UNDP Project Document Format

Government of INDONESIA

United Nations Development Programme

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

The project will enable Indonesia 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 First National Communication (1999) and the Enabling Activities phase II (2001). The main components of the project are: (i) Inventory of GHG Emissions, (ii) assessment of potential impacts of climate change on the most vulnerable sectors, (iii) analysis of potential measures to abate increase of GHG emissions, and (iv) National activities and program relevant for the achievement of the objective of the Convention. 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. In addition, it will build up national capacities for participation in different mechanisms related to GHG mitigation and to fulfilling other commitments to the UNFCCC.

Table of Contents (Indexed)

Acronyms

AARD	=	Agency for Agricultural Research and Development
AIACC	=	Adaptation and Impact Assessment to Climate Change
AIJ	=	Activities Implemented Jointly
ALGAS	=	Asian Least Cost Greenhouse Gases Abatement Strategy
APKASI	=	Asosiasi Pemerintahan Kabupaten Seluruh Indonesia (Association of District Governments of Indonesia)
APEKSI	=	Asosiasi Pemerintahan Kota Seluruh Indonesia (Association of Municipalities of Indonesia)
APPSI	=	Asosiasi Pemerintahan Propinsi Seluruh Indonesia (Association of Provincial Governments of Indonesia)
APR	=	Annual Project Report
AUSAid	=	Australian Government Overseas Aid Program
BAKOSURTANAL	=	Badan Koordinasi Survei dan Pemetaan Nasional (National Coordination Agency for Survey and Mapping)
BAPLAN	=	Badan Planologi Kehutanan (Agency for Forestry Planning)
BAPPENAS	=	Badan Perencanaan Pembangunan Nasional (National Development Planning Agency)
BMG	=	Badan Meteorologi dan Geofisika (Meteorology and Geophysics Agency)
BPPT	=	Badan Pengkajian dan Penerapan Teknologi (Agency for Technology Assessment and Application)
BPS	=	Badan Pusat Statistik (State Statistical Office)
C_2F_6	=	Hexafluoroethane
CBD	=	Convention on Biological Diversity
CCC	=	Convention on Climate Change
CCD	=	Convention to Combat Desertification
CDM	=	Clean Development Mechanism
CF_4	=	Tetrafluoromethane
CH_4	=	Methane
CIDA	=	Canadian Internasional Development Agency
CO	=	Carbon monoxide
CO_2	=	Carbon dioxide
COP	=	Conference of the Parties
Ditjen Bangda	=	Direktorat Jenderal Bina Pembangunan Daerah (Directorate General of Local Development)
DNA	=	Designated National Authority
FORDA	=	Forestry Research and Development Agency
GCM	=	Global Climate Model
GEF	=	Global Environment Facility
GHG	=	Greenhouse Gases
GTZ	=	Gesellschaft für Technische Zusammenarbeit
HFCs	=	Hydrofluorocarbons
IGES	=	Institute for Global Environment Strategies
INC	=	Initial National Communication
IPCC	=	Inter-governmental Panel on Climate Change
IPCC GPG	=	IPCC Good Practice Guidance
IR	=	Inception Report
IT	=	Information Technology
JICA	=	Japan International Cooperation Agency

KP	=	Kyoto Protocol
LAM	=	Limited Area Model
LAPAN	=	Lembaga Antariksa dan Penerbangan Nasional (National Research Agency On Space And Aviation)
LULUCF	=	Land Use, Land Use Change and Forestry
MOE	=	Ministry of Environment
MOF	=	Ministry of Forestry
N_2O	=	Nitrous oxide
NC	=	National Communications
NCCC	=	National Committee on Climate Change
NCSA	=	National Capacity Self Assessment
NGO	=	Non-Governmental Organization
NOx	=	Nitrogen oxide
NPC	=	National Project Coordinator
NPD	=	National Project Director
OM	=	Office Manager
PFCs	=	Perfluorocarbons
PHKA	=	Direktorat Jenderal Perlindungan Hutan dan Konservasi Alam (Directorate General of Forest Protection and Nature Conservation)
PLN	=	Perusahaan Listrik Negara (Indonesian State Electricity Company)
QA/QC	=	Quality Assurance/Quality Control
QPR	=	Quarterly Project Report
RENSTRA	=	Rencana Strategik (Strategic Plan)
RKP	=	Rencana Kerja Pembangunan (Development Work Plan)
RLPS	=	Direktorat Jenderal Rehabilitasi Lahan dan Perhutanan Sosial (Directorate General of Land Rehabilitation and Social Forestry)
RPJM	=	Rencana Pembangunan Jangka Menengah (Mid-term Development Plan)
SARD	=	Sustainable Agriculture and Rural Development
SBAA	=	Standard Basic Assistance Agreement
SF_6	=	Sulfur hexafluoride
SIDA	=	Swedish International Development Cooperation Agency
SNC	=	Second National Communications
UN	=	United Nations
UNDP	=	United Nations Development Programme
UNDP-CO	=	UNDP Country Office
UNEP	=	United Nations Environment Programme
UNFCCC	=	United Nations Framework Convention on Climate Change
USAID	=	United States Agency for International Development
V&A	=	Vulnerability and Adaptations
WG	=	Working Group
WWF	=	World Wildlife Fund For Nature

1. Elaboration of the Narrative

1.1 Situation Analysis

Even though Indonesia has ratified the UN Framework Convention on Climate Change many people in the country, in general until today are still not convinced of the imminent probability of climate change. While the effect of human activity on the global climate is hotly debated, physical signs of environmental change are already around us. Nevertheless, a number of sectors in Indonesia now have given special attention to the climate hazards as these events tended to increase and cause serious damage to life and property and economic losses.

A number of studies related to climate change have been done in the country but most of them failed to consider the current climate problems, and because of that they become less attractive for policy makers. One of the reasons for this failure is the lack of wide dissemination of the outcomes of such studies. In 1999, the National Action Plan on Climate Change was prepared (**MOE, 1999)**, but there was little involvement of the relevant sectors during its development. Consequently, these sectors failed to mainstream climate change concerns into sectoral and national development priorities.

After the ratification of the Kyoto Protocol and the formation of the designated national authority (DNA) for CDM, the concern of sectors, particularly energy and forestry sectors, to GHG mitigation programs has increased considerably. Interest in adaptation issues however remains low. At the local level, the concern regarding climate change mitigation is not clearly seen. Participation of local stakeholders on mitigation programs is still low.

To accelerate the process of streamlining climate change into the development planning processes, the Government of Indonesia through the Ministry of Environment is currently preparing the Government Regulation on Managing Climate Change Impact. This regulation is expected to be effective in early 2007.

1.2. Strategy

The strategy for the project implementation is the engagement of the best local expertise available in the country, and individuals (or group of individuals) from the relevant sectors (technical and policy) who are involved the implementation of Climate Change Convention. The project outcomes will be achieved through the implementation of activities, which include background analyses, national inventory of GHGs and development of programmes for adaptation and mitigation measures. Furthermore, the project will establish linkages and cooperation with ongoing relevant 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 entities. It is expected that this will result in integrating climate change issues in the general planning and development strategy formulation processes in the country.

1.3. Management Arrangements

See Section 5 of Appendix 2 (Institutional Framework for Project Implementation)

1.4 Monitoring and Evaluation

Monitoring responsibilities and events

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

Day to day monitoring of implementation progress will be the responsibility of the National Project Coordinator (NPC), National Project Director (NPD) based on the project's Annual Work plan and its indicators. The Project Team 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 project proponent, or more frequently as deemed necessary. This will allow parties to take stock and to troubleshoot any problems pertaining to the project in a timely fashion to ensure smooth implementation of project activities.

Project Monitoring Reporting

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

(a) Inception Report (IR)

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

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

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

(b) Quarterly Progress Reports

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

(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 project team will prepare a draft Reports List, detailing the technical reports that are expected to be prepared on key areas of activity during the course of the Project, and tentative due dates. Where necessary this Reports List will be revised and updated, and included in subsequent 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.

Audit Clause

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

1.5 Legal Context

This Project Document shall be the instrument referred to as such in Article I of the Standard Basic Assistance Agreement between the Government of Indonesia and the United Nations Development Programme[1], signed by the parties. The host country implementing agency shall, for the purpose of the Standard Basic Assistance Agreement, refer to the government co-operating agency described in that Agreement.

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

The UNDP Resident Representative is authorized to effect in writing the following types of revision to this Project Document, provided that he/she has verified the agreement thereto by GEF Unit and is assured that the other signatories to the Project Document have no objection to the proposed changes:

a) Revision of, or addition to, any of the annexes to the Project Document;
b) Revisions which do not involve significant changes in the immediate objectives, outputs or activities of the project, but are caused by the rearrangement of the inputs already agreed to or by cost increases due to inflation;
c) Mandatory annual revisions which re-phase the delivery of agreed project inputs or increased expert or other costs due to inflation or take into account agency expenditure flexibility; and
d) Inclusion of additional annexes and attachments only as set out here in this Project Document.

[1] Indonesia is a non-SBAA country. However, similar legal document does exist in Country Programme Action Plan (CPAP), a five-year service agreement between the Government of Indonesia and UNDP. The latest version was signed in May 2006.

2. Total Budget

Award ID: 00037548								
Award Title: PIMS 2945 CC EA: Second National Communication to UNFCCC of Indonesia								
Project ID: 00041105								
Project Title: PIMS 2945 CC EA: In Second National Communication to UNFCCC of Indonesia								
Execution Agency: Ministry of Environment (MoE)								
OUTPUTS	**Responsible Party**	**PLANNED BUDGET**						
		Source of Funds	**Budget Code**	**Budget Description**	**Year 1 (US$)**	**Year 2 (US$)**	**Year 3 (US$)**	**Total Budget (US$)**
Output 1. National Circumstances	MoE	GEF	71300	Local Consultant			7,000	7,000
			72100	Contractual Services			4,000	4,000
			71600	Travel			2,000	2,000
			74200	Printing & publication			2,000	2,000
				Sub-total 1				**15,000**
Output 2. National Greenhouse Gas Inventories	MoE	GEF	71300	Local Consultant	15,000	15,000		30,000
			72100	Contractual Services	10,000	9,000		19,000
			71600	Travel	9,000	8,000		17,000
			74200	Printing & publication		5,000		5,000
			72200	Equipment	5,000			5,000
			74500	Miscellaneous	2,000	2,000		4,000
				Sub-total 2				**80,000**
Output 3. Programmes containing measures to facilitate adequate adaptation to climate change	MoE	GEF	71300	Local Consultant	15,000	15,000		30,000
			72100	Contractual Services	19,000	19,000		38,000
			71600	Travel	15,000	13,000		28,000
			74200	Printing & publication		5,000		5,000
			72200	Equipment	5,000			5,000
			74500	Miscellaneous	2,000	2,000		4,000
				Sub-total 3				**110,000**
Output 4. Programmes	MoE	GEF	71300	Local Consultant	11,000	11,000		22,000

containing measures to mitigate climate change			72100	Contractual Services	7,000	6,000		13,000
			71600	Travel	4,000	3,000		7,000
			74200	Printing & publication		3,000		3,000
			72200	Equipment	3,000			3,000
			74500	Miscellaneous	1,000	1,000		2,000
				Sub-total 4				**50,000**
Output 5.Other relevant information (e.g. research and systematic observation, technology transfer, education and public awareness, capacity building)	MoE	GEF	72100	Contractual Services		6,000	6,000	12,000
			71600	Travel		4,000	3,000	7,000
			74200	Printing & publication			3,000	3,000
			72200	Equipment		3,000		3,000
				Sub-total 5				**25,000**
Output 6. Constraints & Gaps; Related Financial, technical, & capacity needs	MoE	GEF	72100	Contractual Services		5,000	5,000	10,000
			71600	Travel		4,000	3,000	7,000
			74200	Printing & publication			3,000	3,000
				Sub-total 6				**20,000**
Output 7. Compilation, Production of communication , including Executive Summary	MoE	GEF	74200	Printing & publication			12,000	12,000
			74200	Translation costs			3,000	3,000
				Sub-total 8				**15,000**
Output 8. Project Management	MoE	GEF	71300	Local Consultant	12,000	12,000	12,000	36,000
			74100	Professional Services	7,000	7,000	7,000	21,000
			71600	Travel	3,000	3,000	2,000	8,000
			72200	Equipment	7,000			7,000
			74500	Miscellaneous	1,000	1,000	1000	3,000
				Sub-total 9				75,000
Output 9. Monitoring and reporting	MoE	GEF	74100	Professional Services	5,000	5,000	5,000	**15,000**
				Sub-total 10				**15,000**
TOTAL								**405,000**

3. Appendices

APPENDIX A: Summary Report of the Self-Assessment Exercise

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

Stocktaking exercise was carried out to evaluate the Initial National Communication (INC) and to find gaps in each element of the INC, particularly its technical aspects. The results of this analysis were used to identify activities and new areas of work that need to be done for the development of Second National Communication (SNC) considering the results of and findings from other relevant activities (NCSA and other related projects etc) and best practices from the INC that could be adopted.

The stakeholders involved in the stocktaking exercise include national expert who participated in the Initial National Communication and other individuals and group of individuals from the government, academia, private sector and NGOs.

Considering the guidelines for the stocktaking exercise, terms of reference were prepared for the national experts who worked on the review of the INC. Four national experts were contracted to carry out the main tasks of identifying the gaps and uncertainties from the INC for the specific sectors, recommending new areas of work for the SNC, and preparing the SNC proposal. Some experts who were not involved in the INC formulation were also invited to assist in the gap analyses.

At the beginning of the work, the national experts, together with the MoE personnel collected relevant documents and reports needed for the stocktaking exercise. Among the documents that were reviewed and analyzed are: Indonesia's Initial National Communication to the UNFCCC, NCSA, Climate Change Enabling Activity Phase II Report, ALGAS Report, and National Action Plan for Climate Change, Vulnerability and Adaptation Analysis, and a number of research/project reports related to climate changes.

The contracted experts conducted preliminary analysis to identify gaps and areas needing improvement/updating, identification of new areas of work, as well as assessing the need of additional studies. The preliminary results were presented and discussed in a meeting with the project stakeholders. In addition, they also did informal/formal consultation with heads of division or sections of relevant government institutions that deal directly or indirectly on climate change issues. These informal consultations were intended to get further insight to the results of analysis. The results of the meetings and consultation processes were used to revise the reports. The reports consist of background information on the analyses for the GHG Inventory, V&A and GHG Abatement for the different sectors that were covered during the INC formulation work, determination of methodology that was used, identification of gaps and uncertainties, and recommendations for new studies and areas of work. The revised reports were then sent back to the various stakeholders to get their written comments and inputs. Additional meetings and consultations with each sector were held whenever necessary to discuss further the new areas of work that need to be covered in the SNC. Recommendations for new areas of work under the SNC were discussed with all relevant stakeholders in a National Workshop. Final revision of the proposal was made after the national workshop. The stocktaking exercise process is presented in Figure 1.

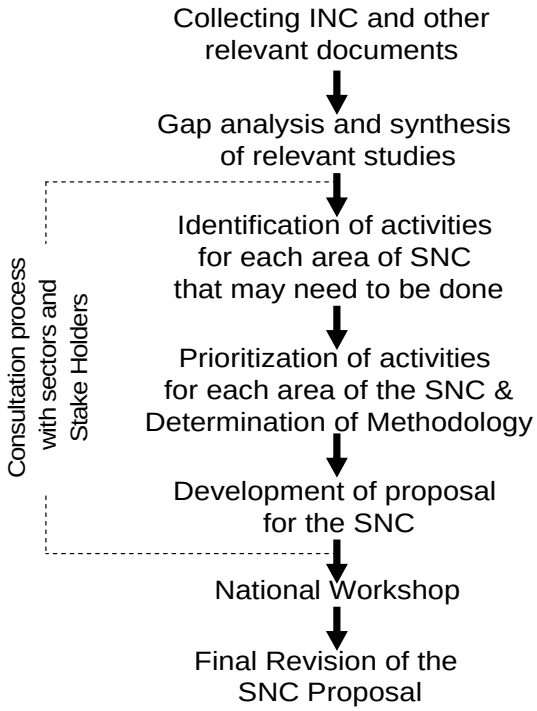

Figure 1: Steps in stock-taking exercise

Direct consultations and meetings with the relevant sectors and stakeholders include the following:

(a) Direct consultations with the relevant groups in the State Ministry of Environment (NCSA, Coastal etc), Ministry of Agriculture, Ministry of Forestry, National Planning Agencies, Ministry of Energy and Mineral Resources, and Ministry of Health, Bureau of Meteorology and Geophysics, Ministry of Public Works, Research Agency for Soil and Agroclimate, National Agency and Space and Aviation (LAPAN), and Agency for Technology Assessment and Application, including NGOs etc. Based on these consultation meetings, each of the stakeholders provided a short written note (views, inputs, or recommendation) on particular thematic areas – GHG inventory, Vulnerability Assessment and Adaptation and GHG Abatement, as well as the strategy for the national action plan related to the area of their domain. This process is to ensure that realistic information on the national circumstances are obtained, and that the Second National Communication will be indisputably the strategic national document related to climate change issues in the country.

(b) Direct consultation with the CDM Working Groups at the Ministry of Forestry and Ministry of Energy and Mineral Resources, and Focal Points for CBD and CCD. The aim of these consultations was to obtain additional comments on the SNC project proposal, especially in terms of identified capacity building needs and the need of enhancing sustainable use of biodiversity while implementing activities aimed at mitigating and/or adapting to climate change. It was agreed that there is a need to enhance synergy among activities that address climate change and activities to combat desertification and land degradation, and the conservation and sustainable use of biological diversity need to be enhanced.

(c) Consultative meeting with sectors, NGOs and other experts. Before the National Workshop, the Climate Change Focal Point also organized a meeting to review and discuss the draft project proposal of the Second National Communication with member of National Climate Change Committee (NCCC)

and also NGOs and other experts. During the discussion, the need of improving the initial GHG Inventory was highlighted, since number of project and studies were completed recently that could contribute to filling data gaps and improving activity data. The meeting participants also requested the analyses within the vulnerability assessment to be extended and upgraded, in order to provide more precise assessment of the negative impacts upon identified vulnerable sectors, and more important, to propose adaptation and an early warning measures in order to mitigate foreseen negative effects. It was also recommended to revise and upgrade the National Action Plan with an aim to make it more useful for the decision makers. It was also recognized that the involvement of NGOs in the development of INC was very limited since in the past only few NGOs were involved in the climate change related activities due to the lack of knowledge. Despite the fact that NGOs have their representative in the National Climate Chance Committee, they were still not being informed and educated enough about national activities. Therefore, it is necessary to increase the cooperation within the NGO sector, and between the environmental NGOs and the Ministry of Environment and other sectors, which should support NGOs in their activities related to increasing public awareness

(d) National Workshop. This was conducted to present and discuss the findings from the stocktaking exercise. Representatives of all relevant stakeholders, including government institutions, academic, industrial and private sectors, and NGOs participated in the workshop. The existing state of analysis, including data gaps and uncertainties, as well as areas in need of improvement and new areas were presented for the sectors of Energy, Industrial Processes, Waste, Water resource, Agriculture, Forestry, Biodiversity, and Health. Workshop participants discussed methodological issues and approaches for the three thematic areas – GHG inventory, Vulnerability Assessment and Adaptation and GHG Abatement, as well as the strategy for the national action plan, in order to ensure that they will indicate the national conditions most realistically, and that the Second National Communication should really reflect the national strategies.

2. Main Outcomes of the Stocktaking

From the analyses that were conducted, the main gaps in the INC and new areas of works for the SNC were identified. It was recognized that the involvement of the relevant sectors (i.e. energy, agriculture, industry, etc.) in the preparation of the INC was minimal due to their limited understanding and knowledge on the issues. The technical capacity of the relevant sectors has also not been developed. The development of the INC was carried out by experts from universities and research agencies. The involvement of the academe and the research community in the preparation of SNC should be increased and appropriate institutional arrangement should be established. The involvement of experts from universities and research agencies should however be limited to research activities that are needed for the development of the SNC. Involvement of the relevant sectors during the process of defining and prioritizing research areas, particularly for vulnerability and adaptation assessment and GHG abatement, is crucial as this will ensure that the research activities are in line and consistent with national program. The following section discusses briefly the gaps and findings in the review of the INC. The new areas of work that need to be done for the SNC are also presented and discussed.

2.1. National Circumstances

The national circumstances as described in the INC contained following information: geography and climate, population, national policy structure on climate change, economy, agriculture and forestry, energy, coastal and marine resources. It was noted that the relationship between GHGs emission projections and mitigation, and sector policies was not clear. In addition, due to change in government system from centralization to decentralization and changes in sector policies, most of the sections need updating. A number of new policies in a number of sectors (agriculture, forestry, water resources, energy and mineral resource, coastal

and marine resources are clearly related to climate change. A recent study conducted by the Bureau of Meteorology and Geophysics indicated that there was a shift in the mean onset of seasons, and other study also showed that there was consistent increase in sea level in a number of observation stations.

Considering the above findings, the section on national circumstances has to be updated. The linkage between sections in the national circumstances with other section of the national communication needs to be defined clearly. General description of geography and climate also needs to include data and information indicating the occurrence of global warming and climate change.

2.2. GHG Inventory

In the INC, this section provided estimates of GHG emissions and removals from all sectors from 1990-1994 following revised 1996 IPCC methodology. Gases covered were CO_2, CH_4, N_2O, CO, NOx, CF_4, and C_2F_6. Projection of emissions up to 2025 was provided only for three sectors (energy, forestry and agriculture) for the first three gases, and key category analysis were not performed. Uncertainties of GHG emissions and carbon removal estimates were considered to be high for all sectors, particularly in the forestry sector. As the contribution of forestry sector to the total emissions is significant, therefore improvement of emission estimates from this sector is very important.

There were a number of studies related to the improvement of GHG inventories that were carried out by universities and research agencies in Indonesia, particularly on forestry and agriculture sectors after the submission of the INC (e.g. Boer *et al.*, 2001, Suryahadi *et al.*, 2001; Setyanto *et al.*, 2001; MOE, 2001; Hendri et al., 2001; Palm et al., 1999; Murdiyarso and Rosalina, 2000, Susandi, 2004). These studies have developed a number of local emission factors particularly on mean annual biomass increment, above and below ground biomass for a number of sites, and methane emission factors for rice paddy and livestock. While, studies related to the improvement of GHG emissions, especially for the improvement of emissions factors, from energy, industry and waste sectors were not carried out.

The involvement of the various sectors in the conduct of the GHG inventories for the INC was also very limited. Therefore in the development of the SNC, the relevant sectors will be encouraged to actively participate or to take the responsibility of conducting the inventory. The summary of gaps found in the INC and the proposed improvements that should be done in the SNC is presented in Table 1.

Table 1: Summary of Gaps of GHG Inventory in the INC and Improvement needed for the SNC

Particulars	Gaps in the INC	Improvement in the SNC
Reporting period	Emission and removal estimates only from 1990-1994	The reporting period will be extended up to 2002
Emission factors and activity data	Emission factors used for all sectors are mostly IPCC default values and some of activity data were derived based on some assumptions	Local emission factors developed from recent studies will be compiled and used. Whenever available improved activity data from each sector will be used.
Completeness	Emission sources from a number of sectors are not covered. GHG removal and emission from soils under (module 5D in 1996 IPCC guideline) was not estimated, emission from waste only from solid waste Non-direct GHGs (HFCs, PFCs and SF_6) and SO_2 were not covered	Missing sources from all sectors will be identified, and the estimates of emission from the missing sources will also be estimated. Non-direct GHGs will be covered in the SNC
Methodology	Tier 1 IPCC method were used	Tier 2 methods will be used
Uncertainty	No uncertainty analysis is provide	For some sectors where data are available (*Forestry and Agriculture*), quantitative uncertainty analysis will be performed using 2000 IPCC Guideline while for the other sectors qualitative assessments will be carried out
Data management and archiving system	Data and sources of references in developing the GHG inventory are not well documented. Archiving data system was not available	Database management system for the GHG Inventory will be developed and institutional arrangement for data collection will be developed. Involvement and consultation with wider range of experts in various areas will be conducted during this process to ensure the quality and reliability of the inventory
Projection of Emissions[1]	There was no clear link between policy and long term development program in developing emission projection. This projection should be better presented under mitigation section	National policy impact on emission projections will be assessed using simulation modeling approach.

2.3. Vulnerability and Adaptation (V&A) Assessment

The INC only provided adaptation strategies for coastal and health under section General Description of Steps. Information on impact of climate change on vulnerable sectors and adaptation strategies for agriculture, forestry and water resources as well sector policies related to the improvement of adaptation capacity to current and future climate changes was not provided. During stock-taking process, it was revealed that there were a number of activities conducted in a number of sectors on vulnerability, adaptation and impact assessment to climate change. But the level of analysis was at mostly local level.

Some of climate change studies related to vulnerability, adaptation and impact assessment on climate change are the following:

- Climate Change scenarios. A number of outputs from GCMs have been used to analysis the possible climate changes in Indonesia. However, as GCM have very low resolution, this study was not able to provide detail information at local/watershed level. A number of universities and research agencies have conducted studies to downscale global climate scenarios into local climate scenarios using statistical downscaling technique as well as LAM (limited Area Model). However the studies are limited and covered only part of province in Java.
- Climate Change Impact on Health. Studies on impact of climate change on health covered Communicable Diseases such as: vector borne diseases (malaria, DHF, leptospirosis, etc), water borne disease (diarrhea, cholera, etc), respiratory diseases, skin diseases; and Non Communicable diseases such as: heat stress, hypertension, eye disease etc. The studies used empirical model *i.e.* regression model. The use of this method has disadvantage as it can not well represent how the climate change affect processes involved that determine the development of the diseases. The results may be misleading, therefore the use of dynamic models is recommended.
- Climate Change Impact on watershed. Adaptation and Impact Assessment to Climate Change (AIACC) project funded by GEF/UNEP has examined the impact of climate change on watershed and community livelihood. However, the area coverage of the study was limited to one watershed in West Java (Citarum watershed). Another study was in South Sulawesi. The weakness of this study was in the development of climate scenario. It applied interpolation techniques in downscaling global climate scenario into local climate scenario. This approach is not able to capture the topographic effects and other local effect on climate condition.
- Climate Change Impact on forestry. Impact of climate change on forestry sectors has been studied using a Holdrige model. The Holdrige model has a number of steady-state assumptions, including, i.e. (i) the present relationship between climate and vegetation is in steady state; and (ii) the present relationship between temperature and precipitation, within any climate zone, is constant and will remain the same in the future. These conditions are hardly expected from the dynamic nature of the climate and the relationship with vegetation. The result was qualitative. While, many dynamic models are now available to assess the impact of climate change on forestry sector.
- Climate Change Impact on agriculture. Similar with other sector, no national level studies that assess the impact of climate change on agriculture. Some studies were only at local level, i.e. assessing impact of climate change on rice yield using dynamic simulation model.
- Climate Change Impact on coastal. Impact of sea level rise due to climate change has been assess qualitatively a number of cities of Indonesia particularly their impact on salt water intrusion and number of population affected.
- Climate Change Impact on energy production. Impact of climate change on stream flow and electricity production is also limited. However, potential impact of climate change on electricity production from hydro power has been highlighted by AIACC project.

As illustrated above, most of studies only addressed possible impacts of climate change on sectors, while vulnerability assessment and identification of adaptation options were very limited. On the other hand,

historical impact of climate hazards on a number of sectors is also available and these data are very important for vulnerability assessment. A number of sectors have also implemented programs to address climate-hazards which can be used as a basis in developing and prioritizing adaptation options. In additional, it was revealed that a number of programs under other conventions (CCD and CBD) implemented by a number of sectors could be synergized with adaptation programs to climate change. Therefore comprehensive policy analysis related to the three conventions should be carefully evaluated and based on these analysis the synergy between them could be enhanced. The NCSA study did not describe and discuss how the synergy between three conventions should be done in the country. In summary the gaps, causes and approach to fill the gaps is presented in Table 2.

Table 2: Gaps, causes of gaps and approach to fill the gaps in the SNC

Main Gaps	Causes	Approach to Fill the Gaps
Different Climate Models used for different sectors almost all with low resolution	Unavailability of standard climate models with higher resolution Limited time in the report preparation	Apply the current best available climate models and methods
Limited sectors addressed, some often with inappropriate methodology	Limited studies available on the subjects Insufficient involvement of relevant sectors	Incorporate the recently available studies and apply appropriate methodology Encourages the responsible sectors to actively involved
The vast and diverse resources of the country in most of the studies were under represented. Some sectors only at local level	Inadequate baseline information on the diversity of the country resources	Use the best available information and try to cover more regions
Sub-sectors not adequately addressed	Limited studies available on the subjects Insufficient involvement of relevant sectors	Incorporate the recently available study
Most of studies did not consider and address sectors' policies well	Insufficient involvement of relevant sectors	Conduct policy analysis related to climate change and developed synergy with other conventions. To support the policy analysis, basic study on V&A will be expanded to cover more sectors and area coverage (national)
Sectors vulnerability and adaptation options were not addressed well and link with sector priority was not clearly defined	Limited studies available on the subjects Insufficient involvement of relevant sectors	Conduct vulnerability and adaptation assessment through intensive consultation with relevant sectors considering sectors' policies and program for addressing climate related problems.

2.4. Measures to Mitigate Climate Change

The INC provided information on policies and measures to reduce GHG emission for four sectors, energy, agriculture, forestry and waste and also timeframe for its implementation. This was discussed under section 'General Description of Steps'. However, relationship between the GHG emission projections and sector policies was not clearly defined, and impact of policies on GHG emission reduction in comparison to baseline condition was not provided. Barriers for implementing the policies were also not discussed. During stock-taking process, it was revealed that policies of energy sector has changed significantly and are very in line with the mitigation. The increased of global energy demand has triggering higher new oil price level and followed by another commercial energy price (natural gas and coal). The primary energy non oil, gas and exportable coal price such as geothermal, low rank coal and other new and renewable energy become viable. Therefore, the economic of energy sector mitigation options applied in the mitigation scenario need to adjust to the current value. It was also suggested that reformulation of a national action plan to abate the GHG emissions including revision of cost analysis of technology mitigation options and its integration with sectoral strategic plan (RENSTRA), development work plan (RKP) and RPJM (*Mid-term Development Plan*) should be conducted under the SNC. Financial strategies for the implementation of mitigation technologies should also be developed either through bilateral, multilateral, convention funds, CDM etc. Summary of gaps and approach to fill the gaps in the SNC is highlighted in Table 3.

Table 3: Gaps and approach to fill the gaps in the SNC

Categories	**Gaps in the INC**	**Improvement in the SNC**
Sector covered	Covered only four sectors energy, transportation, forestry, agriculture, waste	The same sectors will be covered
Policies	Connection between policies and emission reduction was not clearly defined and sector involvement was very limited	Link between policies implementation and emission projection will be addressed through the use of model simulations and involvement of sectors
Barriers	Barriers that may affect the implementation of the policies were not addressed	Conduct barriers analysis for the implementation policies in the context of regulation, financial, institutional, technology, human resources
Prioritization	No prioritization of measures provided in the INC	Facilitate discussion among sectors to reformulate national action plan to abate the GHG emissions including revision of cost analysis of technology mitigation options and its integration with sectoral strategic plan (RENSTRA), development work plan (RKP) and RPJM (*Mid-term Development Plan*)

2.5. Others Information

The INC provide information on (i) participation in AIJ Pilot-Phase Projects, (2) potential of AIJ pilot phase in 2000, (3) financial sources and constraints, and (4) transfer of technology constraints. This section describes the AIJ projects. Lesson learnt from the implementation of AIJ project was not described, particularly matters related to technical and capacity needs. Discussion on financial sources and constraints was limited to lesson learnt from project cases. In this context broad discussion on financial, technical and capacity needs to be covered in the SNC.

Strategies and activities that have been conducted to increase public awareness on climate change issues were not addressed in the INC as well as research, education and training program. Information on national effort and initiative to set up systematic observation system was also not described. Summary of gaps and approach to fill the gaps in the SNC is highlighted in Table 4.

Table 4: Gaps and approach to fill the gaps in the SNC

Categories	**Gaps in the INC**	**Improvement in the SNC**
Technology transfer	Did not describe technology transfer activities and needs but discuss constraint of technology transfer	Include information on technology transfer activities related to climate change and technology needs through discussion and consultation with sectors
Climate observing system	Not described	Include information on improvement of climate observing system in Indonesia and regional or international initiative to increase access to, exchange of data
research, education, training and public awareness	Not described	Include information on research, education, training and public awareness programs related to climate changes and bilateral or multilateral financial/technical support for implementing the programs through discussion and consultation with sectors
Capacity Building	Provide list of related capacity building activities on climate change in the form of tables	Updating and categorizing type of capacity building program and future capacity building needs
Financial, technical and capacity needs	Address partly the constraint and barriers in transferring technology, particularly financial constraint. Financial, technical and capacity needs did not address thoroughly	Updating information on gaps and constraint in technology transfer and address financial, technical and capacity needs

3. Main lessons learned of the self-assessment exercise

The stocktaking exercise was completely based on the analysis of the activities and outputs of the Initial National Communication Project (Phases 1 & 2). The detailed separate studies prepared within the INC were reviewed and the gaps, inconsistencies, uncertainties were identified. Synergies with the relevant initiatives were identified, considering relevant documents such as Asian Least Cost Greenhouse Gas Abatement Strategy (1996), National Action Plan on Climate Change (1998), Indonesia Climate Change Enabling Activity Phase II (2001), National Strategy Study on CDM for Energy Component (2002) and National Strategy Study on CDM for Forest Component (2003), Blue Print of National Energy Management (2005), etc. Main lessons learnt from the stocktaking exercise are:

- Limited involvement of sectors in the preparation of INC has lead to a number of gaps and inconsistency between components of the National Communications. This condition was inevitable due to limited understanding and awareness of the sectors to climate change issues. Therefore in the development of SNC, the institutional arrangement for the development of the SNC should ensure the involvement of all relevance sectors.

- Concern of sectors to the issues of climate change has much increased compare to the period of preparation of the INC. A number of main programs and policies in a number of sectors have direct linkage with the climate change issues. A number of barriers for the implementation of the programs and policies have been identified. However, most of sectors are not very aware of the opportunities offered by conventions and protocols to support the implementation of the policies and programs and removing the barriers.
- National capacity for preparation of the SNC is advanced compared to the period of preparation of the INC. However, training to address capacity needs, particularly at local level is very crucial. Targeted training will be provided for different stakeholders from national to local level. Areas that need to be covered include the identification of potential mitigation and adaptation activities at local level, streamlining climate change into local and national development programs.
- Many initiatives and studies related to climate change have been done by a number of agencies or institutions. However, such information is not well disseminated and communication among sector is still lacking. Development of database network on climate change at National level is very important. It is expected that the development of such network will increase coordination between various projects, programs and studies and will significantly contribute to the development of future national communications.
- Facilitating regular meetings between sectors on specific issues related to climate change (such as financial, technology transfer, capacity building needs etc), is very important. This process will help sectors in incorporating climate change into their strategic programs and plans. The Ministry of Environment as National Focal Point has established three new divisions to specifically address climate change issues namely environmental protection division, climate change mitigation division and adaptation to climate change division. These divisions could play significant role in facilitating such meetings.
- It is recognized the important of maintaining and strengthening links with countries from the region as it will contribute to enhancing national capacities through experience exchange between the national and relevant regional/international expert institutions.

4. Stakeholder consultations and validation process used for the preparation of the national communication project proposal

During the process of preparation of the National communication project proposal, a number of consultation officially and informally with relevant sectors have been done. Three formal meetings with limited representative from a number of sectors were done during the development of the proposal. The meetings were:

1. Development of Proposal for Mitigations
2. Development of Proposal for Climate Change Adaptation
3. Development of Proposal for GHG Inventory

Sectors being consulted during the development of the proposal are presented in the following Table.

STAKEHOLDERS AND INSTITUIONS CONSULTED

Institution	Stakeholders interests/responsibilities/organization units	Relevance to climate change/reasons for inclusion	Role in the self-assessment process
GOVERNMENTAL INSTITUTIONS			
MINISTRY OF ENVIRONMENT	Focal Point for Climate Change and Biodiversity	• Both focal points are the responsible persons and units in coordinating the implementation of the conventions at the national level and ensure the synergy effects of relevant conventions especially between UNFCCC, CBD, CCD	Coordinating and assuring th process to achieve the targeted outputs
MINISTRY OF AGRICULTURE	Directorate General for land and water	• Responsible for land and water resource managements for agriculture sector	• Resource person on the issues
	Directorate General for Food Crops, Directorate General for Horticulture, Directorate General for Estate Crops, and Directorate General for Animal Husbandry	• Responsible for agriculture resource managements	• Resource person on the issues
	Agency for Agricultural Research and Development (AARD) and relevant Directorate Generals	• AARD is the scientific authority where scientific basis for decision making process come from • Relevant Directorate Generals are policy implementing units where the success or failure of the policy implementation will give impacts either positively or negatively on the effort to mitigate or adapt to climate change	• Resource person on the issues, and relevant research findings • Resource person on the issues and sources of dat and information
MINISTRY OF FORESTRY	Focal Point for CCD and Director General of Land Rehabilitation and Social Forestry (RLPS)	• Focal Point for CCD (Director of Watershed Management) deal specifically with issues related to the implementation of CCD at the national level, • DG RLPS deal with all policy issues related to land rehabilitation (forest and non-forest land) and the success or failure of the policy implementation will give impacts either positively or negatively on the effort to mitigate climate change.	• Resource person on the issues • Resource person on the issues
	Directorate of Production Forest Management (BPK)	• DG BPK deal with all policy issues related to land rehabilitation (forest and non-forest land) and the success or failure of the policy implementation will give impacts either positively or negatively on the effort to mitigate climate change.	• Resource person on the issues
	Agency for Forestry Planning (Badan Planolog/BAPLAN)	BAPLAN is the responsible unit for macro planning, authority under the MOF to publish official data	• Resource person on the issues and sources of dat and information (spatial

			and numeric data for the whole MOF)
	Directorate General of Forest Protection and Nature Conservation (PHKA)	• In the implementation of CBD, PHKA is the management authority at the national level, • PHKA is one of the policy implementing units under the MOF, and the success or failure of the policy implementation will give impacts either positively or negatively on the effort to mitigate climate change.	• Resource person on the issues and sources of dat and information
	Forestry Research and Development Agency (FORDA)	FORDA is the scientific authority where scientific basis for decision making process comes from,	• Resource person on the issues • Source of relevant research findings
MINISTRY OF PUBLIC WORKS	• Spatial planning at various levels (national, regional, and local levels) • Policy and management of water resources	• The institution is responsible for national, regional and local spatial planning, and the implementation of the planning may affect vulnerability of the nation or region to the impacts of and adaptability to climate change. • The institution is also responsible for flood control due to climate extreme and climate change then the impact on flood will be higher when the sea water level increase • Responsible also for water resources management including water allocation	Resource person on the issue and sources of data and information
MINISTRY OF TRANSPORTATION	Terrestrial, marine and air transportation	The institution is responsible for transportation regulation and controls, also proposed the National Transportation System, which can not be separated with the consumption level of fossil fuels that may reduce or increase GHGs emission	Resource person on the issue and sources of data and information
MINISTRY OF HEALTH	Vulnerability and adaptability of humankind to the impact of climate change to human health	The institution is responsible to assure the betterment of people and therefore need to understand possible negative impacts of climate change to human health and to find ways to mitigate	Resource person on the relevant policies and sources of data and information
MINISTRY OF ENERGY AND MINERAL RESOURCES\	Policy and management of energy and mineral resources	The institution is responsible for formulating policies and managing energy and mineral resources, energy utilization which has very close relations with climate change issues (e.g. source of energy, use of technology etc)	Resource person on the relevant policies and programs

	Directorate General Oil and Gas	The institution is responsible for formulating policies on oil and gas	Resource person on the issue
	Directorate General Mineral, Coal and Geothermal	The institution is responsible for formulating policies on mineral, coal and geothermal resources	Resource person on the issue
	Directorate General Electricity and Energy Utilization	The institution is responsible for formulating policies on electricity, energy utilization and renewable energy sources	Resource person on the issue
	Agency for Energy and Mineral Resources Research and Development	The institution is scientific authority where scientific basis for decision making process come from	Resource person on the issue
	Centre for Data and Information on Energy and Mineral Resources	The institution is responsible for data/information management and conducting inter energy sectoral strategic studies	Resource person on the relevant policies and sources of data and information
MINISTRY OF MARINE AND FISHERIES	Directorate General of Small Islands and Coastal Areas	The institution is responsible for formulating policies on the development of small island and coastal areas	Resource person on the issue
	Directorate General of Aqua and Marine Cultures	The institution is responsible for formulating policies on aqua and marine culture managements	Resource person on the issue
	Agency for Marine and Fisheries Research and Development	The institution is scientific authority where scientific basis for decision making process come from	Resource person on the issue
MINISTRY OF FOREIGN AFFAIRS	National coordination related to international cooperation, and international political, economic and cultural affairs	The institution is responsible on international affairs where Indonesian position on the UNFCCC/KP negotiation process can not be separated with other international issues	Resource person on the relevant policies
MINISTRY OF INTERNAL/HOME AFFAIRS	National coordination related to internal affairs, relations between central, provincial and district level governments	The institution can play strategic role to ensure successful implementation of policies relevant to climate change issues	Resource person on the relevant policies
NATIONAL DEVELOPMENT PLANNING AGENCY (BAPPENAS)	Coordination in macro planning for national development	The institution can play strategic role in coordinating planning and implementation of policies relevant to climate change issues	Resource person on the relevant policies
UNIVERISTIES AND RESEARCH AGENCIES			

BOGOR AGRICULTURE UNIVERSIYT	Scientific and technological aspects	The institution is the scientific authority including on the area relevant to climate change issues	Provision of experts, researc findings, technology
BANDUNG INSTITUTE OF TECHNOLOGY	Scientific and technological aspects	The institution is the scientific authority including on the area relevant to climate change issues	Provision of experts, researc findings, technology
GAJAH MADA UNIVERISITY	Scientific and technological aspects	The institution is the scientific authority including on the area relevant to climate change issues	Provision of experts, researc findings, technology
AGRICULTURE RESEARCH AND DEVELOPMENT AGENCY	Scientific and technological aspects	The institution is the scientific authority including on the area relevant to climate change issues	Provision of experts, researc findings, technology
FOREST RESEARCH AND DEVELOPMENT	Scientific and technological aspects	The institution is the scientific authority including on the area relevant to climate change issues	Provision of experts, researc findings, technology
NATIONAL RESEARCH AGENCY ON AERONATIC AND AVIATION (LAPAN)	Scientific and technological aspects	The institution is the scientific authority including on the area relevant to climate change issues	Provision of experts, researc findings, technology
AGENCY FOR TECHNOLOGY ASSESSMENT AND APPLICATION	Policy on Scientific and technological aspects	The institution deals with policies relevant to scientific and technological aspects at the national level	Resource person on the relevant policies
INDONESIAN ISTITUTE OF SCIENCES	Policy on Scientific aspects	The institution is the scientific authority including on the area relevant to climate change issues	Resource person on the relevant policies
PUBLIC AND STATE INSTITUTIONS			
STATE ELECTRICITY COMPANY (PLN) AND INDONESIAN POWER	Responsible to supplying electricity for the people	The institution that can play important role in promoting the use of renewable energy for energy supply	Providing inputs regarding the potential of renewable energy particularly hydropower and bio fuel for supplying electricity as substitution for fossil fuel
METEOROLOGY AND GEOPHYSICS AGENCY (BMG)	Policy on Scientific and technological aspects	The institution that in charge in standardization and consolidation of monitoring weather and climate and providing weather and climate information to public	Providing inputs regarding the climate observation system and services to public in managing climate risks
STATE STATISTICAL OFFICE (BPS)	National data and information	The institution is the authority to collect, formulate, and publish data and information at the national level	Provision of data and information
PRIVATE SECTOR			
KAMAR DAGANG INDONESIA	Business affairs at the national level	The organization can play strategic role in promoting climate friendly business	Provision of information and facilitate promotion and networking on climate chang friendly business
NGOs			
Yayasan Pelangi	Advocating and awareness raising on climate change	NGOs which actively involve in climate change	Facilitation and awareness

	issues	issues related to mitigation and policies	raising
Yayasan Bina Usaha Lingkungan	Facilitation on climate friendly business	NGOs which actively involve in climate change issues, particularly on mitigation	Facilitation and awareness raising
WWF	Awareness raising and information dissemination on climate change issues	NGOs which actively involve in climate change issues, particularly on policy aspects	Facilitation and awareness raising
NATIONAL COMMITTEES			
National Climate Change Committee	Policy aspects, facilitation and awareness raising, information dissemination	Committee which is deal with climate change and assist sectors in synchronizing and synergizing their activities and programs on climate change	Providing inputs and suggestion on institutional arrangement
CCC/CDM Working Group at the Ministry of Forestry	Policy and technical aspects, facilitation and awareness raising, information dissemination	The working group has become permanent team at the MOF which deal with climate change issues	Provision of experts, exchanges information and experiences on the issues
CDM Working Group at the Ministry of Energy and Mineral Resources	Policy and technical aspects, facilitation and awareness raising, information dissemination	The working group has not permanent and officially	Provision of experts, exchanges information and experiences on the issues
National Working Group on Climate Anomaly	Policy and technical aspects, facilitation and awareness raising, information dissemination	The working group which is responsible for giving inputs and advices to the Minister of Agriculture for setting up policy and designing actions to cope with possible climate extreme events	Provision of experts, exchanges information and experiences on the issues
National Working Group on Crop Protection	Technical aspects, facilitation and awareness raising, information dissemination	The working group which is responsible for coordinating and managing crop pest/diseases and climate hazard national and local level.	Providing inputs regarding the activities in the ministry of agriculture in managing crop pest/diseases and climat risks

Appendix B: Technical components of the project proposal

1. Background/Context

In 1998, Indonesia entered the reform era. Government system has changed from centralization into decentralization where many of responsibilities are transferred to the district governments. During this transition process, Indonesia is facing difficult situation and challenges. This new system is increasing social and economic exclusion, deepening poverty due to improper management of local resources, rising unemployment and inequity and regional disparities. However, with decentralization, the district governments will have opportunity to address the climate change issues at local level. Adaptation and abatement measures for certain sectors within the districts should be described in the local strategic documents so that opportunities offered by conventions and protocol could be utilized optimally.

Acknowledging the significance of the climate change problem and the necessity to take effective actions for its mitigation, Indonesia has ratified the protocol for the climate change convention (*Kyoto Protocol*) through regulation number 17/2004 and has also established designated national authority for clean development mechanism (CDM). It has been highlighted in documents of national strategy studies on CDM, local capacity to participate in the mitigation activities should be developed and enhanced, and relevance local policies and regulations to support the implementation of the activities should be in place. Indonesia has received technical assistant from a number of donors (World Bank, Asian Development Bank, CIDA, GTZ, AUSAid, USAID, JICA, SIDA etc) to develop national and local capacity to address climate change. Lesson learnt from these technical assistant projects will be very useful in the process of developing the SNC.

Increasing damage and economic loss in many sectors due to climate hazards has attracted attention of sectors to the climate problems. A number of climate divisions in a number of sectors have been formed. However, capacity and knowledge of staff from the climate divisions is still limited. Their understanding on the important of establishing copying capacity to current climate risk as a basis for increasing the resilience to the future climate risks is still low. Similarly, capacity to link mitigations with adaptation efforts has also not been developed. This leads to the failure of mainstreaming climate change concerns into sectoral and national development priorities. In the process of developing the SNC, this issue will be the main concern.

2. Project's development and main objective

Project Development Objective:
The project will strengthen and sustain the technical and institutional capacity of Indonesia meets its obligations under the UNFCCC and to mainstream climate change concerns into sectoral and national development priorities.

Project Immediate Objective:
The project will enable Indonesia to prepare and submit its second national communication to the UNFCCC.

3. Project strategy

In preparing the second national communication (SNC), the project will use all information generated during the stocktaking exercise and fully utilize the outputs from initial national

communication as well as from previous and ongoing national or international activities related to the climate change. The SNC will continue to focus on the sectors with significant GHG emissions such as energy, industrial processes and waste as well as sectors that are identified as the most vulnerable to the climate change such as agriculture, biodiversity, forestry, hydrology and water resources and human health.

Unlike in the INC formulation, the SNC project will ensure that the key stakeholders in the relevant sectors will play significant roles. The involvement of experts from universities and research agencies will be limited to research activities or studies needed for the development of the SNC, particularly in the area of adaptation. In the process of defining and prioritizing research areas, the experts from universities and research agencies who are assigned for implementing the studies/research activities, will consult and coordinate with the relevant sectors. This is to ensure that the research activities are in line and consistent with national program. In addition, for the implementation of the studies/research activities, the project will invite at least one of staff from the relevant sectors (particularly from the climate divisions) to be a member of the study/research team. This is part of capacity development efforts for the sectors to address climate change issues.

During the process of the implementation of the project, synergies and cooperation with ongoing relevant projects will be put into good use. Dialogue, information exchange and cooperation among all the relevant stakeholders including governmental, non-governmental, academic, and private sectors will be strengthened. It is expected that this will result in putting the climate change related issues high in the agenda of the project partners and stakeholders and that climate change will be incorporated in the general planning and development strategy formulation processes in the country, i.e. Sectoral Strategic Plan or RENSTRA; Development Work Plan or RKP; and Mid-term Development Plan or RPJM.

4. Project's activities

Appendix A highlighted the main gaps in the INC. The main gaps in each component of the INC have been highlighted as well as approach to fill in such gaps. The paragraphs below describe the outputs from the activities that will be carried out under the SNC formulation project. Each output is accompanied by summary of the gaps identified during the stocktaking exercise, new areas of works for improvement of the SNC along with main activities and methods used to fill the gaps.

Output 1: National Circumstances

The main gap identified in the National Circumstances was the weak linkage between this section and the other sections of the INC. For example, the relationship between GHGs emission projections and mitigation, and sector policies was not clear. In addition, change in government system from centralization to decentralization and development of new sectors policies as well as the emergence of a new ministry for managing coastal and marine resources, this section needs a lot of updating. The section that requires minimum revision is climate and geography. However, additional information on facts showing the occurrence of climate change in the past will be given. The activities that will be carried out to deliver this output are the following

Output 1.1: Document on 'National Circumstances'

Activity 1.1.1: Updating of the information on geography and climate by giving special attention on facts that show climate change (e.g. season shifts and change in rainfall pattern and stream flow fluctuation)

Activity 1.1.2: Upgrading of the information on the present conditions of the country's natural resources and socio-economic conditions, which may affect country's ability to deal with mitigation and adaptation to climate change

Activity 1.1.3: Updating of the sectoral policies by giving special attention on policies that link directly or indirectly with mitigation and adaptation to climate change

National and sectoral development plans and other relevant documents describing sector policies will be used in revising the section. The process of revision is initiated by developing the outline of the section including type of information being included in each sub-section. The development of the outline will be done through consultation and roundtable discussions with related sectors, NGOs, other related stakeholders. The sub-section will be developed by a small team consists of representative from related sectors. To ensure the linkage between this section and other sections of the SNC, this team will coordinate with other team who developed the other sections under coordination of the project manager.

The national circumstances will include the analyses of national and or regional development priorities and objectives that Indonesia is pursuing and those that would serve as the basis for addressing climate change issues. Information on national circumstances will be linked to information provided in other sections of the SNC.

Output 2: Greenhouse Gas Inventory

The main gaps in the INC are that the estimation of the GHG removals and emissions mostly used the default emission factors and some of activity data were estimated and derived date. In addition, emissions from a number of sources were not included, particularly in waste sector and forestry sectors. The inventory management system has also not been developed. The inventory was developed by experts from universities and research agencies, and the involvement of sector was almost insignificant. As many studies have been done in the countries that can be used to improve to the inventories, and also the formation of climate division in a number of sectors, local emission factors and management system for the development of GHG inventory will be developed in the SNC.

Gaps identified in the GHG inventory for each sector in the INC were the following:

1. Energy, transport, industry, and the use of solvent and other products: All emissions from energy and transport sources (fuel combustion activities and fugitive emissions from fuels) were provided using IPCC default emission factors. Emissions from industrial processes and fugitive emissions were partly covered. Emissions from Non-ferrous metal and inorganic chemicals were excluded due to data unavailability. Emissions from solvent and other product used were not estimated. The contribution of fuel combustion to the total energy sector emissions was more than 90%. The level of uncertainty of the emission estimates from the fuel combustion was considered to be medium as the quality of the activity data is well monitored and reported. The source of uncertainty from this source was mainly from the emission factors. As the local emission factors for this source are not available, the improvement will be done through the use of regional emission factors database developed by IGES.
2. Agriculture: Emissions from prescribed burning savannas was not estimated in the INC. All emission factors used were IPCC default values. The main GHG emitted by this sector was

CH4. The main contributor to the CH4 emissions from this sector was rice paddy. It contributed about 51% of the total CH4 emissions of all sectors. Thus the improvement of CH4 from this sector will be done through the use of local emission factors.

3. Land Use Change and Forestry: Contribution of this sector to the total GHG emissions is the highest. However, the level of uncertainty was very high as many of activity data were derived or estimated using a number of assumptions. The critical assumption is in defining the forest area under succession and community plantation area under growing stage. In developing 1990-1994 inventory, it was assumed that production forests under succession was one third of the total logged-over forest, while in the community plantation it was only half of the total area. These assumptions were certainly a rough one. On the other hand the emissions from peat soils were not included. Considering the two fold roles of forestry sector which could be the contributor both to emission and removal of carbon dioxide, the reliability of activity data and emission factors of this sector is very critical and highly influences the accuracy of GHGs inventory as a whole. Therefore, the improvement of the inventory from this sector will be focused on the improvement of activity data and emission factors. Considering considerable changes in forest land use policy post 1994 and more data both in quantity and quality are available, the Good Practice Guidance for LULUCF will also be adopted in the developing inventory so that the missing sources from this sector will be captured.
4. Waste and Land Fill: Estimation of GHG emissions from waste only covered CH4 from domestic solid waste. Amount of solid waste generated was estimated from population multiplied by the solid waste generation rate per capita. Liquid waste was not included. As contribution of this sector to the national emission was quite small, the improvement of the emission from this sector will be done by using more reliable available activity data. Instead of IPCC default values, the available regional emission factor will also be adopted.

Based on gaps analysis, the analysis for the improvement of GHG Inventory for each sector will be focused in three areas. First is the improvement of emission factors. Second is the revision of GHG emissions and removal estimates through adoption of IPCC GPG. Third is the establishment of institutional system for the national GHG inventory. Thus this component will produce three intermediate outputs.

Indonesia's GHG inventory in the SNC will cover all sources and sinks as well as all gases as mandated by 17/CP8. In addition to those reported under INC estimates of new gases such as HFCs, *PFCs* and SF_6 will be provided. Estimates of the *key sources*, *sensitivity analysis* and *uncertainty level* will be provided. Estimates under national GHG inventory will be made for the base year 2000.

Output 2.1: Document on 'National Emission Factors'

Activity 2.1.1: Identification, collection and evaluation of studies at national and regional level on emission factors for the priority sectors for specific sectors

Activity 2.1.2: Development of a database on local emission factors following the format used in the regional database on emission factors developed by IGES whenever applicable.

Output 2.2: Document on 'National GHG Inventory'

Activity 2.2.1: Identification of new key sources and collection of new activity data

Activity 2.2.2: Estimation of GHG removal and emissions using the revised 1996 IPCC Inventory Guidelines

Activity 2.2.3: Participation of key stakeholders in regional training workshop on Development of National QA/QC Plan

Activity 2.2.4: Conduct of uncertainty analysis for two main key categories (using 2000 IPCC GPG Guideline). The scope of the uncertainty analysis will be determined once the inventory work is initiated.

Output 2.3: National Management System for the Development of GHG Inventory is in place

Activity 2.3.1: Development of consensus among the sectors in the development of National GHG Inventory

Activity 2.3.2: Development of a National GHG Management System (data management, institutional arrangement that ensure the continuation of GHG Inventory development)

The revised 1996 IPCC Inventory Guidelines will be adopted in developing the GHG inventory for the SNC. However, if IPCC 2006 Guideline is available, the National GHG Inventory Team will assess the use of the 2006 IPCC guideline. The assessment aims to see potential problems, barriers and approach to remove the barriers if the 2006 IPCC guideline will be adopted in future national communications.

The National Management System for GHG Inventory will be developed based on consensus among sectors through a series of roundtable discussions. A national training workshop for stakeholders in the different sectors on the development of GHG inventory will be conducted prior to the development the inventory.

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

In the INC, the sectors covered in the vulnerability and adaptation (V&A) assessments were limited to only human health and coastal resources. Nevertheless, a number of V&A studies have been implemented by a number of agencies and most of the studies did not consider and address sectors' policies. In addition, the studies mostly addressed only possible impacts of climate change on sectors, while vulnerability assessment and identification of adaptation options were very limited. Some studies often with inappropriate methodology and climate models used almost all with low resolution.

The detail vulnerabilities in various sectors to current and future climate changes are necessary in the formulation of adaptation options to cope with climate change. Therefore, a deep and sound scientific studies using validated methodologies and models to be pursued in assessing the magnitude and intensity of the impacts. Models generally require intensive data inputs that very often are not available in the developing countries. Consequently more rigorous and continues efforts are imperative in the improvement of the coverage and quality of the database.

Sectors addressed are necessary to be expanded and prioritized by including many that missing in the initial reports such as aquatic resources, infra-structure and policy. Because of limited resources priority must be given to the direct effects of climate change and those threaten the livelihood of the population such as water resources, sea level rise, aquatic resources, agriculture and infrastructure. As the country is so vast and diverse except for sector such as forestry where most of them located in outer islands, the studies for other sectors must focus on the more populated parts of the country such as Java, Bali and West Nusa Tenggara.

Study on impact of climate and land use changes on stream flow has been done in a Citarum watersheds in West Java (Boer et al, 2005) and Sadang in South Sulawesi (Kaimuddin et al., 2001) after the completion of initial national communication. This type of study need to be expanded to other major watersheds such as Brantas, Bengawan Solo, Serayu, Progo, Cimanuk on Java island, Asahan in Sumatra, Jenebrang and Bila in Sulawesi.

The study on sea level rise that previously in the initial report spread in Java, Sumatra, and Sulawesi must focus more on the highly populated parts of the country where a small increase of sea level can cause significant effect because of the absent of natural barrier such as wet lands. The sea level rise certainly will deteriorate the people livelihoods because of inundation, saline water intrusion and destruction of farms and infrastructure. Study on Semarang city in the initial report must be expanded to cover other cities such as Jakarta, Cirebon and Surabaya.

On aquatic resources, focus must be put on the man-made reservoirs on Java because they serve not only as water resource but also as power generation, flood control, fishery and recreation purpose. The shifting season and probably increasing rainfall due to climate change are expected to increase sedimentation altering the distribution pattern of the water. Since the matter was not addressed on water resources in the initial study, research on the subject must be commissioned to expert from universities and research institutions.

Study on agriculture initially addressed the impact of climate change on rice crop the staple food in the country. Because of the sensitivity of agriculture to climate, study on the possible effects to other crops must be pursued. The rain fed agriculture that is more sensitive to climate change compared to the irrigated ones (Amien and Las, 2000), therefore, other management options need to be further studied. Climate change also will affect plant-pest interaction, animal diseases pattern and irrigation water requirement. All these information probably very limited presently, to acquire adequate knowledge more researches are imperative.
Initial study only addressed the vulnerability of particular forest types to climate change in outer islands. While the sites studied are considered appropriate more detail functions of the forest were missed. Essential functions such as nutrient cycling, decomposition of organic matter, crusted or degraded soil rehabilitation, pest and disease regulation, water quality, and pollination are maintained by a wide range of biologically diverse populations in natural ecosystems and in and near agricultural ecosystems. Maintaining this diversity of species and building on and enhancing ecosystem functions reduces external input requirements by increased nutrient availability, improved water use and soil structure, and natural control of pests.
The forests also play important role in regulating the water, conserving it when it excesses and release it when it shortage in the upstream areas. The forest also functions in purifying the water from pollution and protecting the coasts from erosion. These multi roles of forest both non timber forest products and environmental services are started to be studied in many research centers. Rather than the timbers trees these particular roles are more vulnerable to climate change. The lower species are more sensitive to the slight change in the environment. Information on these subjects need to be collected and when not available need to be studied.

Infrastructure was not specifically discussed in the first communication, although lightly mentioned in the coastal resources. Transportation infrastructure like harbors, airports, roads and rail ways certainly will be affected by climate change. Infrastructures were also built for communication and distributing utilities to the consumers. All the networks for communication and utility distribution will also be adversely affected by climate change. Metals commonly are the material for these networks that when not rust proof becomes more vulnerable to degradation ore at least will increase the maintenance cost. Very few study on these subjects presently

available in the country presently. However, references from other parts of the world can always be explored.

By delegating many of authorities and budgets to local government in the regional autonomy decision making processes presently is taken locally. In many cases the local governments are understaffed or wrongly staffed by personnel with different expertise. Although an environmentally conscious policy has been taken at national level, the local implementation is often hampered by lack of local participation. Therefore, capacity building and empowerment of local government need to be pursued.

Considering the findings from the gap analyses that were carried out in the stocktaking exercise, the following activities, grouped into three categories. The first category is about climate change detection and climate change scenarios. The second category is on impact of climate change and climate hazards.. The last category is on measures to facilitate adequate adaptation to climate change. Each category will produce one intermediate output. The intermediate outputs are:

Output 3.1: Document on 'Past Climate Change and Future Climate and Socio-economic Scenarios'

Activity 3.1.1: Identification of gaps in past climate studies and conducting additional studies for detecting climate change (e.g. analyzing the frequency and magnitude of climate extreme events and its possible relation to climate change)

Activity 3.1.2: Development of future climate change scenarios using statistical downscaling method, if appropriate, as well as socio-economic scenarios

Activity 3.1.3: Development of spatial database of past and future climate changes from the results of activities 3.1.1 and 3.1.2.

Output 3.2: Document on 'Impact of Climate Hazards and Climate Change'

Activity 3.2.1: Collection of available climate disaster and climate change impacts studies

Activity 3.2.2: Conduct of additional study on the assessment of impact of current and future climate variability on sectors (agriculture, forestry, water resources, health, coastal, hydro power) using available impact models and different socio-economic scenarios.

Activity 3.2.3: Development of the spatial climate impact database from the results of activities 3.2.1-3.1.3.

Output 3.3: Document on 'Measures to Facilitate Adequate Adaptation to Climate Change'

Activity 3.3.1: Identification and development of data base on sectoral programs for addressing climate hazards

Activity 3.3.2: Development of adaptation options and strategies to address current and future climate change as well as their cost-benefit analysis based on activities 3.2.2 and 3.3.1.

Activity 3.3.3: Prioritization of adaptation options/strategies using developed criteria and indicators

Activity 3.3.4: Integration of adaptation strategies into sectoral policy and programs (i.e. Sectoral Strategic Plan-RENSTRA; Development Work Plan-RKP; and Mid-term Development Plan-RPJM)

Output 3.4: Document on 'National Priority for Adaptation to Climate Change'

Activity 3.4.1: Prioritization of action plan for adaptation from sectors which include clear distinction of responsibilities among relevant stakeholders, timeframe for fulfilment/implementation of the recommended measures, financial means for implementation of the measures, and identification of possible barriers and risks

In conducting the study, the Adaptation Policy Framework developed by UNDP will be used for guidance. Other document such as IPCC technical guidelines for assessing climate change impacts and adaptations, Handbook on Methods for Climate Change Impact Assessment and Adaptation Strategies, Handbook on Vulnerability and Adaptation Assessments will also be used as additional materials. The study will also use methods and model recommended by the IPCC.

Output 4: Programmes containing measures to mitigate climate change

Mitigation analysis carried out under the INC covers the following sectors: energy, forestry, agriculture, and waste. Analysis of mitigation was focused on policy and measures. The report was more on description of policy and measures which directly and indirectly related to mitigation efforts. This means that the policy and measures identified were not specifically designed to address climate change issues (in the case of mitigation) but they improve best practice which could reduce or avoid emissions of GHGs or enhance sink. The assessment on the impact of changing policies on national GHG emissions was also not described. However, recent study on the assessment of impact of changing global and regional policies on Indonesian GHG emission was now available and this could be accommodated in the SNC.

The INC did not provide how likely the policy and measures will be implemented but the timeframe for the implementation of the policies and measures was given. It discussed the projection of emissions for the three sectors energy, forestry and agriculture for the three gases (CO2, CH4 and N2O), but there was no clear link between the emission projections and the policies. The report did not describe cost-benefit analysis of mitigation technologies, but there were a number of studies covered such analysis. The recent two studies that cover such analysis were national strategies studies (NSS) on CDM. However, due to many changes occurred in the recent years on policies and prices, the result of such studies might not be relevant for the current situation.

In the context of land use change and forestry sector, the INC did not describe how this sector will integrate the three conventions, Convention on Biological Diversity (CBD), Convention to Combat Desertification (CCD) and Convention on Climate Change (CCC) and its Kyoto Protocol. In was found that a number of initiatives implemented by the sector under the three convention link quite closely. These three United Nation conventions promote the implementation of sustainable forest management that lead to the reduction of greenhouse gas emissions and to the increase of carbon sequestration to and from the atmosphere. Activities under the CBD may reduce greenhouse gas (GHGs) emission through forest conservation and increase carbon sequestration through adoption of agriculture management practices as outlined under sustainable agriculture and rural development (SARD). Implementation of CCD may

enhance carbon sequestration through the increase in biomass, and improve soil nutrient condition through land rehabilitation; while the CCC through its Kyoto Protocol provide incentives for adoption of SARD, forest and land rehabilitation and reduction of GHGs emission

Furthermore, the INC also did not describe the prioritization of the mitigation technologies. The barrier analysis for the implementation of mitigation technologies was discussed only for some sectors. This analysis is very important to assess how realistic is the policies and measures.

Considering the findings from the gap analyses during the stocktaking exercise, the following are proposed activities, which are grouped into two categories. The first category relates to sector policy analysis and their relation with GHG mitigation, while the second concerns about the impact of policy implementation on GHG emissions. Each category will produce one intermediate output.

Output 4.1: Document on 'National Policies and Their Connection with GHG Mitigation'

Activity 4.1.1: Review of past studies on GHG mitigation

Activity 4.1.2: Identification of policies and programs on LULUCF that relate to the three conventions

Activity 4.1.3: Formulation of integrated programs on sustainable forest and agriculture managements under the three conventions and relating them with sectoral strategic plan (RENSTRA) and development work plan (RKP) and Mid-term Development Plan (RPJM)

Activity 4.1.4: Assessment of barriers to the implementation of mitigation technologies used by the energy sector to meet energy consumption target (regulation, financial, institutional, technology, human resources)

Activity 4.1.5: Development of methods for screening and prioritizing mitigation options for the energy sectors

Activity 4.1.6: Application of developed screening method for ranking and prioritizing mitigation technologies for the energy sector based on criteria developed from the results of activity 4.1.4.

Activity 4.1.7: Revision of the cost analysis of the prioritized mitigation technologies in the energy sector and integrating them into sectoral strategic plan (RENSTRA), development work plan (RKP) and RPJM (*Mid-term Development Plan*)

Activity 4.1.8: Formulation of the financial policies (unilateral, bilateral, multilateral, or convention/protocol fund)) for the implementation of the GHG mitigation technologies identified from the activities 4.1.3 and 4.1.6

Output 4.2: Document on 'Impact of sectoral policies implementation on GHG emissions'

Activity 4.2.1: Development of baseline and policy scenarios using output 4.1.

Activity 4.2.2: Projection of GHG emissions under baseline and improved policy scenarios considering the security of energy supply and land demand

Activity 4.2.3: Evaluation of the impacts of changing global and regional policies on national GHG emissions

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

The INC did not provide information on strategies and activities that have been conducted to increase public awareness on climate change issues as well as research, education and training program. Information on national efforts and initiatives to set up systematic observation system were also not described simply because there was nothing significant done on this. In the context of addressing climate change at the national level, the information that should be included are:

- Steps taken to integrate climate change into relevant social economic and environmental policies
- Activities related to technology transfer
- Climate Change research and systematic observations
- Research to adapt to and mitigate climate change
- Information on education, training and public awareness
- Information on capacity-building at the national, regional and sub-regional levels
- Efforts to promote information sharing

Since the submission of the INC, there were a number of programs and initiatives that have been done in the country to achieve the objective of the convention. Thus, the proposed activities are mainly for the collection, evaluation and documentation of the relevant information. The collection of the information will be conducted through a number of roundtable discussions which are leaded by the Climate Change Focal Point. The collected information will be documented and presented in a workshop.

Output 5.1: Document on 'National Activities and Program Relevant for the Achievement of the Objective of the Convention'.

Activity 5.1.1: Review of government regulations for the implementation of climate change convention

Activity 5.1.2: Review of activities related to climate variability and climate change conducted by sectors supported by GEF, Annex II Parties or bilateral and multilateral institutions, focusing on the area of technology transfer, mitigation and adaptation.

Activity 5.1.3: Review of ongoing national programmes for research and systematic observation and assess the needs of research and observation of climate change programmes;

Activity 5.1.4: Collection of information on capacity-building activities focusing on coordination and sustainability of capacity-building process and integration of climate change adaptation programmes into medium and long-term planning,

Activity 5.1.5: Identification of gaps, needs and priorities for education, training and public awareness on climate change

Output 6: Constraints and Gaps, and related Financial, Technical and Capacity Needs

Indonesia has conducted a number of programs and activities on climate change, particularly in the area of mitigation. However, the level of implementation is still limited to national level. The main constraint appears to be the lack of finances and low potential for attraction of foreign investments and limited awareness programs. Weak inter-ministerial communication and coordination and also undefined mandates and unclear roles and responsibilities of the sector in relation to climate change inhibit the harmonization of the climate-change-related programs.

Output 6.1: Document on 'Prioritized Program for Meeting the Objectives of Convention and Addressing Constraints and Gaps for the Implementation of the Programs'

Activity 6.1.1: Collection of information on financial and technical resources or other national contribution made available for the preparation of the SNC;

Activity 6.1.2: Identification of prioritized projects that involve local stakeholders in the area of mitigation and adaptation, specifying the technologies to be used and equipment required, and estimated incremental costs

Activity 6.1.3: Identification of barriers to the implementation of mitigation and adaptation programs as well as technology transfer and supporting programs to overcome the barriers

5. Institutional Framework for Project Implementation

In order to promote national ownership, leadership and accountability, the project will be nationally executed following the NEX Guidelines of the United Nations Development programme (UNDP). The Ministry of Environment (MOE) is the designated Executing Agent for this SNC Formulation Project. As the Executing Agency, the MOE will be primarily responsible for the planning and overall management of the activities of the project, including reporting, accounting, monitoring and evaluation, and management of the audit. MOE will thus be responsible to the Government of Indonesia and UNDP/GEF for the production of outputs, the achievements of programme objectives and therefore the use of UNDP resources.

In implementing the project, the Ministry of Environment will assign the Assistant Deputy for Climate Change Impact Control as a National Project Director (NPD) to serve as the overall government manager of the project and assisted by Head of divisions for Adaptation to Climate Change and Head of Division for Climate Change Mitigation. A National Project Coordinator (NPC), who will be responsible for day-to-day project implementation will be recruited following the standard UNDP recruitment procedures. The NPC will be assisted by an Office Manager (OM). The National Project Coordinator (NPC) will manage the project 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. The Office Manager (OM) will assist the NPC on administrative matters and be involved in circulating discussion papers and draft reports, raising public awareness of project activities and coordinating consultations and workshops.

The National Committee for Climate Change (NCCC), made up of high level government personnel will remain as a political platform, providing a high level support for the development and realization of the climate change activities. The NCCC will also oversee and provide policy guidance to the project. Technical Team for the NCCC will provide technical guidance and support to the project activities and outputs.

The project activities will be carried out by a number of working groups recruited from the concerned government ministries/agencies. The person who is assigned to be the member of the working group should have an official mandate from the Minister/Director of the concerned Ministry/Government Agencies. National experts who involved in the preparation of the INC and a number of new experts identified during the stocktaking exercise will joint the working groups. The new expert will bring new ideas, contributing to the improvement of the analysis. The member of the working groups should meet a number of criteria defined by the NPD with inputs from the NPC. The following are the working groups:

1. Working Group A is responsible for Outputs 1, 5 and 6. The member of the working group will be from the Ministry of Environment, National Planning and Development Agencies (BAPPENAS), Ministry of Foreign Affairs, Ministry of Finance, Directorate General of Local Development (Ditjen Bangda), APKASI (Asosiasi Pemerintahan Kabupaten Seluruh Indonesia), APEKSI (*Asosiasi Pemerintahan Kota Seluruh Indonesia*), APPSI (*Asosiasi Pemerintah Propinsi Seluruh Indonesia*), BMG (Bureau of Meteorology and Geophysics), Ministry of Marine and Fisheries, Bakosurtanal (National Coordination Agency for Survey and Mapping) and BPS (State Statistical Office).

2. Working Group B responsible for Output 2. The member of the working group will be from the Ministry of Environment, Ministry of Energy and Mineral Resources, Ministry of Forestry, Ministry of Agriculture, Ministry of Transportation, Ministry of Industry, and three national experts.

3. Working Group C responsible for Output 3. The member of the working group will be from Ministry of Environment, Research Agencies within the Ministry of Forestry, Ministry of Agriculture, Ministry of Marine Affair and Fisheries, Ministry of Public Works, Ministry of Health, Ministry of Research and Technology, Environmental Division of the State Electricity Company (PLN), BMG (Bureau of Meteorology and Geophysics), LAPAN (Indonesian National Institute of Aeronautic and Space), BPPT (Agency for Technology Assessment and Application) and scientists from universities

4. Working Group D responsible for Output 4. The member of the working group will be from the Ministry of Environment, Ministry of Transportation, Ministry of Energy and Mineral Resources, Ministry of Forestry, Ministry of Agriculture, Ministry of Research and Technology, BPPT (Agency for Technology Assessment and Application), and three national experts,

The project management structure is presented in Figure 1.

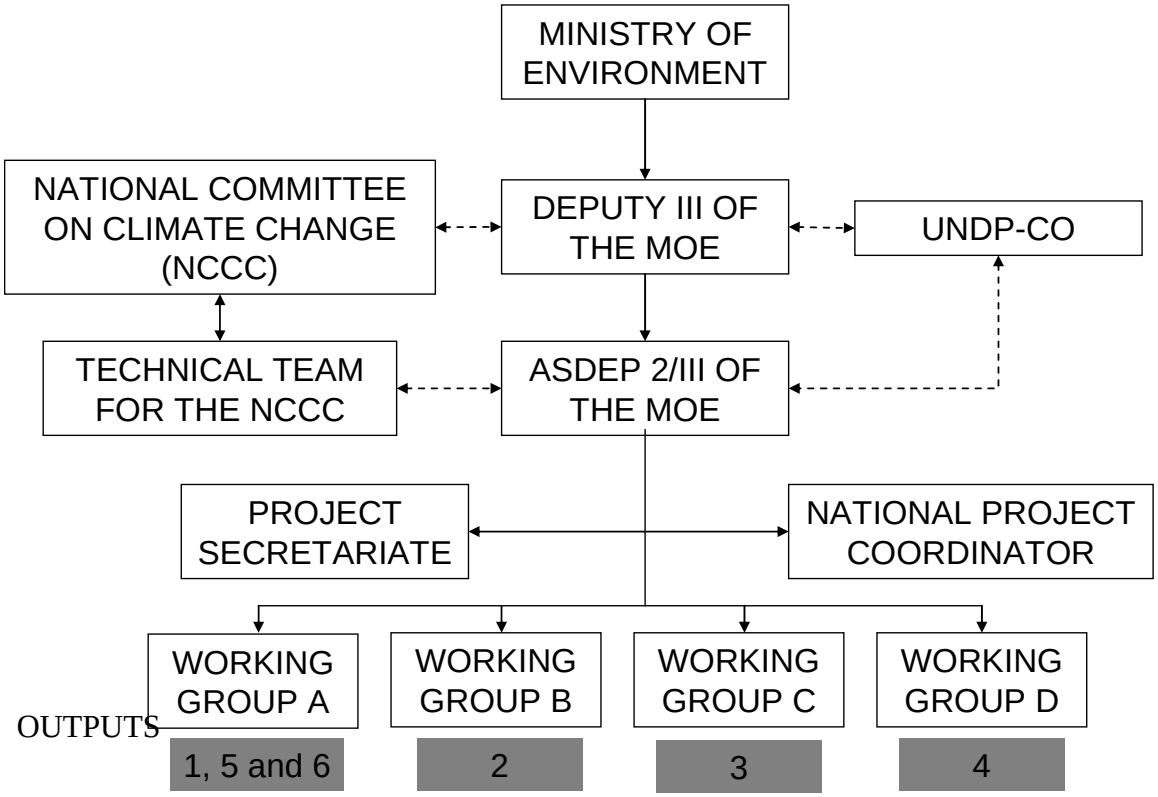

Figure 1: Project Management Structure (solid are instructional lines, and dashed are coordination or consultative lines)

The project will be monitored and evaluated following UNDP-GEF rules and procedures. The Executing Agency (MOE) will prepare quarterly and annual work plans and to report to UNDP-Country Office on progress in achieving targets. The Quarterly Progress Reports (QPRs) will provide a brief summary of the status of project inputs and output delivery, explain variances from the work plan, and present work plans for each successive quarter for review and endorsement. These quarterly reports will include financial statements and the work plan for the subsequent quarter. Annual Project Reports (APRs) will provide a more in-depth summary of work-in-progress, measuring performance against both implementation and impact indicators. APRs will inform decision-making by the NCCC, which will evaluate whether any adjustment in approach is required. A terminal report will be completed prior to the completion of the project detailing achievements and lessons learned.

6. Assessing project impact

As described under the above section on project's strategy, sectoral strategic plan (RENSTRA), Development Work Plan or RKP; and Mid-term Development Plan or RPJM will be used as key entry points for mainstreaming climate change issues in the national development agenda. Therefore, the impact for policy change by mainstreaming will be assessed around these strategic documents.

At the beginning of the project, a practical framework to assess capacity development as a result of a national communication process will be developed. Five strategic areas: (1) Capacity to conceptualize and formulate policies, legislation, strategies and programmes; (2) Capacity to implement policies, legislation, strategies and programmes; (3) Capacity to engage and build consensus among all stakeholders; (4) Capacity to mobilize information and knowledge; (5) Capacity to monitor, evaluate, report and learn will be included in the framework.

Capacity development will be assessed at three levels:
(a) At the individual level - the process of changing attitudes and behaviors, 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.
(b) Capacity development at the 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.
(c) At the 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:

1) Application of new skills and knowledge
2) national policy, legal and regulatory frameworks
3) institutional mandates, coordination and processes for interaction and cooperation between all stakeholders
4) information, management, monitoring and observations
5) mobilization of science in support of decision making
6) financial resources and technology transfer
7) cooperation and networking within regions
8) institutional management and performance individual skills and motivation in key institutions

This exercise will help the project to assess the process by which individuals, entities and systems increased their individual and collective abilities to (a) perform core functions, resolve problems, and define and achieve objectives, and (b) to understand and deal with the development needs within a broad context and in a sustainable manner.

7. Detailed Work plan

Outputs/activities	Year 1				Year 2				Year 3			
	1st Q	2nd Q	3rd Q	4th Q	1st Q	2nd Q	3rd Q	4th Q	1st Q	2nd Q	3rd Q	4th Q
1. National circumstances												
Output 1.1: Document on 'National Circumstances'												
1.1.1. Updating information on geography and climate by giving special attention on facts that show climate change												
1.1.2. Upgrading the information on condition of natural resources and socio-economic conditions												
1.1.3. Updating sectoral policies by giving special attention on policies related to mitigation and adaptation to climate change												
2. Greenhouse gas inventory												
Output 2.1. Document on 'National Emission Factors'												
2.1.1. Identifying and collecting studies at national and regional level on emission factors												
2.1.2. Developing database on local emission factors												
Output 2.2. Document on 'National GHG Inventory'												
2.2.1. Identifying new key sources and collecting new data												
2.2.2. Estimating GHG removal and emissions using the 1996 IPCC Inventory Guidelines												
2.2.3. Conducting uncertainty analysis for two main key categories.												
2.2.4. Participating in regional training workshop on the use of 2006 IPCC Inventory Guidelines												
Output 2.3. National Management System for the Development of GHG Inventory is in place												
2.3.1. Developing consensus among sector in the development of National GHG Inventory												
2.3.2. Developing National GHG Management System												
3. Programmes containing measures to facilitate adequate adaptation to climate change												
Output 3.1. Document on 'Past Climate Change and Future Climate and Socio-economic Scenarios'												
3.1.1. Identifying gaps in past climate studies and												

conducting additional studies on climate change												
3.1.2. Developing future climate change scenarios using statistical downscaling method, if appropriate, as well as socio-economic scenarios												
3.1.3. Developing spatial database of past and future climate changes from the results of activities 3.1.1 and 3.1.2.												
Output 3.2. Document on 'Impact of Climate Hazards and Climate Change'												
3.2.1. Collecting available climate disaster and climate change impacts studies												
3.2.2. Conducting additional study on the assessment of impact of current and future climate variability on sectors using available impact models and different socio-economic scenarios.												
3.2.3. Developing the spatial climate impact database from the results of activities 3.2.1-3.1.3.												
Output 3.3. Document on 'Measures to Facilitate Adequate Adaptation to Climate Change'												
3.3.1. Identifying sectoral programs for addressing climate hazards												
3.3.2. Developing adaptation options and strategies to address current and future climate change as well as their cost-benefit analysis based on activities 3.2.2 and 3.3.1.												
3.3.3. Prioritizing adaptation options/strategies using developed criteria and indicators												
3.3.4. Integrating adaptation strategies into sectoral policy and programs												
Output 3.4. Document on 'National Priority for Adaptation to Climate Change'												
3.4.1. Prioritizing action plan for adaptation												
4. Programmes containing measures to mitigate climate change												
Output 4.1. Document on 'National Policies and Their Connection with GHG Mitigation'												

4.1.1. Reviewing past studies on GHG mitigations												
4.1.2. Identifying policies and programs of the LULUCF sectors that relate to the three conventions												
4.1.3. Formulating integrated programs on sustainable forest and agriculture managements under the three conventions												
4.1.4. Assessing barriers for the implementation of mitigation technologies used by the energy sector to meet energy consumption target												
4.1.5. Developing method for screening and prioritizing mitigation options for the energy sectors												
4.1.6. Applying screening method for ranking and prioritizing mitigation technologies for the energy sector based on criteria from the results of 4.1.4.												
4.1.7. Revising cost analysis of the prioritized mitigation technologies in the energy sector and integrating them into sectoral strategic plans												
4.1.8. Formulating financial policies for the implementation of the GHG mitigation technologies identified from the activities 4.1.3 and 4.1.6.												
Output 4.2. Document on 'Impact of sectoral policies implementation on GHG emissions'												
4.2.1. Developing baseline and policy scenarios using output 4.1.												
4.2.2. Projecting GHG emissions under baseline and policy scenarios considering the security of energy supply &land demand												
4.2.3. Evaluating impact of changing global and regional policies on national emissions												
5. Other information considered relevant to the achievement of the objective of the Convention												
Output 5.1. Document on 'National Activities and Program Relevant for the Achievement of the Objective of the Convention.												
5.1.1. Reviewing government regulations for the implementation of climate change convention												

5.1.2. Reviewing activities related to climate variability and climate change												
5.1.3. Reviewing ongoing national programmes for research and systematic observation and assess the needs of research and observation of climate change programmes;												
5.1.4. Collecting information on capacity-building activities focusing on coordination and sustainability of capacity-building process and integration of climate change adaptation programmes into medium and long-term planning,												
5.1.5. Identifying gaps, needs and priorities for education, training and public awareness												
6. Constraints and Gaps, and related Financial, Technical and Capacity Needs												
Output 6.1. Document on 'Prioritized Program for Meeting the Objectives of Convention and Constraint and Gaps for the Implementation of the Programs'												
6.1.1. Collecting information on financial and technical resources or other national contribution made available for the preparation of the SNC;												
6.1.2. Collecting and identifying list of prioritized projects that involved local stakeholders in the area of mitigation and adaptation, if possible specify the technologies to be used and equipment required, and estimated incremental costs												
6.1.3. Identifying and defining barriers for the implementation of mitigation and adaptation programs as well as technology transfer and supporting programs to overcome the barriers												
7. Preparation and submission of the NC												
Output 7.1. Document of 'Second National Communication'												
7.1.1. Compile and develop a draft national communication and circulate it for comments												
7.1.2. National Workshop												
7.1.3. Finalization and submission of the Second National Communication												

Appendix C: Terms of Reference

NATIONAL PROJECT COORDINATOR (NPC)

I. Project background information

The lead agency which is responsible for the implementation of the climate change convention is the Ministry of Environment, in cooperation with other ministries. Development of the Initial National Communication was funded by GEF's grant, through UNDP as an implementing agency. To address the problem of climate change more effectively, the Ministry of Environment established two new divisions in charge with mitigation and adaptation issues. In addition, the Minister of Environment also established the National Climate Change Committee entitled to supervise and co-ordinate the implementation of the projects and climate change related issues.

The Initial National Communication on Climate Change was submitted to the UNFCCC Secretariat in December 1999, and presented at the side event at COP5. In continuation, the Top-Ups activities were implemented in duration of one year, financed by UNDP/GEF, which contributed to extending existing analyses and enhancing national capacities in the most priority areas. The Second National Communication is a logical continual step towards further implementation of the UNFCCC at national level. The main objective of the project is to prepare a comprehensive report on the climate change related issues. The analysis conducted within the INC will be upgraded and extended, which will result in preparation of an advanced national report. Furthermore, it will work towards ensuring that climate change issues are not considered as separate to national and local environmental concerns by integrating objectives into national and local strategic planning processes. Duration of the project is 36 months.

II. Scope of the assignment

The NPC will be responsible in managing 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 use of funds. The NPC will ensure the regular monitoring and feedback from activities already under implementation. The NPC will work closely with the National Project Director from the Ministry of Environment, Project Steering Committee, UNFCCC focal point, UNDP Programme Officer for Environment and the National Climate Change Committee.

III. Duties and Responsibilities

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

- Prepare a detailed work plan and budget;
- Prepare and submit to UNDP and the MOE, regular progress and financial reports;
- Coordinate and oversee the preparation of the outputs of the SNC;
- Ensure effective communication and adequate information flow with the relevant authorities, institutions and ministries in close collaboration with the NCCC;

- Ensure appropriate stakeholder participation in the project implementation and coordinate the work of all stakeholders under the guidance of the MOE and NCCC and in consultation with the UNDP office;
- Ensure that information is available to the NCCC about all Government, private and public sector activities, which impact on capacity development;
- Maintain and establish additional links with other related national and international programs and National Projects;
- Prepare the Terms of Reference for consultants and experts and ensure their timely hiring;
- Work with National Project Director to recruit national consultants (experts)
- Guide the work of consultants and experts and oversee compliance with agreed work plan;
- Identify training needs at contracted national institutions and 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;
- Coordinate the experts and consultants in preparing and finalizing the SNC document
- Assume overall responsibility for the proper handling of logistics related to all project workshops and events;
- Manage the Project finance, oversee overall resource allocation and where relevant submit proposals for budget revisions with the help of the UNDP officer;
- Undertake any other actions related to the Project as requested by the MOE or by UNDP.

IV. Qualifications and Skills

- Advanced university degree in the fields related to climate change and environmental management
- Minimum of 10 years of working experience in the area relevant to the project;
- Substantial involvement in the preparation of the national GHG inventory and the initial National
- Good command in English
- Demonstrated ability in managing projects, and in liaising and cooperating with all project stakeholders including government officials, scientific institutions, NGOs and private sector;
- Substantial experience in Government and in inter-ministerial procedures
- Familiarity with international negotiations and processes under the UNFCCC
- Fluent written and oral communication in Indonesian and English
- Strong communications and interpersonal skills
- Excellent computer knowledge (MS Office, Internet)
- Indonesian citizenship

Office Manager (OM)

I. Project background information

The lead agency which is responsible for the implementation of the climate change convention is the Ministry of Environment, in cooperation with other ministries. Development of the Initial National Communication was funded by GEF's grant, through UNDP as an implementing agency. To address the problem of climate change more effectively, the Ministry of Environment established two new divisions in charge with mitigation and adaptation issues. In addition, the Minister of Environment also established the National Climate Change Committee entitled to supervise and co-ordinate the implementation of the projects and climate change related issues.

The Initial National Communication on Climate Change was submitted to the UNFCCC Secretariat in December 1999, and presented at the side event at COP5. In continuation, the Top-Ups activities were implemented in duration of one year, financed by UNDP/GEF, which contributed to extending existing analyses and enhancing national capacities in the most priority areas. The Second National Communication is a logical continual step towards further implementation of the UNFCCC at national level. The main objective of the project is to prepare a comprehensive report on the climate change related issues. The analysis conducted within the INC will be upgraded and extended, which will result in preparation of an advanced national report. Furthermore, it will work towards ensuring that climate change issues are not considered as separate to national and local environmental concerns by integrating objectives into national and local strategic planning processes. Duration of the project is 36 months.

II. Scope of Work

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

III. Duties and Responsibilities

The Office Manager (OM) will have the following duties:

- Manage the day-to-day operations of the Project Implementation Unit (PIU), particularly with respect to the provision of technical services and support;
- Ensure that necessary financial, procurement, disbursement and personnel meters are effectively addressed;
- Compile and/or prepare the documentation necessary for the procurement of services, goods and supplies under the project;
- Ensure timely disbursement of funds from the project bank account;
- Maintain the project's files and supporting documentations for payments;
- Maintain the project's disbursement ledger and journal;
- Prepare internal and external correspondence for the PIU, maintain files and assist in the preparation of documentation in advance of and following all meetings, edit reports and other documents for correctness of form and content;
- Organize training for the project personnel in using selected software tools and electronic networks,
- Organize and coordinate information exchange between participating institutions and internationally

- Co-ordinate and assist in travel arrangements for project personnel or for representatives within the established teams;
- Maintain and update the established national web site;
- Provide oral interpretation and written translation as required;
- Assist in the preparation of documents related to project activities and
- Undertake other administrative/financial duties as requested by the NPC.

IV. Qualifications and Skills

- University degree; IT, Economy preferred;
- Minimum of 3 years of working experience in the area of project administration/accounting;
- Demonstrated ability to cope with spreadsheets and book-keeping;
- Experience in Government and in inter-ministerial procedures;
- Familiarity with environmental issues and UNFCCC preferred
- Fluent written and oral communication in Indonesian and English;
- Strong time-management, organizational and inter-personal skills;
- Excellent computer knowledge (Word, Excel, Power Point, etc);
- Experience with preparation of information for presentation on web site;
- Indonesian citizenship.

NATIONAL COMMITTEE ON CLIMATE CHANGE

The NCCC assisted by The Technical Team of the NCCC 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.

III. Duties and Responsibilities

The NCCC should undertake its duties namely:

- Overseeing national policies on climate change and of the implementation of the FCCC at a national level;
- Ensuring that national climate change policies and programmes are consistent with national development priorities and objectives;
- Ensuring that all relevant stakeholders in the country are kept informed and consulted on the development of climate change issues and policies;
- Developing negotiating positions and strategies for the Government of Indonesia for meetings of the COP of the UNFCCC;
- Monitoring and reviewing the progress of the project against its stated outputs, including progress reports prepared by the National Project Coordinator;
- Reviewing and approving the project work plan;
- Reviewing and approving the monitoring and evaluation timetable;
- Making modifications, as necessary, to the number and scope of workshops being organized under the project;
- Providing strong political support and overall policy advice for the development and realization of the project

- Assisting in mobilizing available data and expertise;
- Endorsing the detailed work plan, produced thematic reports, Final SNC Report and Action Plan;
- Proposing the Government to adopt the SNC for submission to the UNFCCC Secretariat.

WORKING GROUP A: NATIONAL CIRCUMSTANCES, OTHER INFORMATIONS, AND CONSTRAINT/GAPS RELATED FINANCIAL, TECHNICAL AND CAPACITY NEEDS

II. Scope of Work

This working group will consist of technical staff from coordinating agencies and one national expert who will coordinate the member of the WG in performing specific activities outlined below and outputs from other working groups.

III. Duties and Responsibilities

Particular duties may be as follows:

- Collecting data and information and documents of national and sectoral policies and development plans
- Updating information on geography and climate by giving special attention on facts that show climate change (e.g. season shifts and change in rainfall pattern)
- Analyzing sectoral policies by giving special attention on policies that link directly or indirectly with mitigation and adaptation to climate change and use it for updating the information given in the INS
- Analyzing data and information regarding condition of natural resources and socio-economic conditions, which may affect country's ability to deal with mitigation and adaptation to climate change and use it for updating the information given in the INS
- Ensuring the information given in National Circumstances are link with the other section of the SNC
- Reviewing government regulations for the implementation of climate change convention
- Reviewing activities related to climate variability and climate change conducted by sectors supported by GEF, Annex II Parties or bilateral and multilateral institutions, focusing on the area of technology transfer, mitigation and adaptation.
- Reviewing ongoing national programmes for research and systematic observation and assess the needs of research and observation of climate change programmes;
- Collecting information on capacity-building activities focusing on coordination and sustainability of capacity-building process and integration of climate change adaptation programmes into medium and long-term planning,
- Identifying gaps, needs and priorities for education, training and public awareness on climate change
- Collecting information on financial and technical resources or other national contribution made available for the preparation of the SNC;
- Collecting and identifying list of prioritized projects that involved local stakeholders in the area of mitigation and adaptation, if possible specify the technologies to be used and equipment required, and estimated incremental costs

- Identifying and defining barriers for the implementation of mitigation and adaptation programs as well as technology transfer and supporting programs to overcome the barriers
- Participate in workshops and meetings organized by the projects

IV. Qualifications and Skills

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

- Familiar with process of developing national and sectoral policies and plans
- Have good knowledge in natural and environmental sciences
- Familiar with UNFCCC and Kyoto Protocol
- Familiar with macro-economic and financial issues
- Fluent written and oral communication in Indonesian and English;

The member of working group will be hired and requested officially by the Deputy III for the Minister of Environment to the relevant ministries/agencies

V. Expected output:

The Working Group A will produce three outputs

- Document on 'National Circumstances'
- Document on 'National Activities and Program Relevant for the Achievement of the Objective of the Convention'
- Document on 'Prioritized Program for Meeting the Objectives of Convention and Constraint and Gaps for the Implementation of the Programs'

WORKING GROUP B: GHG INVENTORY

II. Scope of Work

This working group will consist of technical staff from related sectors coordinated by two national experts on GHG inventory (both Energy and Non-Energy) which is responsible for performing specific activities outlined below, as well as coordination with the outputs of other working groups. The activities undertaken by this working group will contribute to strengthening institutional arrangements for compiling, archiving, updating and managing GHG inventories.

III. Duties and Responsibilities

Particular duties may be as follows:

- Collecting studies at national and regional level on emission factors

- Developing database on local emission factors following the format used in the regional database on emission factors developed by IGES whenever applicable
- Collecting and updating activity data from national sources to fill inventory data gaps
- Developing national GHG inventories for the year 2000, according to the guidelines for the preparation of National Communications (17/CP.8)
- Recalculating the time series for the period 1990-1994 in the INC and provide information for 1995-1999
- Identifying new key sources and collecting new activity data
- Conducting uncertainty analysis for two main key categories using 2000 IPCC GPG Guideline
- Participating in regional training workshop on the use of 2006 IPCC Inventory Guidelines and assessing the possible use of the new guideline for the subsequent national communication for a selected sector.
- Describing procedures and arrangements undertaken to collect and archive data for the preparation of national GHG inventories, as well as efforts to make this a continuous process, including information on the role of the institutions involved
- Utilize the deliverables under the regional project, such as the National Strategy for improvement of the GHG Inventory, Manuel of procedures for GHG Inventory and National QA/QC Plan
- Organize (in cooperation with the NPC) workshop for presentation and discussion on the results obtained from the GHG Inventory

IV. Qualifications and Skills

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

- Sound and broadly-recognized scientific expertise on climate research
- Prior experience in inventory preparation, through involvement in the Initial National Communication
- Highly qualified scientists working in the fields of emission factor development or data collection methods
- Familiarity with the UNFCCC, IPCC methodology
- Fluent written and oral communication in Indonesian and English;

The member of working group will be hired and requested officially by the Deputy III for the Minister of Environment to the relevant sectors

V. Expected output:

The Working Group B will produce three outputs

- Document on ‘National Emission Factors’.
- Document on ‘National GHG Inventory’
- Document on ‘National Management System for the Development of GHG Inventory’

WORKING GROUP C: VULNERABILITY ASSESSMENT AND ADAPTATION

II. Scope of Work

This working group will consist of three national experts and technical staff from related sectors which is responsible for performing specific activities outlined below, as well as coordination with the outputs of other working groups. The activities undertaken by this working group are vulnerability and impact assessment as well as adaptation to climate change.

III. Duties and Responsibilities

Particular duties may be as follows:

- Identifying gaps in past climate studies and conducting additional studies for detecting climate change (e.g. analyzing the frequency and magnitude of climate extreme events and its possible relation to climate change)
- Developing future climate change scenarios using statistical downscaling method
- Developing spatial database of past and future climate changes
- Collecting available climate disaster and climate change impacts studies
- Conducting additional study on the assessment of impact of current and future climate variability on sectors (agriculture, forestry, water resources, health, coastal, hydro power) using available impact models and different socio-economic scenarios.
- Developing the spatial climate impact database
- Identifying sectoral programs for addressing climate hazards
- Developing adaptation options and strategies to address current and future climate change as well as their cost-benefit analysis
- Prioritizing adaptation options/strategies using developed criteria and indicators
- Integrating adaptation strategies into sectoral policy and programs (i.e. Sectoral Strategic Plan-RENSTRA; Development Work Plan-RKP; and Mid-term Development Plan-RPJM)
- Developing national action plan for adaptation (adaptation planning horizon) including clear distinction of responsibilities among relevant stakeholders, timeframe for fulfillment/implementation of the recommended measures, financial means for implementation of the measures, and identification of possible barriers and risks.

IV. Qualifications and Skills

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

- Sound and broadly-recognized scientific expertise on climate research
- Prior experience in vulnerability assessment and adaptation process, through involvement in the Initial National Communication
- Highly qualified scientists working in the fields of climate observation and vulnerability analysis in the specific sectors
- Familiar with process of developing national and sectoral policies and plans
- Familiar with UNFCCC and Kyoto Protocol
- Familiarity with the UNFCCC, software modeling tools
- Fluent written and oral communication in Indonesian and English;

The member of working group will be hired and requested officially by the Deputy III for the Minister of Environment to the relevant sectors

v. Expected output:

The Working Group C will produce four outputs

- Document on 'Past Climate Change and Future Climate Scenarios'
- Document on 'Impact of Climate Hazards and Climate Change'
- Document on 'Measures to Facilitate Adequate Adaptation to Climate Change'
- Document on 'National Action Plan for Adaptation to Climate Change'

WORKING GROUP D: GHG ABATEMENT

II. Scope of Work

This working group will consist of three national experts and technical staff from related sectors which is responsible for performing specific activities outlined below, as well as coordination with the outputs of other working groups. The activities undertaken by this working group are to assess GHG mitigation technologies and their connection with national policies and programs.

III. Duties and Responsibilities

- Reviewing past studies on GHG mitigations
- Identifying policies and programs of the LULUCF sectors that relate to the three conventions
- Formulating integrated programs on sustainable forest and agriculture managements under the three conventions and relating them with sectoral strategic plan (RENSTRA) and development work plan (RKP) and Mid-term Development Plan (RPJM)
- Assessing barriers for the implementation of mitigation technologies used by the energy sector to meet energy consumption target (regulation, financial, institutional, technology, human resources)
- Developing method for screening and prioritizing mitigation options for the energy sectors
- Applying screening method for ranking and prioritizing mitigation technologies for the energy sector.
- Revising cost analysis of the prioritized mitigation technologies in the energy sector and integrating them into sectoral strategic plan (RENSTRA), development work plan (RKP) and RPJM (*Mid-term Development Plan*)
- Formulating financial policies (unilateral, bilateral, multilateral, or convention/protocol fund)) for the implementation of the GHG mitigation technologies
- Developing baseline and policy scenarios.
- Projecting GHG emissions under baseline and policy scenarios considering the security of energy supply and land demand
- Evaluating impact of changing global and regional policies on national emissions

IV. Qualifications and Skills

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

- Sound and broadly-recognized scientific expertise on climate research
- Extensive experience in preparing scenarios for GHG abatement, through involvement in the Initial National Communication
- Highly qualified scientists working in the related areas: Energy, Industry, Agriculture, Forestry, Waste
- Familiar with process of developing national and sectoral policies and plans
- Familiarity with the UNFCCC, software modeling tools
- Fluent written and oral communication in Indonesian and English;

The member of working group will be hired and requested officially by the Deputy III for the Minister of Environment to the relevant sectors

V. Expected output:

The Working Group D will produce four outputs

- Document on 'National Policies and Their Connection with GHG Mitigation'
- Document on 'Impact of sectoral policies implementation on GHG emissions'

Generic terms of reference for scoping and implementing the V&A component of the National Communication

These generic terms of reference for the preparation of the V&A studies identify the basic set of activities that the V&A expert/consultant will be responsible for under the supervision of the National Communication's Coordinator. It is important to note that these generic terms of reference do not intend to limit the work of the expert but to guide countries on the general profile of the V&A expert and on the activities generally expected to be carried out.

Profile of the V&A expert/consultant

The V&A expert should be very knowledgeable and with hands-on experiences on V&A issues, have a solid understanding of the gaps and needs for developing/improving vulnerability assessments, and have technical expertise in the formulation of adaptation options. The V&A expert should be able to scope technical studies in the V&A area and design an implementation strategy to carry out the different V&A activities within the framework of the NC. He/She should also have a solid understanding of the institutional arrangements and resources required to carry out the V&A work.

Although the NC project document already provides the framework for the V&A studies, the expert should be able to advise on any adjustments if needed, both at the organizational and technical levels, for a successful implementation of the V&A studies.

Activities

In general, the V&A expert/consultant should be responsible for ensuring that the following set of activities is carried out. Emphasis on different activities will depend on the scope of the work already described in the NC project document and/or on the specific activities the V&A expert would be assigned to.

Policy and institutional issues

1. Identify the key policy issues the V&A study of the SNC project aims to address, e.g.,
    a. to scope the scale of risks associated with projected climate change;
    b. to aid in the identification of priorities for adaptation;
    c. to support the development of a national adaptation strategy.

2. Identify the expected output of the V&A study of the SNC project on the basis of the project document, e.g.,
    a. impacts assessment at the sectoral level for the given priorities identified in the project document;
    b. a national adaptation strategy, including policies, programs and projects.

3. Develop a clear strategy to link the V&A outputs to national development planning. This would include, among others:
    a. assessment of institutional arrangements/stakeholders engagement required to facilitate linking the outcome of the V&A studies to sectoral or national planning;
    b. framework for assessing how the above linkage can be monitored and measured in the short and long terms, for instance through the development of practical indicators.

Technical issues

Scope of the V&A study

4. Elaborate on the scope (geographic, thematic, sectoral coverage, time horizon) of the V&A study, e.g.,
    a. designing a strategy to build on but advance what was done within INC, and while applicable, NAPA project;
    b. elaborating on the scope of studies to address sectors/regions not covered by INC, sectors/regions identified as sensitive/vulnerable to climate change, as per the NC project proposal;
    c. preparing a detailed work plan for each of the study to be carried out, including a strategy to involve the relevant stakeholders, timeline, etc.;
    d. designing a strategy, as applicable, to link the V&A studies with previous and ongoing related projects/activities (e.g., land degradation, biodiversity, international waters.)

Methodological framework

5. Elaborate on the overall methodological framework for the V&A study as per the project document and in consultation with the project coordinator. In doing so, the V&A expert should ensure that:
    a. The proposed methodological framework is the most appropriate given the policy questions to be addressed, the characteristics of the study (e.g., sectoral focus, spatial and temporal scales, stakeholders involved, and data requirement, etc.), and data availability;
    b. In-country expertise required for such a methodological framework is available. If needed, the V&A expert should develop a strategy to address technical capacity gaps. For instance, by exploring the possibility of applying another framework in which more in-country expertise exists, or by designing a training/technical backstopping strategy, etc.

Scenarios development

6. Identify the types of scenarios required to conduct the V&A assessment, e.g., climate, socio-economic, sea level, adaptive capacity, technology, land-use land-cover.

7. Identify the temporal and spatial resolution needed for these scenarios (e.g., national, sub-national, watershed, community, farm level, multi-decadal average, annual, monthly, daily, mean conditions, extreme events, etc.). In doing so, the expert should justify the choices.

8. Develop the strategies for developing such scenarios, e.g., model-based, expert judgment, etc.

In the preparation of the scenarios development strategy, the expert should assess the feasibility of the scenario needs and the methods for developing these scenarios, given the characteristics of the studies, and data availability. For instance, the expert would be expected to advice on alternative options to running regional climate models or other resource intensive and time consuming exercises. The V&A expert would also assess whether there is enough in-country expertise to develop such scenarios and/or identify options to address the needs for additional expertise.

Sectoral assessment (to be considered by each of the sectors to be covered in the V&A study)

9. Elaborate on the methods and tools, as per the project document, chosen to undertake sectoral assessments, e.g., numerical models, elicitation of expert views, stakeholder consultations, focus

groups, etc. In doing so, the expert will advise on any adjustments needed to the options identified in the project document.

10. Provide justifications for the selection of the methods/tools considering the research questions, characteristics of the study, and requirements of data and technical expertise of these methods/tools.

11. Assess in-country expertise required to apply the selected methods/tools and prepare training/technical backstopping strategy as required.

12. Develop a strategy to integrate findings from sectoral assessment, as needed. For instance, by applying an integrated model, synthesizing sectoral information, etc.

Technical assistance needs

13. Develop a technical backstopping/training strategy to strengthen the national capacity needed to carry out the different V&A studies, This would include details on the type of support needed (training courses on particular methodological frameworks/tools, guidance material, technical documents and good practice) and the, timeline for such support.

Appendix D: Endorsement letters

- GEF Operational Focal Point
- UNFCCC Focal Point

SIGNATURE PAGE

Country: Indonesia

UNDAF Outcome(s)/Indicator(s): *(Link to UNDAF outcome. If no UNDAF, leave blank)*	Strengthen human development to achieve the MDGs
Expected Outcome(s)/Indicator (s): *(CP outcomes linked t the SRF/MYFF goal and service line)*	improved environmental living conditions and sustainable use of energy in Indonesia and establishment of sustainable living conditions in the targeted provinces in Indonesia
Expected Output(s)/Indicator(s): *(CP outcomes linked t the SRF/MYFF goal and service line)*	National capacities in adhering to the three Rio conventions, namely UNFCCC, UNDBD and UNCCD, as well as other environment related conventions improved
Implementing partner: *(designated institution/Executing agency)*	Ministry of Environment
Other Partners: *(formerly implementing agencies)*	UNDP

Programme Period: 2007 - 2009
Programme Component: Energy and environment for sustainable development
Project Title: Enabling Activity for the Preparation of Second National Communication to the UNFCCC
Project ID: 2945
Project Duration: 3
Management Arrangement: NEX

Total budget (Part I): USD 415,000

- GEF US$ 405,000

Allocated resources:

- Government US$ 10,000

Other (self Assessment): USD 15,000

Agreed by (Government): _____

Agreed by (Implementing partner/Executing agency): Ministry of Environment

Agreed by (UNDP):_____