the main contributing factor to the gaps and uncertainties in the analyses. Furthermore, no specific adaptation measure was elaborated in the INC.

f) Energy: The INC assessed the impacts of climate change on electricity production and consumption, and the oil and gas industries. The impact studies considered several projected scenarios, including sea level rise and changes in the ambient air temperature, water temperature and rainfall. Apart from that, the impacts of warmer ambient air temperature in the transport sector were briefly discussed. It was recognised that the scale of impact could be substantial due to the quantity of and rate of newly registered vehicles in the country.

Stakeholders consulted agreed that similar sectors reported in the INC shall be reported again in the NC2, and these include agriculture, forestry, biodiversity, water resources, coastal resources, public health and energy sector. Analyses within each sector will be improved to incorporate data, results, findings and recommendations from completed or ongoing relevant studies.

Programmes containing measures to mitigate climate change: During INC not all relevant sectors were studied on the measures to address climate change. Areas not included in the analysis are methane reduction/conversion from agriculture sector, piggery waste and wastewater treatment ponding system in waste sector and development of peat swamp area. Nevertheless, most of the proposed mitigation options

reported in the INC have been initiated through local and/or GEF funding. These projects include Malaysia Building Integrated Photovoltaic Technology Application Project (MBIPV), Demand Side Management Project, Malaysian Industrial Energy Efficiency Improvement Project, Building Energy Efficiency Project, Malaysia's Biomass-based Power Generation and Co-generation in the Palm Oil Industry, and Comparative Studies on Carbon Sequestration Potentials.

Other information envisaged relevant to achievement of the objectives of the convention: Some of the activities related to climate change are currently performed by some organisations from government agencies. MPOB is conducting studies on biomass and bio-fuel, PTM is developing a roadmap for solar fuel cell and hydrogen, MARDI is carrying out projects on peat restoration, while FRIM is studying on pulp and paper production from empty fruit bunches (EFB) as well as cement board production from oil palm trunk.

Constraints & gaps, and related financial, technical and capacity needs: The INC highlighted the needs for continuous monitoring of climate change and its impact, which would form the basis for scientific research for better understanding of climate system. The consulted stakeholders suggested to include synergies between different relevant conventions as one way to obtain financial and technical needs and identified needs for capacity-building in data gathering and research, institutional strengthening, as well as in training and education.

3. Main lessons learned of the self-assessment exercise, including and brief explanation on how its outcomes have provided inputs to the preparation of the project proposal

The stocktaking exercise mainly involved the analysis of the work done to prepare the INC report, the INC report contents, and the status of the institutional arrangements that were set up for the process of National Communications reporting to the UNFCCC. The detailed studies conducted during the INC preparation were reviewed and the gaps and uncertainties were identified. The linkages of the national communications formulation with other relevant activities were identified, considering relevant documents such as National Policy on Environment, Malaysia's Energy Plan, National Policy on Biological Diversity, Malaysia's Third National Agriculture Policy, etc. Among the main lessons learnt from the stocktaking exercise are:

- The workshops during the exercise had been able to mobilise the stakeholders for participation in the NC2 process. Nevertheless, their level of awareness and capacity would require further enhancement through workshops and/or trainings to ensure better understanding on respective role to be played and information to be provided for the preparation of NC2.
- The sharing of the neighbouring country's experience in their NC process had been beneficial in enhancing national capacities. It is, therefore, essential to maintain and strengthen established links as well as to create more cooperation with other countries from the region during the NC2 preparation.
- Activities to be carried out during the NC2 preparation process should emphasize on capacity building to increase the capacity of institutions, technologies and database system which could ensure continuity and sustainability of future preparation of NC.

Institutions and Stakeholders Consulted

Name of Institutions/ Stakeholders Consulted	Stakeholder Interests, Official Position or Mandate	Reasons for Inclusion	Role in the Self-Assessment Process
GOVERNMENTAL INSTITUTIONS			
Ministry of Natural Resources & Environment	Performs activities related to natural resources management, conservation and management of environment and shelters, as well as management of land surveys and mapping administration. Related agencies under the Ministry: CEMD, DOE, DID, Forestry Departments, FRIM and NAHRIM	• National Focal Point to UNFCCC & responsible for preparing NC2. • To provide data for conducting the GHG inventories and mitigation analysis.	• Consultations on national priorities, current and planned activities related to climate change, including forestry, water & coastal resources, wastewater and environmental legislation.
Ministry of Energy, Water & Communication	Administers and manages the nation's energy, communications (infrastructure), postal services and water functions. Related agencies include Energy Commission & PTM	• To provide data for conducting the GHG inventories and mitigation analysis.	• Consultations with regard to policies and issues related to energy sector.
Ministry of Agriculture & Agro-Based Industries	Responsible for development and management of agricultural and livestock. Related agencies: Department of Agriculture, Department of Veterinary Services and MARDI.	• To provide data for conducting the GHG inventories and mitigation analysis.	• Consultations with regard to policies and issues related to agriculture sector.
Ministry of Plantation Industries & Commodities	Oversees the development of the plantation and commodity sector. Related agencies include Malaysian Palm Oil Board and Malaysian Rubber Board	• To provide data for conducting the GHG inventories and mitigation analysis.	• Provider of information on current and planned activities and projects related to climate change.
Ministry of Transport	Responsible for the planning, formulation and implementation of maritime, land transport, and aviation policies. Related agency: Department of Road Transport.	• To provide data for conducting the GHG inventories and mitigation analysis.	• Consultation with regard to the transport sector mitigation strategy.
Ministry of International Trade & Industries	Plan, formulate and implement policies on investment, industrial development and international trade. Related agency: Malaysian Industrial Development Authority		• Consultations with regard to policies and issues related to industrial sector.
Ministry of Health	Facilitate people to attain fully their potential in health and take positive action to improve and sustain their health status to enjoy better quality of life. Related agency: Institute of Medical Research		• Consultation with regard to policies and issues on health sector.
Ministry of Science, Technology & Innovation	Promotes science and technology competence for international competitiveness while ensuring environmental conservation and sustainable development. Related agency: MMS	• To provide climatic data on climate and climate scenario in Malaysia.	• Data and information provider about climate-meteorological technologies and activities.
Economic Planning Unit	Responsible to formulate policies and strategies for socio-economic development, prepare development programmes and project budget and advise Government on economic issues.		• Provider of information on national economic policies.
Department of Statistics	Collect, interpret and disseminate statistics for the purpose of formulating policies for national development planning and administration		• Provider of information and data on national statistics

Name of Institutions/ Stakeholders Consulted	Stakeholder Interests, Official Position or Mandate	Reasons for Inclusion	Role in the Self-Assessment Process
Environment Protection Department Sabah	Advise the State Government through the Environment Protection Council on actions and strategies to address critical environmental issues as well as to improve environmental management in Sabah.	• Representative from East Malaysia – Sabah	• Provide information on current and planned activities and projects related to climate change
Natural Resources & Environment Board Sarawak	Responsible for environmental planning and management with respect to the utilisation of natural resources in state of Sarawak.	• Representative from East Malaysia – Sarawak	• Provide information on current and planned activities and projects related to climate change
PRIVATE SECTOR			
Petroliam Nasional Berhad (PETRONAS)	Vested with the entire oil and gas resources in Malaysia and is entrusted with the responsibility of developing and adding value to these resources.	• To provide data for conducting the GHG inventories and mitigation analysis in energy, oil and gas sectors.	• Provider of information on current and planned activities and projects related to climate change
TNB Research Sdn. Bhd.	Perform R&D on electricity related business and quality assurance services for products related to the electricity supply and distribution.	• To provide data for conducting the GHG inventories and mitigation analysis in energy sector.	• Provider of information on current and planned activities and projects related to climate change
RESEARCH INSTITUTION			
Institute of Strategic & International Studies	Engaged in a wide range of activities focusing on objective and independent policy research.	• Project Manager to INC.	• Consultations on experience and involvement in INC and background report preparation.
NGOs			
Centre for Technology, Environment & Development (CETDEM)	Member of MCCG, active in attending international conferences, organising public talks, creating informative materials, to try to mobilise Malaysian society to address the problems of climate	• To provide input on of public awareness among Malaysian and awareness activities.	• Consultations on current and planned activities related to climate change.
Malaysia Nature Society	Promote the study, appreciation, conservation and protection of Malaysia's Natural Heritage, focusing on biological diversity and sustainable development		• Provider of information on current and planned activities and projects related to climate change
Environment Protection Society of Malaysia	Promote education and awareness raising and capacity building especially in relation to sustainable development and also climate change.		
ACADEMIC SECTOR			
Local Public Universities	Among related universities which conduct R&D on climate change include Universiti Putra Malaysia, Universiti Sains Malaysia, Universiti Kebangsaan Malaysia and Universiti Malaya		• Provider of information on current and planned activities and projects related to climate change

Appendix B: Technical Components of the Project Proposal

1. Background/Context

Malaysia ratified the United Nations Framework Convention on Climate Change (UNFCCC) in July 1994. Directly after that the National Steering Committee on Climate Change (NSCCC) was established to formulate and implement policies to address and adapt to climate change. The Committee, previously chaired by the Ministry of Science, Technology & Environment (now the Ministry of Natural Resources & Environment), consists of representative from relevant government ministries/agencies and NGOs.

Under the stewardship of the NSCCC, Malaysia submitted its Initial National Communication (INC) in 2000 to the UNFCCC in compliance with Article 12 of the Convention. The INC was an output of the UNDP/GEF Project "Enhancement of Technical Capacity to Develop National Response Strategies to Climate Change". The INC, prepared in accordance to the guidelines adopted in Decision 10/CP.2, was a first step in the actual implementation of the UNFCCC by the country. The preparation of INC gathered together scientists, experts and individuals from various government agencies, universities, research organizations, non-governmental organizations and private entities. Background documents pertaining to climate change scenarios, inventories of GHG, assessment of impacts of climate change, public awareness and education and abatement measures were prepared. It facilitated the development of expertise in each sector involved in the preparation of the national communication, enhanced the institutional capacity in these fields and increased the awareness of public and institutions concerning the UNFCCC and global warming issues.

The project for preparation of the Second National Communication (NC2) is a continual step towards further implementation of the UNFCCC at a national level. The analysis conducted within the INC will be upgraded and extended, which will result in preparation of an advanced national report in the form of NC2. The NC2 will be prepared in accordance to “Decision 17/CP.8: Guidelines for the Preparation of National Communications from Parties not included in Annex I to the Convention”.

2. Project Objectives

Project Development Objective:
The project will improve and sustain the Malaysia’s technical and institutional capacities, which will help the country in meeting its obligations under UNFCCC, and planning and implementing integrated sectoral and national development priorities regarding climate change.

Project Immediate Objective:
The project will enable Malaysia to prepare and submit its Second National Communication to the UNFCCC.

3. Project Strategy

Basically, the project will be implemented with the idea of making use of synergies with a number of on-going UNDP-GEF climate change projects in Malaysia. 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, non-governmental, academic, and private sectors. By doing so, it is expected that the climate change related issues would be accorded higher 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 the INC preparation. However, capacity building activities will still form part of the project and will be provided through training workshops, and encouragement of the 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 NC2 stocktaking exercise, and in the ongoing climate change mitigation projects in Malaysia. The project will be executed by the NRE in close collaboration with other relevant ministries and institutions.

4. Project Activities

Output 1: National Circumstances

The analyses of national and/or regional development priorities, circumstances and objectives that Malaysia is pursuing and those that would serve as the basis for addressing climate change issues and its adverse impacts will be included. Information on national circumstances will be linked to information provided in other section of the NC2. The analyses 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 Conventions, such as the CBD and the UNCCD.

Information on the features of national geography, climate, natural resources and socio-economic conditions, which may affect country's ability to deal with adaptation and mitigation to climate change will be updated. Special attention will be paid on new information and data related to the sectors vulnerable to climate change (agriculture, forestry, biodiversity, water resources, coastal resources, public health and energy) and sectors with GHG emissions/sinks (energy, industry processes, agriculture, land-use change and forestry, and waste). The new governmental structure subsequent to general election in 2003 will be deliberated. The updated information will aim to improve the information presented in the INC and simultaneously to facilitate better planning of adaptation and mitigation measures.

Output 2: Greenhouse Gas Inventory

The GHG inventory will be prepared and reported in NC2 for base year 2000 as required in guidelines adopted in Decision 17/CP.8. The estimations will be performed in accordance to the "Revised 1996 IPCC Guidelines for National Greenhouses Inventories", "IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories (2000)" and "IPCC Good Practice Guidance for Land Use, Land-Use Change and Forestry (2003)". Sectors of GHG inventory shall cover energy, industrial processes, agriculture, land-use change and forestry, and waste. Based on the inputs from the stakeholders consultation exercises, it was suggested that the inventory should emphasis on the three main GHG, i.e. CO_2, CH_4 and N_2O, and where possible (depending on availability of data), PFCs, HFCs, SF_6, CO, NOx and NMVOCs. Where gases or activities could not be covered/reported, constraints leading to such deficiency should be identified and reported in NC2. In addition, the inventory for year 1994 will be examined and re-calculated based on the revised guidelines.

As data are mainly available through MEDIS and the annual National Energy Balance, a time series of GHG inventory will be prepared for the Energy sector for 1990-2004. Attempts shall be made to also develop similar series for other sectors to the greatest extent possible depending on the availability of data. Where data are not available for all years in the time series, recommendations will be made to enable future estimates.

In order to facilitate the prioritisation of efforts to improve accuracy of inventories in the future, uncertainties in emission factors and activity data shall be identified and assessed for all the sectors. In particular, the capacity of national experts will be enhanced for developing methodologies for key sources analyses (level and trend assessment) and uncertainty calculations in accordance to IPCC Good Practice Guidance.

The procedures and arrangements established for preparing the national GHG inventory will be described as part of the National Communication Procedural Manual. In addition, guidelines for updating the database continuously and integration of new features and improvements will be provided.

More accurate GHG inventories will enable Malaysia not only to identify major sources and sinks of GHGs with greater confidence, but also to make more up-to-date policy decisions with respect to the appropriate mitigation measures. During the NC2, a National Action Plan for Improvement of the GHG Inventory shall be developed, encompassing several activities targeting reliable data management and storage, precise emission calculation, proper archiving and documentation, Quality Assurance/Quality Control and adequate reporting. Apart of its primary objective in improving the quality of the inventory, the Action Plan will aim to address the issue of institutionalizing the framework for GHG Inventory to ensure better archiving, documentation, validation and verification, and to create potential for more complex and accurate analyses, calculations and reports.

A workshop will be organised to present the results of the activities. Stakeholders' comments shall be gathered during the event. The final report on GHG inventory and national action plan will then be prepared, incorporating the comments from the stakeholders.

Sources of GHG emissions/removals and activities with respect to the specific sectors are outlined below:

Energy & Transport: The GHG inventory in this sector shall seriously take into consideration results from the preliminary study of the energy sector done by PTM in 2004 in estimating GHG emissions for year 2000, and detailed investigation shall be performed on any discrepancy that may emerge. The inventory for energy sector in NC2 will cover all fossil fuel for combustion in energy industries, manufacturing industries, transportation, residential and commercial, and agriculture, as well as fugitive emissions from coal mining and handling, and from oil and gas operations (including offshore sources). CH_4 and N_2O generated from the burning of biomass fuels will be included, with reference be made to the ongoing BioGen Project.

Industrial Processes: The GHG inventory in this sector will involve the collection of activity data for more industrial processes (as compared during the INC) such as the lime production (mineral products), ammonia/fertiliser and petrochemicals (chemical industries) as well as iron and steel, and aluminium (metal productions). Emission factors provided by the industries will be used, or failing that, default factors set by the IPCC. Relevant inputs on some of these industrial processes will be gathered from the ongoing Malaysia Industrial Energy Efficiency Improvement Project (MIEEIP), to investigate and implement energy efficiency initiatives in 8 categorised energy-intensive industries.

Agriculture: The inventory for agriculture sector shall cover the similar source categories as done in the INC. Emissions of CH_4 and N_2O will be estimated for activities on enteric fermentation in domestic livestock, manure management, flooded rice cultivation, and field burning of agriculture. Particular attention will be paid on manure management and rice cultivation due to the revision of methods in the Revised 1996 IPCC Guidelines.

LULUCF: The INC encountered several problems in preparing the inventory for this sector, particularly on the differences in database collection format, forest categorisation and others, which resulting uncertainty to the estimation generated. In view of great amount of sinks estimated in INC (nearly half of total GHG emissions), these issues shall be tackled before the actual data collection takes place in the NC2. During a workshop held in January 2005, the stakeholders agreed that the GHG inventory for this sector should continue to report on the categories as estimated in INC and to expand its coverage to other categories. The inventory shall account for CO_2 emissions and sinks from several categories, including changes in forest and other woody biomass stock, forest and grassland conversion, abandonment of managed lands, CO_2 emissions and removals from soil, and on-site burning of forest. CH_4 and N_2O emissions from forest conversion may be considered.

Waste: CH_4 emission from landfills shall be updated in the NC2 due mainly to the changes of population. Over the last few years, several Detailed Environmental Impact Assessment reports had been prepared and submitted to DOE on some proposed sanitary landfills and other solid waste management facilities in a few states. In addition, PTM, through the DANIDA fund, had recently surveyed on the CDM potential

in the waste sector. These reports shall provide useful reference in identifying the more suitable localised factors to be used in the estimation. Sources of emission from wastewater handling will be revisited from two perspectives: domestic and commercial wastewater treatment shall also look into those plants located in rural areas (which was assumed to decompose aerobically) in addition to urban areas, and where data information is available, the industrial wastewater treatment will also consider other industries apart from palm oil mills and rubber mills.

Output 3: Programmes containing measures to facilitate adequate adaptation to climate change

NC2 preparation will evaluate the latest development of the few GCMs adopted for INC and also the outputs of NAHRIM's Regional Hydroclimate Model for Peninsular Malaysia (RegHCM-PM). The results obtained will then be assessed in deriving the possible future approaches on climate scenario projections with reducing uncertainties. In particular, the establishment of two-way interaction mechanism with the GCMs shall be deliberated with the objectives to enable the GCMs to better simulate important regional climate features and provide more credible future climate scenarios on regional scales.

Further to the stocktaking and consultations exercise, the stakeholders agreed that similar sectors should be reported in NC2, i.e. agriculture, forestry, biodiversity, water resources, coastal resources, public health and energy. These sectors are the main indicators of national vulnerability to climate change. Analyses within each sector will be upgraded and improved, utilizing data, results, findings and recommendations from completed or ongoing relevant studies. The links between the climate change scenarios and potential socio-economic impacts will be examined.

Based on the outputs of vulnerability assessment, the feasibility of adaptation measures to meet specific needs and concerns arising from the adverse effects from the change will be evaluated. A national action plan shall be prepared on the implementation of identified prioritised measures for all sectors of concerned, including responsibilities among the relevant stakeholders, implementation timeframe, financial means, and identification of possible barriers and risks.

The procedures and arrangements established for performing a vulnerability and adaptation assessment will be described in the National Communication Procedural Manual. Gaps and constraints encountered, along with appropriate recommendations, will be made in the document, taking into consideration the establishment of viable institutional relationships and procedures for Malaysia to ensure continuous communication with the UNFCCC.

A workshop will be organised to present the results of the activities. Stakeholders' comments shall be gathered during the event. The final report on vulnerability and adaptation assessment and national action plan will then be prepared, incorporating the comments from the stakeholders.

It also should be noted here that the recommendations made in recent UNDP/GEF publication on "Adaptation, Strategies, Policies and Measures" will be used as a reference for additional guidance for vulnerability assessment and identification of key elements of adaptation strategy in relation to the following sectors.

Agriculture: Although the INC recognised that the full range of potentially useful strategies/policies will only be identified when adequate information is available, several possible adaptation measures were briefly summarised. Those measures, triggered mainly by other factors, have and continuously will be implemented. During the NC2, the measures will be studied on their relevance to climate change concern and where possible, the flexibility to integrate greater considerations for adaptation to possible future climate scenario.

National food security is the major concern in Malaysia's Third National Agricultural Policy (1998-2010). Due to the fact that climate change will potentially impact food security, it is important to

formulate appropriate policies and strategies in countering future climate scenario in concurrent with the Policy. The NC2 will aim to outline plans to enhance, inter-alia,

- Knowledge of effects of climate change on crop yields and livestock productivity in different regions and under varying types of management;
- Understanding of the impacts on other physical processes (rates of soil erosion; pests, diseases and soil microbes and their vectors; hydrological conditions; photosynthetic capacity);
- Ability to 'scale-up' the understanding of effects on crops and livestock from the farm/village /district/state levels to the formulation of policies at national levels;
- Information gathering on the range of potentially effective technical adjustments at the farm and village level, e.g. irrigation crop selection and fertiliser use, and on the economic and political constraints on such adjustments. New research programmes aimed at identifying or developing cultivars and management practices which are suitable for altered climatic regimes will be designed;
- Collection of information on the range of potentially effective national policy responses, e.g. reallocation of land use, plant breeding, improved agricultural extension schemes, large-scale water transfer etc.

Forestry: Despite many uncertainties surrounding the potential impacts on the forestry sector, it remains important in the context of national development and socio-economic and environmental function. Emphasis to improve the local capacity and understanding of climate variations and their effects on the forestry will be the major issues to be considered during the NC2. Subjects of analysis include identifying and examining relevant models on the possibilities for application in modelling of climatic behaviour and effects of climate change, establishment of climate-related databases, improvement of climate and environmental monitoring and observation systems. An integrated framework for planning and implementing scientific research on the impacts of climate change on the forestry sector will be established.

Several adaptation measures were identified in National Response Strategies to Climate Change as possible measures for implementation under sustainable forest management practices. However, the report recognised that it was rather inconceivable to implement all those activities by the Government due to the heavy investment required. Hence, only five measures were elaborated in the INC, i.e. forest plantation establishment, national seed bank collection, promotion of greater use of timber, reduction of wastage in forest harvesting and increased efficiency in wood processing, and strengthen and integrate conservation of protected areas. Further to stakeholder consultation, these measures are currently being implemented. The NC2 will expand on these implemented measures and re-examine those others for future implementation.

Biodiversity: Malaysia has, under the Convention on Biological Diversity (CBD), conducted a country assessment of its biological diversity resources in 1997 and developed a National Policy on Biological Diversity in 1998. Furthermore, both Sabah and Sarawak have taken a step further by formulating their own laws and legislation to manage and protect the biodiversity in the states. The government of Malaysia has also recognized the importance of marine protected areas in Malaysia and has developed a project proposal for the strengthening of the marine parks system in Peninsular Malaysia. This project will look at addressing threats originating from the development of islands and increasing control of activities in and around the marine park area. The goal of this project is to ensure proper conservation and sustainable use of the marine biodiversity in the three marine parks, as well as sustainable island development.

The impacts of climate change on Malaysia's biodiversity were not entirely assessed in INC. Preliminary assessment was only done on the forestry biodiversity via review of several previous relevant studies. Further to stocktaking and stakeholder consultation, the study on the impacts of climate change shall be expanded, apart from terrestrial biodiversity, to cover marine biodiversity. Reference will be made to the above and other relevant strategic documents and studies to assess the climate change impacts to the biodiversity. Recommendations on the adaptation measures for biodiversity protection in the context of climate change, as stipulated in those documents, will be taken into consideration.

Water resources: NAHRIM's study on "The Impact of Climate Change on the Hydrologic Regime and Water Resources of Peninsular Malaysia", expected to be completed by end of 2005, would be able to determine the potential long-term climate and hydrologic impacts of global warming on the hydrologic regime and water resources of Peninsular Malaysia, i.e. potential quantum of hydrologic/water resources changes in the country (at 15km grid resolution) both spatially and temporally following climate change. With the results obtained from simulation using a model developed, RegHCM-PM, the decision makers will be provided with the scientific basis for any policy or adaptive measures related to climate change.

Within the NC2, upon the validation of the model, analysis will be performed on the existing and future water resources systems to the impact of the climate change on a basin-by-basin basis. As the model is developed specifically for the Peninsular Malaysia, strategy to expand the study to East Malaysia will be considered. Based on the results obtained from the modelling in NAHRIM's study, the measures as outlined in the INC will then be re-examined. Adaptation policies and measures to mitigate the predicted impacts will be detailed in the NC2.

Coastal resources: Upon the submission of INC, several studies had been carried out by the government to outline area-specific management plan for several shorelines/coastal zones in the Peninsular Malaysia. In particular, the Integrated Shoreline Management Plan throughout the nation, pursuant of the adaptive strategy recommended in National Coastal Erosion Study in the 1980s, was initiated in the late 1990s and had completed the northern Pahang shoreline. The study on southern Pahang shoreline is currently ongoing and the coastlines of Penang and Seberang Perai will soon be looked into. Apart from that, a Preliminary Coastal Vulnerability Index Study (CVI) has been commissioned by NRE and is expected to commence by end 2005 to identify the susceptibility of coastal areas to the impacts of sea level rise. The Index, when completed, will indicate the vulnerability of a locality to sea level rise and global warming. Findings from the study will identify highly vulnerable areas where development should be avoided and serve as a basis for recommending proactive adaptive measures to mitigate the impacts of sea level rise. In addition, a National Integrated Coastal Zone Management Policy has been drafted in end 2004. The policy, when adopted, will serve as a guiding policy to all states or government agencies on the management of coastal areas.

Within NC2 relevant information on climate change induced impacts will be drawn from the above studies. Measures as outlined in the studies will be analysed on the adaptability to climate change impacts. Uncertainties and gaps within the studies will be identified with respect to climate change, and recommendations to address these issues will be made in the NC2 to the greatest extent possible.

Public Health: Mathematical modeling and statistical analysis needs to be applied to interpret the data to establish the link between diseases and climate, taking into a variety of potential compounding factors such as development, age distribution, land use change, water resources and air pollution. The Institute for Medical Research (IMR) is currently conducting a retrospective study on Malaria, Dengue and Acute Gastroenteritis from the year 1980 to 2004. The study attempts to document the impact of climate variability for Malaysia, focusing on the public health perspectives; to link incidences of diseases with climatic factors and determine any co-relationship between occurrences of a particular disease with climate variability and to recommend new action/response plans and modify existing measures for health authorities in managing and controlling disease outbreaks.

The outcomes of the retrospective study will be used as the main input for NC2 with regard to public health. In addition, the need for future research will be deliberated to include other complex factors in disease patterns including political, social and economic factors. According to the World Health Organization's recent publication "Using climate to predict infectious disease outbreak: a review", maintaining and strengthening disease surveillance is important, and high quality, long term data is vital for refining models relating climate to infectious disease. For each of the potential impacts of climate change, the respective group of populations, which will be particularly vulnerable to the diseases, will be identified and discussed. In line with the Third IPCC Report, the potential threat to the lower income populations will be the main concern of the study.

Energy: Despite the role of the energy sector, from the perspective of climate change, it has generally been seen as the 'contributor' rather than the 'recipient'. Factors affecting the reliability and security of supply will also need to be well understood. Within the NC2 the sectors studied in the INC will be updated with more recent research findings, including those done by Petronas on the vulnerability of climate change to offshore installations and effects of warmer sea level on the gas turbine. In addition, the NC2 will assess areas not considered in the INC, including the potential implications of climate change on the lifespan of power plant and transmission, and the planning in locating future new plants. For the transport sector, the impacts due to increased ambient air temperature will be further elaborated in two perspectives, i.e. fuel consumption and fuel loss.

Output 4: Programmes containing measures to mitigate climate change

The INC discussed several mitigation options that aim to reduce CO_2 emissions. The options were targeted on key sectors as estimated in the GHG inventory, i.e. energy, industry, agriculture, and LULUCF. No measure, however, was considered for the waste sector. The energy sector had proposed energy efficiency in the transport sector, use of photovoltaic for electricity generation and demand-side management of energy. Several strategies for improving energy efficiency were discussed for the industrial sector. As biomass generation was expected to escalate further with the country's emphasis on the agriculture sector, the possibility of utilising biomass waste for power co-generation was examined. For land-use change and forestry sector, a comparative study on carbon sequestration potentials was highlighted. Based on the findings from the stocktaking exercise, most of the proposed mitigation options in the INC have been initiated through either local and/or GEF funding, as listed in Appendix A.

Within the INC the projection of GHG emissions was only conducted on the energy sector, mainly because it accounts for the bulk of total emissions. However, the projection was only done for CO_2 emissions from the sector. Projection from other sources, as well as for the other GHGs, could not be carried out due to unavailability of reliable projected base data. Two plausible future energy scenarios, Business-As-Usual and Efficiency-Oriented, were considered for the period until year 2020.

Subsequent to the submission of the INC, a group of Malaysian scientists were invited to participate in a Japanese-sponsored climate policy assessment, in which a large-scale computer simulation model, Asia-Pacific Integrated Model (AIM), was used for assessing the energy consumption patterns and projections for transport and residential sectors for 2000-2020.

Within NC2 the information on implemented and/or adopted GHG reduction policies and measures will be gathered and presented, with the view to identify, formulate and prioritise other potential mitigation policies and measures. Mitigation options considered under the NC2 will reflect realistically the national conditions and circumstances, and will contribute to the GHG reduction at national level, thus promoting the principles of sustainable development.

GHG reduction in the energy sector will be targeting on energy supply and demand, and transportation. On energy supply, the renewable energy and energy efficiency activities will be gathered; whereas the energy demand will look into the promotion of energy conservation and improvement of energy efficiency measures in industries and buildings. Furthermore, the policies and measures to promote and/or improve the use of cleaner fuel and efficient management of national transportation system and traffic demand will be elaborated. Measures to reduce GHG emissions in the agriculture sector will include improvement of farming and animal husbandry methods. As for the waste sector, the following policies and measures will be examined: (1) minimising waste; (2) increasing recycling and improving waste management processes; and (3) potential energy harnessing using landfill gas. In the LULUCF sector, several measures to be included are reduction in rate of deforestation, increase in afforestation, increase in stocks of carbon within existing forests, and an increase in the efficient use of wood and implementation of reduced impact logging. In addition, the use of CDM will be included as part of mitigation efforts.

The estimated GHG inventory will be used in establishing business-as-usual baseline projections until 2020, taking into account national economic and social development trends and projections, and currently implemented or adopted policies and measures. The projections will be established for the sectors of energy and transport, industrial processes, agriculture, LULUCF and waste management. The internationally recommended methodologies, such as Third IPCC Report on Mitigation will be applied where appropriate.

Based on the identified policies/measures and future development plan, projections for the mitigation scenarios will then be established. At least two mitigation scenarios will be developed, and economic tools/models will be applied to assess their cost benefit for Malaysia. Limitations and uncertainties encountered in the analysis and recommendations for improvement will be discussed.

A national action plan for the implementation of identified prioritised mitigation options will be formulated. The main implementation requirements will be identified, including cost analysis, barriers for implementation, 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.

The procedures and arrangements established for performing GHG mitigation assessment will be described in the National Communication Procedural Manual. Gaps and constraints encountered, along with appropriate recommendations, will be made in the document, taking into consideration the establishment of viable institutional relationships and procedures for Malaysia to continuously communicate to the UNFCCC.

A workshop will be organised to present the results of the activities. Stakeholders' comments shall be gathered during the event. The final report on GHG mitigation and national action plan will then be prepared, incorporating the comments from the stakeholders.

Output 5: Other information considered relevant to the achievement of the objective of the Convention

Review on several relevant national plans, studies and policies will be carried out for reporting in the NC2. These national documents include those that have direct and/or indirect impacts on GHG emissions, adaptation strategies and mitigation options in terms of ascertaining the data and results, and affecting the structure of direct and indirect greenhouse gases in total emissions, and will contribute to achieving sustainable development.

Information will be compiled on 3 aspects with regards to technology transfer: a) activities relating to the transfer of, and access to environmentally sound technologies and know-how, b) the development and enhancement of endogenous capacities, technologies and know-how, and c) measure relating to enhancing the enabling environment for the development and transfer of technologies. Main areas to be discussed shall be in accordance to GHG inventory, vulnerability and adaptation measure, and GHG mitigation measures, where the inputs shall be gathered through Outputs 2 to 4. Other information, when identified for presentation in NC2, shall be prepared by the PMG through the assistance of the Secretariat.

The NC2 shall first aim to provide an update on those activities reported in the INC on research and systematic observations. Other information on the participation in, and contribution to, activities undertaken on a global, regional and national basis in the areas of climate change research and systematic observations, information sharing and networking will be gathered and reported.

Activities will be designed to increase public and political awareness related to climate change, through applicable methods. Programmes will be planned in such a way as to be integrated into all activities of the project, to raise understanding and awareness of climate change issues at national levels in order to participate effectively at regional and international level and to promote international cooperation with relevant experts and communication among researchers, policy makers and other key stakeholders.

Information on capacity-building activities in accordance with the decision 2/CP.7 focusing on coordination and sustainability of capacity-building process and integration of climate change programmes into medium and long-term planning will also be provided in NC2.

Output 6: Constraints and gaps, and related financial, technical and capacity needs

Policies regarding conservation and environmental management have been developed; however there is yet to be one directed towards just climate change. Similar situation also appears in other activities in the form of measures and programmes that may not have been undertaken directly to tackle climate change, but relevant to the implementation of the Convention. While undertaking activities in the NC2, the local experts will identify difficulties, gaps and constraints relating to financial, technical and capacity needs encountered. The National Communication Procedural Manual, to be developed during NC2, will look into areas for improvement for continuously preparing national communications.

With assistance of local experts involving in different areas under NC2, the information on financial and technical resources for the preparation of NC2 and also activities relating to climate change made available by the country, GEF, Annex II Parties, bilateral or multilateral institutions will be gathered.

Through the activities under Outputs 3 and 4, information on proposed activities that aim at reducing GHG emissions or enhancing the removals by sinks, and the implemented or proposed adaptation projects will be gathered for further reporting in the NC2. Information on the adaptation measures/projects could include the specific barriers to the implementation and ways to overcome these barriers. On the other hand, information on the proposed mitigation projects could specify the technologies to be used and equipment required; and if possible, estimated incremental costs of implementation, reductions of emissions, increments of removals of GHGs and estimated consequent benefits.

With inputs from Outputs 2 to 4, information on the needs, constraints and gaps of activities relating to technology transfer will be gathered, including a) country-specific technology needs and technology needs assessment; b) the level of financial support from Annex II Parties and the GEF; and c) development and enhancement of capacities, technologies and know-how

Continual capacity building is of vital importance. Strengthening national capacities will enable the country to contribute to the international negotiations related to climate change and to better analyse the opportunities and obligations that new initiatives and commitments are posing at national level. During a stakeholders consultation workshop in January 2005, participants identified the capacity building needs for undertaking NC2 in data gathering & research, institutional strengthening and training & education.

5. Institutional Framework for Project Implementation

The project will be executed under the supervision of a Project Management Group (PMG), whose Project Director will be the Undersecretary of CEMD, the National Focal Point for Climate Change. Key roles 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. In addition, the PMG will facilitate in establishing an institutional and procedural framework that ensure continuous reporting in future. The PMG will be assisted by a Secretariat, to be established at CEMD, to manage the project on a day-to-day basis and will be accountable to the executing agency for the planning, management, quality, timeliness and effectiveness of the activities carried out, as well as for the use of funds.

PMG will be accountable to the Project Steering Committee (PSC), which will be the platform to provide a top management support for the development of NC2 and implementation of climate change activities. The PSC will also oversee and provide policy guidance to the project. There will be a strong overlap in

membership between the PSC and the NSCCC. This will serve to ensure that the project's activities are integrated into the existing institutional structure on climate change in Malaysia. The PSC will propose the draft final NC2 report for approval by NSCCC prior sending to the Cabinet.

Three Working Groups will be created in accordance to three thematic areas, i.e. National GHG Inventory, Vulnerability and Adaptation, and Mitigation, to undertake the project activities as outlined for respective area. For each Working Group, one Coordinator will be appointed for each sub-sector to undertake identified activities and coordinate the works by other experts in the sub-sector. Other information for reporting in NC2 including technology transfer, research and observation, education, training and public awareness, but not covered under the Working Groups, shall be coordinated by PMG through the Secretariat.

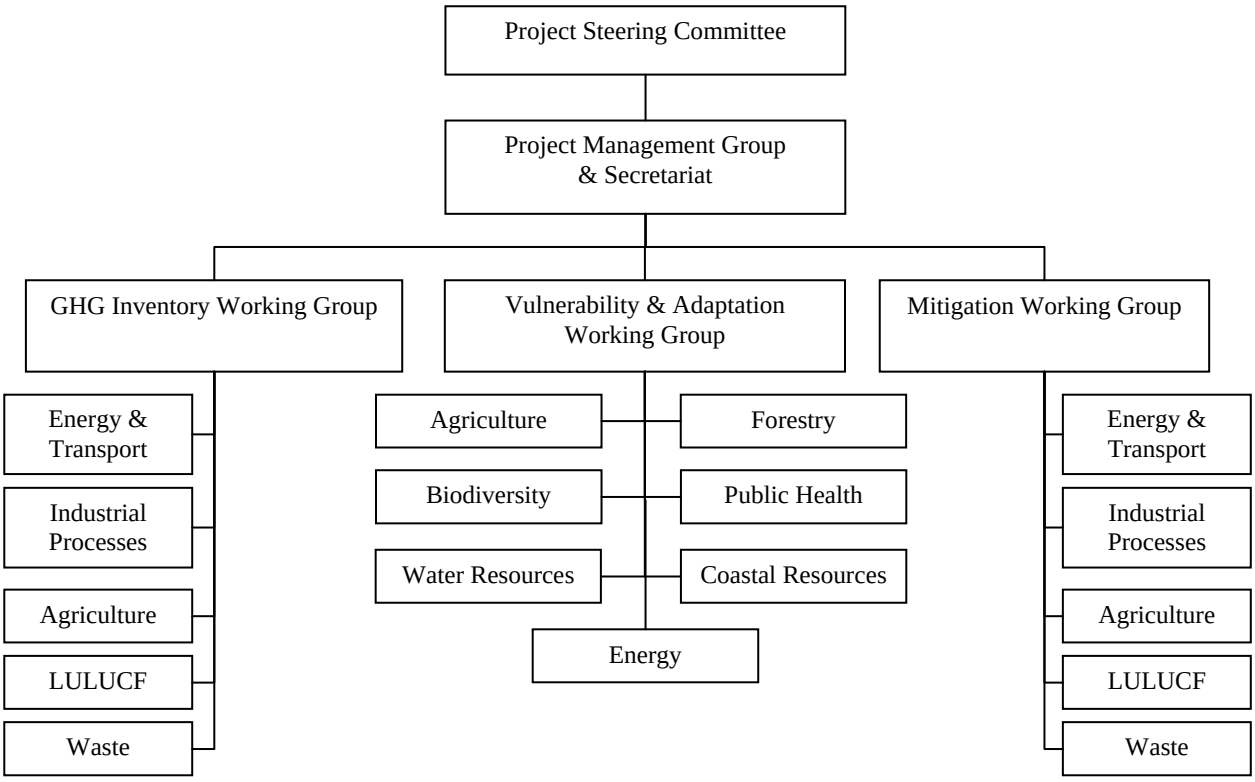
For each of the Working Group, an Internet-based platform will be established and managed by the Secretariat to facilitate sharing of documents both related to the outputs and the process. This will be coordinated with similar activities under the ongoing "Multilateral Environmental Agreement: Capacity Building and Implementation" Project in CEMD.

The same experts involved in INC will be appointed, if possible but not necessarily, for implementation of activities for preparation of the NC2. Any appointment will be considered in accordance to the project strategy, i.e. to engage the best local experts available in country. The process of NC2 will endeavour to ensure that the capacities to manage the process of preparation of national communications are maintained and enhanced. New experts, identified during the stakeholder analysis, will join the teams for the thematic areas and will bring new ideas, contributing to the improvement of the analysis.

National experts will be exposed to capacity building activities in their specific and respective areas related to the NC2. This includes training in the application of the specific analysis methodologies, Particularly the IPCC guidelines. Furthermore, national experts will participate at thematic regional workshops organised by UNDP-GEF, which in addition to the training, will contribute to experience and information exchange.

Experts who were already involved in the preparation of related strategic documents will broaden national working groups within each thematic area. As an inevitable part of the implementing activities, national thematic workshops for presentations of the methodologies and discussion of the results and finding of all thematic areas will be organised. Besides the information exchange, the workshops will contribute to enhancing the knowledge and interest of all relevant stakeholders. In parallel, public awareness activities targeting a wider population will be organized in cooperation with other organizations, such as NGOs, media, etc. Previously, similar activities have contributed to enhancing general knowledge about climate change issues.

UNDP-CO will monitor and support implementation of a project in-line with standard procedures.



6. Assessing project impact

A framework to assess capacity development as a result of the NC2 process for the sustainability of national communication process will be developed, including the ability to:

- Prepare and improve the quality of national GHG inventory by the minimisation of uncertainties, and better archiving, documentation, validation and verification;
- Identify, assess and/or plan prioritised options for climate change adaptation and mitigation;
- Engage and build consensus among stakeholders;
- Manage sharing of and accessibility to information and knowledge;
- Raise awareness.

Capacity development will be assessed at three levels:

- Individual level – the process of changing attitudes and behaviours, most frequently through imparting knowledge and developing skills through training, learning-by-doing, participation, ownership, and processes associated with increasing performance through changes in management, motivation, morale, and levels of accountability and responsibility.
- Organizational level – overall performance and functioning capabilities, such as developing mandates, tools, guidelines and information management systems for the ability of the organization to adopt change.
- Systemic level – creation of enabling environments, i.e. the overall policy, economic, regulatory and accountability frameworks within which institutions and individuals operate, relationships and processes between institutions.

Indicators for capacity development will cover the following core functions with respect to the key elements of national communication, i.e. GHG inventory, vulnerability and adaptation assessment and GHG mitigation:

- Application of new skills and knowledge
- Institutional mandates, coordination and processes for interaction and cooperation between all stakeholders

- Information, management, monitoring and observations
- Mobilization of science in support of decision making
- Financial resources and technology transfer
- Cooperation and networking within regions
- Institutional management and performance of individual skills and motivation in key institutions.

This exercise will help the project by assessing the process by which individuals, entities and systems increased their individual and collective abilities to:

- Perform core functions, resolve problems, and define and achieve objectives
- Understand and deal with development needs within a broad context and in a sustainable manner.

8. Detailed Work plan

Outputs/activities	Year 1				Year 2				Year 3			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1. National circumstances												
1.1 Describe the national development objectives, priorities, circumstances and programmes												
1.2 Update the information on the national circumstances												
2. Greenhouse gas inventory												
2.1 Undertake national GHG inventories for the year 2000, according to the guidelines (Dec 17/CP.8)												
2.2 Recalculate the inventory for year 1994 based on revised guidelines												
2.3 Identify and propose solutions for barriers to obtaining activity data and emission factor, and assess the uncertainties in the activity data and emission factor												
2.4 Describe the procedures and arrangements established NC Procedural Manual												
2.5 Develop a National Action Plan for Improvement of the GHG Inventory												
2.6 Organize a workshop to present the results & obtain comments from the stakeholders												
2.7 Prepare final report on the national GHG inventory and national action plan												
3. Programmes containing measures to facilitate adequate adaptation to climate change												
3.1 Evaluate the latest development of GCMs used in INC and outputs of RegHCM-PM												
3.2 Review the vulnerability assessment of the following sectors: agriculture, forestry, biodiversity, water resources, coastal resources, human health and energy												
3.3 Examine the links between the climate change scenarios and the potential socio-economic impacts												
3.4 Evaluate the feasibility of available adaptation measures to meet their specific needs and concerns arising from the adverse effects from the climate change												
3.5 Prepare a national action plan for implementation of identified prioritised adaptation measures for all sectors of concerned												
3.6 Describe the procedures and arrangements established NC Procedural Manual												
3.7 Organize a workshop to present the results & obtain comments from the stakeholders												
3.8 Prepare final report on vulnerability & adaptation assessment & national action plan												
4. Programmes containing measures to mitigate climate change												
4.1 Gather & present information on implemented and/or adopted GHG reduction policies/measures												
4.2 Identify, formulate & prioritise other potential mitigation policies/measures												
4.3 Establish business-as-usual baseline projections until year 2020												
4.4 Projections of mitigation scenarios based on the identified policies/measures & future development plan, & assess the cost-benefit using selected economic tools/models												

Outputs/activities	Year 1				Year 2				Year 3			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
4.5 Formulate a national action plan for the implementation of identified prioritised GHG mitigation policies/measures												
4.6 Describe the procedures and arrangements established NC Procedural Manual												
4.7 Organize a workshop to present the results & obtain comments from the stakeholders												
4.8 Prepare final report on GHG mitigation and national action plan												
5. Other info considered relevant to achievement of the objective of the Convention												
5.1 Review & report on national plans, studies & policies, which are formulated & implemented to directly or indirectly achieve sustainable development												
5.2 Assess & report on the technology needs and evaluate enabling environment, the progress and activities related to technology transfer												
5.3 Review ongoing national programmes for research and systematic observation & assess the needs of research and observation of climate change programmes												
5.4 Report on the efforts to promote the information sharing and networking among & within the country & region												
5.5 Provide information on implementation of education, training and public awareness on climate change												
5.6 Provide information on capacity-building activities in accordance with the decision 2/CP.7												
6. Constraints and gaps and related financial, technical and capacity needs												
6.1 Provide information on financial, technical and capacity needs to implement the Convention basis												
6.2 Provide information on financial & technical resources or other in-kind contribution made available for the preparation of the NC2												
6.3 Provide information on financial resources & technical support provided by GEF, Annex II Parties or bilateral & multilateral institutions, for activities related to climate change												
6.4 Provide the list of project proposals for funding specifying the technologies to be used and equipment required												
6.5 Provide the list of adaptation projects focusing on barriers & ways to overcome these barriers												
6.6 Provide information on the needs, constraints & gaps of activities relating to technology transfer												
7. Preparation and submission of the NC												
7.1 Preparation of additional information to presented in NC2												
7.2 Draft the NC2 and circulate for comments												
7.3 Finalisation and submission of the NC2												

Appendix C: Terms of Reference

I. PROJECT BACKGROUND INFORMATION

Malaysia has ratified both the United Nations Framework Convention on Climate Change (UNFCCC) in July 1994 and Kyoto Protocol in September 2002. Further to those ratifications, Malaysia is obliged to act on the following, in accordance to several requirements stipulated in the UNFCCC:

- Prepare inventories of greenhouse gas (GHG) emissions and sources for reporting to the UNFCCC;
- Formulate programmes containing measures to mitigate climate change and promote sustainable development;
- Prepare and develop plans for adaptation to impacts of climate change;
- Promote research, cooperation, information, training and awareness activities.

In response to the obligation to UNFCCC, Malaysia, through Ministry of Science, Technology and Environment (MOSTE), has submitted the Initial National Communication (INC) to UNFCCC Secretariat in July 2000. The submitted document comprises of National Inventory, impacts of climate change on the nation, and programmes of relevance to climate change. Preparation of the INC was conducted with the support of GEF's fund, through UNDP as the implementing agency.

The project for preparation of the Second National Communication (NC2) is a continual step towards further implementation of the UNFCCC at national level and in compliance to the Article 12 of the Convention. Its main objective is preparing a comprehensive report on the climate change related issues. In addition, through the NC2, a viable institutional and procedural framework will be established to ensure continuous reporting of national communications to the UNFCCC. The analysis conducted within the INC will be upgraded and extended, which will result in preparation of an advanced national report in the form of NC2. The preparation of the NC2 will further ensure that climate change issues are integrated into national and local strategic planning processes.

The project will be executed by Conservation and Environmental Management Division (CEMD) of Ministry of Natural Resources and Environment (NRE), which is the National Focal Point of UNFCCC for Malaysia. CEMD, as the implementing agency, has direct responsibility for the day-to-day implementation of activities required under the Convention. The institutional setup for undertaking activities in NC2 (as outlined in Appendix B) shall consist of Project Steering Committee (PSC), Project Management Group (PMG), National GHG Inventory Working Group, Vulnerability and Adaptation Working Group and Mitigation Working Group. The terms of reference for each entity are detailed as below.

II. PROJECT STEERING COMMITTEE (PSC)

The PSC will have the following duties:

- Providing strong top management support and overall policy advice for the development and realisation of the project
- Assisting in mobilizing available data and expertise;
- Endorsing the detailed work plan, monitoring plan, progress and financial reports, produced thematic reports, National Communication Procedures Document and Final NC2 Report and Action Plans;
- Monitoring and reviewing the progress of the project against its stated objectives and outputs, including by reviewing progress reports prepared by the PMG;
- Proposing the final NC2 report for approval by the Government and submission to the UNFCCC Secretariat.

The PSC, to be chaired by the Deputy Secretary-General (I) of NRE, will comprise of representatives from the following key entities:

- CEMD, NRE – Secretariat;
- Ministry of Energy, Water and Communication;
- Ministry of Agriculture & Agro-Based Industries;
- Ministry of Plantation Industries & Commodities;
- Ministry of Science, Technology & Innovation;
- Ministry of Transport;
- Ministry of Housing & Local Government;
- Ministry of International Trade & Industry;
- Ministry of Health;
- Economic Planning Unit, Prime Minister Department;
- Malaysian Meteorological Services Department;
- Representatives from Sabah and Sarawak;
- NGO representative; and
- UNDP resident representative.

PSC will meet every six months or when the need arises (upon the Chairman's decision).

III. PROJECT MANAGEMENT GROUP (PMG)

The PMG, whose Project Director will be the Undersecretary of CEMD, will be responsible for supervising 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 PMG will be assisted by a Secretariat that will manage the project on a day-to-day basis and is accountable to the executing agency for the planning, management, quality, timeliness and effectiveness of the activities carried out, as well as for the proper use and management of funds. The Secretariat will ensure regular monitoring and feedback from activities already under implementation. The PMG will work closely with UNDP-CO. Meetings will be held with the sectoral coordinators of each Working Group every quarterly or whenever needed (to be decided by Project Director).

The PMG, with the assistance of the Secretariat, will have the following duties:

- Prepare a detailed work plan, monitoring plan and budget;
- Prepare and submit to PSC and UNDP-CO regular progress and financial reports;
- Coordinate and oversee the preparation of the outputs of the NC2;
- Ensure effective communication and adequate information flow with the relevant authorities, institutions and government agencies in close collaboration with the PSC;
- Ensure appropriate stakeholder participation in the project implementation and coordinate the work of all stakeholders under the guidance of the PSC and in consultation with the UNDP-CO;
- Maintain and establish additional links with other related national and international programs and projects;
- Prepare the Terms of Reference for consultants and experts and ensure their timely hiring;
- Provide guidance to the consultants and experts and oversee compliance with agreed work plan;
- Identify training needs for other project stakeholders;
- Organize and coordinate the procurement of services and goods under the project;
- Coordinate, manage and monitor the implementation of the Project assignments undertaken by the 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-CO;
- Oversee the production and endorsement of detailed work plan, produced thematic reports, NC2 Report and Action Plans;
- Draft the NC Procedures Document describing procedures and arrangements undertaken to collect, record and archive information and documents for the preparation of all sections of NC2, including information on the role of the institutions involved;
- Ensure the implementation and management of an Internet-based platform to support the Working Groups.
- Produce draft and final NC2 report for approval by PSC.

IV. NATIONAL GHG INVENTORY WORKING GROUP

The Working Group will be responsible for preparing GHG Inventory. It will perform specific activities outlined below, as well as coordinate with the outputs of other consultants engaged outside the institution. Under the supervision and coordination of PMG, activities undertaken by the Working Group will contribute to strengthening institutional arrangements for compiling, archiving, updating and managing GHG inventories. Duties of the Working Group are to:

- Develop the mechanism for data collection and management including archiving relevant data for the project duration;
- Collect, collate and integrate, in compatible format, available data from national sources to fill inventory data gaps. Identify and develop methods for overcoming inventory data gaps;
- Undertake national GHG inventories for the year 2000, according to the guidelines for the preparation of National Communications (Decision 17/CP.8);
- Recalculate the inventory for year 1994 based on revised guidelines;
- Identify and propose solutions barriers to obtaining activity data and emission factor, and assess uncertainties in the activity data and emission factors;
- Describe the procedures and arrangements established for preparing the national GHG inventory in National Communication Procedural Manual;
- Develop a National Action Plan for Improvement of the GHG Inventory;
- Present and discuss on the results obtained from the GHG Inventory in national workshop;
- Prepare final report on the national GHG inventory and national action plan, including comments from the stakeholders.

The institutions contracted for undertaking project activities should meet the following minimum criteria:

- Sound and broadly-recognized scientific expertise on climate change research;
- Prior experience in inventory preparation, through involvement in the INC;
- Highly qualified scientists working in the fields of emission factor development or data collection methods;
- Familiarity with the UNFCCC, IPCC methodology.

V. VULNERABILITY ASSESSMENT AND ADAPTATION WORKING GROUP

The Working Group will be responsible for reporting on vulnerability assessment and adaptation. It will ensure performing specific activities outlined below, as well as coordination with the outputs of other consultants engaged outside the institution. The activities undertaken by the Working Group will also strengthen institutional arrangements for systematic climate observation, data management and control, processing and updating of meteorological data. Duties of the Working Group are to:

- Evaluate the latest development of Global Climate Models (GCM) used in INC and outputs of RegHCM-PM, and derive possible future approaches on climate scenario projections with reducing uncertainties
- Review the vulnerability assessment of the following sectors: agriculture, forestry, biodiversity, water resources, coastal resources, human health and energy, including identification of vulnerable areas that are most critical, according to the scenarios developed
- Describe the 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 action plan for implementation of identified prioritised policies/measures for all sectors of concerned
- Describe the procedures and arrangements established for performing vulnerability and adaptation assessment in National Communication Procedural Manual;
- Present and discuss on the results obtained in national workshop;
- Prepare final report on vulnerability and adaptation assessment and national action plan, including comments from the stakeholders

The institutions contracted for undertaking project activities should meet the following minimum criteria:

- Sound and broadly-recognized scientific expertise on climate change research;
- Prior experience in performing vulnerability & adaptation assessment, through involvement in the INC;
- Highly qualified scientists working in the fields of vulnerability assessment and adaptation process, through involvement in the INC;
- Familiarity with the UNFCCC, IPCC methodology.

VI. GHG MITIGATION WORKING GROUP

The Working Group will be responsible for preparing GHG mitigation assessment. It will ensure performing specific activities outlined below, as well as coordination with the outputs of other consultants engaged outside the institution. Duties of the Working Group are to:

- Gather and present information on implemented and/or adopted GHG reduction policies/measures in the energy and transportation, industrial processes, agriculture, LULUCF and waste sectors;
- Identify, formulate and prioritise other potential mitigation policies and measures for all sectors of concerned;
- Establish business-as-usual baseline projections until year 2020, considering national economic and social development trends and projections, and implemented or adopted policies and measures;
- Projections mitigation scenarios based on the identified policies/measures and future development plan, and assess the cost-benefit using selected economic tools/models. Discuss limitations and uncertainties encountered in the analysis and recommendations for improvement;
- Formulate a national action plan for the implementation of identified prioritised GHG mitigation policies/measures including information on cost analysis, barrier to implementation, 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;
- Describe the procedures and arrangements established for performing GHG mitigation assessment in National Communication Procedural Manual;
- Present and discuss on the results obtained in national workshop;

- Prepare final report on GHG mitigation and national action plan, including comments from the stakeholders.

The institutions contracted for undertaking project activities should meet the following minimum criteria:

- Sound and broadly-recognized scientific expertise on climate change research;
- Prior experience in preparing scenarios for GHG mitigation assessment;
- Highly qualified scientists working in the related areas: Energy and Transport, Industry, Agriculture, Forestry, Waste;
- Familiarity with the UNFCCC, IPCC methodology.

Appendix D: Endorsement letters

- UNFCCC Focal Point
- GEF Operational Focal Point

SIGNATURE PAGE

Country: Malaysia

UNDAF Outcome(s)/Indicator(s): N/A
(Link to UNDAF outcome. If no UNDAF, leave blank)

Expected Outcome(s)/Indicator (s): G3-SG2-SGSN2 Global Environmental concerns and commitments integrated in national policy development planning and policy

(CP outcomes linked to the SRF/MYFF goal and service line)

Expected Output(s)/Indicator(s): Submission of Second National Communication and improved and sustained technical and institutional capacities to plan and implement climate change integrated sectoral and national development

(CP outcomes linked to the SRF/MYFF goal and service line)

Implementing partner: Ministry of Natural Resources and Environment
(designated institution/Executing agency)

Other Partners: UNDP
(formerly implementing agencies)

Programme Period: 2006-2008
Programme Component: Climate Change Enabling Activities
Project Title: Enabling Activities for the Preparation of Malaysia's Second National Communication to the UNFCCC
Project ID: 00040597
Project Atlas ID: 00045989
PIMS No.:2959
Project Duration: 3 years
Management Arrangement: NEX

Budget US$405,000$
General Management Support Fee
Preparation phase
- GEF US$15,000$
- DANIDA US$15,000

Allocated resources:
Government N/A
- Regular N/A
- Other:
  - Donor : N/A
  - Donor : N/A
- In kind contributions US$60,000

Unfunded budget: : N/.A

Agreed by (Government): _____

Agreed by (UNDP): _____