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End-Term Evaluation Report

Enabling Activities for Preparation of India's Second National Communication to UNFCCC

UNDP GEF Project ID PIMS 2964

Evaluation time frame
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United Nations Development Programme
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Ministry of Environment and Forests, Government of India

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Abbreviations

APR	Annual Project Review
CC	Climate Change
DST	Department of Science & Technology, New Delhi
ENVIS	Environnemental Information System
GEF	Global Environnent Facility
GHG	Green House Gas
GOI	Govt. of India
HadRM2	Hadley Centre Regional Climate Model
IARI	Indian Agricultural Research Institute, New Delhi
IBIS	Integrated Biosphere Simulator
ICRP	Indian Climate Research Program
IISC	Indian Institute of Science, Bangalore
IITD	Indian Institute of Technology, Delhi
IITM	Indian Institute of Tropical Meteorology, Pune
INC	Initial National Communication
INCCA	Indian Network of Climate Change Assessment
LASPEX	Land Surface Process Experiment
MoEF	Ministry of Environment & Forest, New Delhi
MONTCLIM	Monsoon and Tropical Climate
NDVI	Normalized Difference Vegetation Index
NIMS	National Inventory Management System
NPD	National Project Director
NPL	National Physical Laboratory, New Delhi
NPP	Net Primary Productivity
PIR	Project Implementation Review
PIF	Project Identification Form
PMC	Project Management Cell
PRECIS	Providing REgional Climates for Impacts Studies, Hadley Centre, UK
QUMP	Quantifying Uncertainties in Model Projections
RCM	Regional Climate Model
RCP	Representative Concentration Pathways
SNC	Second National Communication
SRES	IPCC Special Report on Emission Scenarios
SWAT	Soil & Water Assessment Tool
TE	Terminal Evaluation
THI	Temperature Humidity Index
TNC	Third National Communication
UNFCCC	United Nations Framework Convention on Climate Change

1. Executive Summary

1.1 Project Summary

India is a Party to the United Nations Framework Convention on Climate Change (UNFCCC), which recognizes that "change in the Earth's climate and its adverse effect on the common concerns of humankind" and that "the global nature of climate change (CC) calls for the widest possible cooperation by all countries and their participation in an effective and appropriate international response, in accordance with the common but different responsibilities and respective capacities and their social and economic conditions". The objective of this Convention is to achieve stabilization of greenhouse gas (GHG) concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level needs to be achieved within a timeframe sufficient to allow ecosystems to adapt naturally to climate change, ensure food security, and enable economic development in a sustainable manner. According to the Article 4.1 of the UNFCCC, all Parties to the Convention, taking into account their specific national and regional development priorities, objectives and circumstances, need to periodically report to the Convention a National Communication, the elements of which are described in the Article 12 of the Convention.

The Indian government signed UNFCCC in 1993 and towards fulfillment of obligation under the UNFCCC, India submitted its Initial National Communication (INC) to the UNFCCC Secretariat in June 2004 in pursuance of Article 4.1 and Article 12 of the UNFCCC and in accordance to the 10/C.P.2 Guidelines specified for preparation of National Communication of Non Annex 1 parties to the UNFCCC.

As climate change is a continuous process which requires continuous knowledge gathering and calls for strengthen the institutional and individual capacities to meet the commitments to the UNFCCC. Therefore enabling activities to prepare India's SNC was considered essential in order to support the implementation of India's commitment to the UNFCCC and assist India in incorporating climate change in the developmental process. The enabling activity under the Second National Communication (SNC) was aimed to alleviate the main barriers identified in India in relation to climate change and lack of adequate capacity to address climate change concerns; their exist lack of financial resources to strengthen Institutional capacity, methodologies and improve data gathering for reporting of the national communication to UNFCCC in a continuous manner. The activity under the SNC was also aimed to make the climate change data more relevant. In the inventory analysis, the project identified key sectors and laid stress on reliability and precision of emission data. Another key element of project was enhancing the reliability of vulnerability assessment of key sectors like agriculture, water, health and energy and the inter-linkages that exist within them and in building a closer association between policymakers and sectoral research institutions, which drive the climate change research in India.

A cumulative budget of US$ 6.5 million was estimated with US$ 3.5 million support from GEF, and a co-financing of US$ 3 million from Government of India. As per the Project Implementation Review (PIR), the project period was extend by a year as the climate change projections were not available on time, as perceived earlier, besides extraction tool had to be prepared to facilitate further use of these scenarios and was mutually agreed upon.

The SNC project has created a pool of experts, 220 researchers from about 127 research institutions, and formulated the Indian Network of Climate Change Assessment (INCCA), considered a major achievement under the project. In all, 27 projects under GHG inventory, 36 projects under Vulnerability Assessment & Adaptation, 14 projects under other elements, were commissioned under the SNC. These were reviewed by experts and concluded as accomplished. The GHG Inventory preparation was based on revised IPCC Guidelines 1996 and 2006, IPCC Good Practice Guidance 2000 and 2003. The LULUCF sector estimation has been made using IPCC GPG 2003. The estimation also integrated some of the default emission factors from the IPCC 2006 guidelines. About 35% of key source categories have used country-specific emission factors and about 12% of the total CO2 equivalent emissions have been estimated using Tier-III.

The GHG inventory process has been coordinated by the Ministry of Environment & Forests (MoEF), through a specially designated Project Monitoring Cell (PMC) under the guidance of the National Project Director (NPD), assisted by GHG inventory experts responsible for planning, management and execution. The PMC has been responsible for ensuring conformity and integrity of the inventory with the updated UNFCCC reporting guidelines and information exchange amongst stakeholders. The GHG inventory was prepared by scientist and experts, from a network of diverse mix of institutions from respective disciplines across the country, through sub-contracting arrangements with defined roles and responsibilities. For QA/QC uncertainty management, the GHG Inventory Working Group met twice annually to review the general inventory QC procedures and undertook peer review. The results were subjected to final review through technical consultation, expert meetings, peer review for improving the quality of the final GHG inventory.

To refine the initial impacts assessments, high-resolution simulations for India were carried out using HadRM2 with A1B scenario from IPCC SRES. Climate change scenarios was analyzed by Indian Institute of Tropical Meteorology (IITM), Pune, using high resolution climate change model PRECIS, for three Quality Uncertainties in Model Projections (QUMPs) for A1B scenario for the period 1961–90 (baseline simulation) and for three time slices-2020s, 2050s, and 2080s.

Compared to the preliminary stand alone sectoral assessments of impacts of CC made during INC, a more in-depth assessment of the climate change impacts under SNC for different CC projections has been achieved for the identified sectors, namely, Water Resource, Agriculture, Forests and Natural Ecosystems, Costal Zones, Human health, Energy and Infra-structure using PRECIS outputs for scenarios A1B-2030 and A1B 2080. About 32 research institutions were associated with 36 research projects in the V&A assessment. The Planning commission and 20 Nodal GOI ministries, which represent the high level decision/policy makers of the respective sectors, were apprised of the assessments.

A1B scenario: This scenario assumes significant innovations in energy technologies, which improve energy efficiency and reduce the cost of energy supply. Such improvements occur across the board and neither favour nor penalize the particular groups of technologies. A1B assumes, in particular, drastic reductions in power generation costs through the use of solar, wind, and other modern renewable energies, and signifi cant progress in gas exploration, production, and transport. This results in a balanced mix of technologies and supply sources with technology improvements and resource assumptions such that no single source of energy is overly dominant.
Source: IPCC (2000)

An integrated vulnerability framework for climate hotspot regions, including, Himalayan, Western Ghats, Costal Areas and North Eastern Region and assessment of adaptation options for selected areas, namely, Water, Sea-level Rise, National Ecosystem & Biodiversity, Agriculture and Health have been achieved. Annex I provides the list of institutions and specialists who participated in the projects/activities undertaken under V&A assessments. This also ensured a stable institutional arrangement for project implementation, while no cost of infrastructure and scientific manpower support provided by the institutes involved and articulates the attainment of co-financing commitments made by GOI.

In order to enhance the capacity for undertaking V&A assessment and informed decision-making, a number of thematic, training, inter-sectoral workshops and meetings, listed in Annex II, were organized and knowledge products (brochure/ proceeding) have been developed for awareness raising. The SNC documents have been published on the MoEF website http://envfor.nic.in.

A description of Indian national circumstances and the steps taken or envisaged to implement the Convention has been reported in SNC. India's Second National Communication report to the UNFCCC has also been printed and published. A national dissemination workshop was organized on 9th May 2012, in New Delhi where 112 participants participated. Although mid-term review was not undertaken under the project, the entire project activities were subjected to review through technical consultation, expert meetings, peer review by scientists and experts and the relevant GOI ministries. The consolidated report was reviewed by the India's Central Cabinet and finally approved for submission to UNFCCC.

1.2 Context and purposes of the evaluation

The purposes of this terminal evaluation are to:

- Promote accountability and transparency, and to assess and disclose the extent of project accomplishments.
- Synthesize lessons that can help to improve the selection, design and implementation of future GEF financed UNDP activities.
- Provide feedback on issues that are recurrent across the portfolio, attention needed, and on improvements regarding previously identified issues.
- Contribute to the GEF Evaluation Office databases for aggregation, analysis and reporting on effectiveness of GEF operations in achieving global environmental benefits and on the quality of monitoring and evaluation across the GEF system.

1.3 Evaluation approach and methods

The evaluation structure follows the guidance of UNDP and GEF, including UNDP's "Handbook on Planning Monitoring and Evaluation for Development Results" and GEF's "Monitoring and Evaluation Policies and Procedures" and the comprehensive terms of reference developed by the PMC and UNDP/India, where the TOR defined the scope and framework for the evaluation process to be followed. The Terminal Evaluation report adheres

to the outline and structure as provided in the TOR for evaluation, and has been presented as statements of fact based on the data analyzed and structured around the evaluation criteria and questions. The conclusion is comprehensive and balanced, and highlights the strengths, weaknesses and outcomes of the intervention and substantiated by the evidence and logically connected to evaluation findings.

1.4 Conclusions, recommendations and lessons learned

1.4.1 Conclusions

The overall rating of this project is "satisfactory".

The SNC has achieved the committed outputs and objectives. The evaluation team has a few collective observations to put forward.

Compared to the India's scientific potential, more country specific EFs can be determined and used to ride the tier ladder that aids in improving the inventory estimation of key categories using Tier II and Tier III methodologies. The process calls for a meticulous national planning and implementation of a strategic framework, that is sustainable, also requires the basic financial resource allocation to facilitate the process.

GOI needs to ensure the timely availability of spatial and non spatial data to the climate modeling community, through PMC, to facilitate research under multiple scenarios for as many areas as possible. Such an effort will not only enhance the national co-financing contribution but also increase the country ownership.

Basic data collection mechanism should become a part of a regular process, in order that the entire process is not repetitive. This calls for a shift from the current implementation arrangement, project mode to a system mode. The foremost task would be to organize the NIMS, into a repository for a common database sharing format for exchange and reporting mechanism amongst the various stakeholder including, national research institutions and other participating agencies.

The future requirements call for making a stable move, with basic administrative level support from the nodal implementing ministry to sustain NIMS. NIMS forms the central core with a common data inventory format for data exchange and for its effective functionality, administrative coordination amongst other stakeholder ministries will be a prerequisite.

Considering India's capabilities, better results on vulnerability assessment and adaptation could have been achieved, where only generic studies have been undertaken under SNC. Developing better methodology and framework for different sectors based on socio economic and biophysical scenarios may be useful. While the lack of historic data is one impediment in undertaking the research is such areas, there is a need to establish a good baseline from now onwards.

SNC has produced numerous reports based on various projects, which mostly lay with the PMC without public access. These may be uploaded into NATCOM website for easy access. These reports will also useful for other developing countries in developing their skills.

Although some special issues of Current Science were brought out under SNC, more formal integrated publications could have been brought out, as in INC, where such reports can get cited in IPCC and other global publications, boosting the morale of the involved researchers.

1.4.2 Recommendations

- Increased project ownership amongst the GOI ministries, Industry associations, research institutions can resolve issues related to the data availability and accessibility.
- Devising a consistent IPCC friendly reporting format for repository at National Inventory Management System (NIMS) and exchange between potential stakeholders at regular intervals.
- Supplementary capacity building of participating individuals/organizations on inventory methodologies and IV&A can reduce uncertainties in emission coefficients and activity data needs.
- In SNC, only 7% of GHG emission inventory was based on county specific EF; there is a need to considerably improve upon the country specific EFs and Biennial Update Reporting under TNC may assist in improving the Tier.
- SRES may be replace by RCPs, as it will facilitate the projections of integrated scenarios and the response of climate system to human activities, in parallel to development of emissions and other scenarios for use in impacts, adaptation, vulnerability mitigation and assessment.
- Improve strategic understanding on Integrated Vulnerability & Assessment (IV&A) based on a bottom up approach for sustained ecosystem and socio-economic development and cross-sectoral issues with respect to CC, under different spatial and temporal variables, for better science-policy and economic instruments.
- Considering the range of technical consultation requirements related to the reporting, it is desirable to have a scientific expert working group to assist implementation and better publication record. This was done under INC
- From SNC to TNC, maintaining the momentum and continuity (including PMC and research projects) faces financial impediment. Basic bridge funding mechanism may tide over this issue.

1.4.3 Summary of Lessons Learned

- Standardize the requisite data generation mechanism, its continuity and systematize NIMS.
- Generate a sustained support mechanism for NIMS

- Integrate state level hydrometeorology data and other development programs to a national information system for sustainable futuristic planning on agriculture, food & socio-economic security and other interrelated component.
- Expand research into finer areas across the geographical spread.
- Adopt continuous capacity building of researchers/organizations on new modelling scenarios.
- Establish long term carbon inventorying monitoring plots to estimate the rates of change in perennial biomass and soil organic carbon in all the IPCC land categories

1.5 Table summarizing main ratings received

Explanation of Ratings	
Highly Satisfactory	HS
Satisfactory	S
Moderately Satisfactory	MS
Moderately Unsatisfactory	MU
Unsatisfactory	U
Highly Unsatisfactory	HU

Ratings		
Category	**Rating**	**Comments**
Conceptualization/Design	**S**	The project objectives and components were clear and feasible within the proposed time frame. Partnership arrangements were well defined and negotiated prior to the approval. The planed outcomes were "SMART". However the major bottleneck was the access to data related to meteorology, hydrological, RS based geophysical data on NDVI for CC scenario modeling and impact projections for various areas. Therefore, this calls for futuristic planning, and coordination.
Stakeholder participation in the design	**S**	The full-scale project has been developed based on inputs received through the broad-based consultative process undertaken during the Project Document Formulation (PDF)-B phase of SNC, involving stakeholders from government, research organizations, universities, NGOs and industry associations. A series of sectoral consultative meetings were organized on GHG emissions and uncertainty reduction in inventory estimations related to energy, agriculture, V&A, LULUCF and IPPU. However, additional consultation was required in

		order to device strategies to bridge data gaps.
Implementation Approach	**S**	The logic framework was used as an effective Monitoring & Evaluation (M&E) tool. The network on INCCA has been expanded, compared to the INC, with the addition of new areas. Scientists and experts from 127 institutions participated. However, stage-wise implementation, with priority for some data generation, could have enhanced the mechanism as the output of one project by an Institution becomes an input of another.
Monitoring and Evaluation	**S**	The logic framework matrix was the basis for M&E for the SNC. In the inception workshop organized with key GOI Ministries, timeline and commitments were finalized. The PMC periodically generated QPR, APR, PIR and produced 27 thematic reports on GHG inventory, and 36 thematic reports on V&A. A mid-term review was not undertaken under the project, however major activities were subjected to review through technical consultations. Annual Audits were also accomplished.
Stakeholder participation in the implementation	**HS**	The project has lead to expansion of INCCA involving 220 researchers across 127 research institutions, which is considered as a major achievement. The NPD and the PMC have been highly effective not only in catalyzing and facilitating the process for stakeholders but also resolving inter-institutional bottlenecks.
Financial Planning	**S**	As of March 2013, the project had spent approximately US$ 3,413,740.18 or 97.54% of the total GEF project budget and has approximately US$ 86,259.82 or 2.46% remaining. About 72.06 % of the project cost has been spent under activity Co- studies and & Research, 9.93% expenses under Sundry/ misc., 8.78% expenses under common services - premises, 2.86% against Local Consult.-Short Term-Supp and remaining 6.37 % under various activities.
Attainment of Outcomes/ Achievement of project objective	**HS**	The project has enabled India to prepare and submit the SNC to the UNFCC and to meet its obligations. SNC process has added significantly to the technical capacity and moderately to the Institutional capacity in mainstreaming CC concerns into sectoral and national development priorities. A GHG emission inventory for the year 2007 with reduced uncertainties, an integrated V&A assessment and a description on India's National Circumstances and various steps taken to implement the convention have all been achieved. Under SNC, the parties were expected to submit the national GHG inventory only up to 2000. However, India under SNC has submitted

		the inventory up to 2007. It is claimed that India is the only developing country to do so. According to the mandatory process, only 1996 IPCC Guidelines are supposed to be used. However, SNC has used 2006 Guidelines beyond the mandatory guidelines.

Section 2: Introduction

2.1 Purpose of the evaluation

The project Enabling Activities for Preparation of India's Second National Communication to UNFCCC is a full scale project, of a total duration of five years, and was operational from 2007. UNDP-GEF policy requires that an independent terminal evaluation takes place three months prior to the final Project Steering Committee (PSC) meeting. The terminal evaluation has focused on the delivery of the project results as initially planned. The terminal evaluation has looked at the impact and sustainability of results, including the contribution to capacity development and the achievements of global environmental goals.

2.2 Scope and Methodology

The TE of the Enabling Activities for Preparation of India's SNC to UNFCCC project has examined and assessed the perspectives of the various stakeholders. The following areas are covered in the TE report:

The TE report includes information on when the evaluation took place; places visited; who was involved; also include the evaluation team's TOR and response from the PMC and/or the country focal point, regarding the evaluation findings or conclusions as an annex to the report. The TE has assessed the achievements of the project's objective, outcomes and outputs as stated in the original project document and has provided ratings following three criteria: Relevance, Effectiveness and Efficiency. The TE has been as objective as possible and has included convincing empirical evidence. The report also has examined whether there were any changes and whether those changes were approved. Outcomes have been rated for relevance, effectiveness and efficiency as, Highly Satisfactory (HS), Satisfactory (S), Moderately Satisfactory (MS), Moderately Unsatisfactory (MU), Unsatisfactory (U), and Highly Unsatisfactory (HU).

The TE describes the catalytic or replication effect of the project. The TE has assessed whether the project met the minimum requirements for project design of M&E and the implementation of the project M&E plan, verified that an M&E system was in place and facilitated timely tracking of progress towards the project objective and outcomes by collecting information on chosen indicators, namely, APR, QPR, PIR, AWPs continually throughout the project implementation period, and with well justified ratings. The TE also determined whether M&E was sufficiently budgeted for the project planning stage and whether M&E was funded adequately and in a timely manner during implementation.

The TE report describes the project actions and its contribution to the establishment of a long-term monitoring system, shortcomings in establishment of this system, proper institutional structure and supported by financing, its relevance.

The TE has undertaken the assessment of processes that affected attainment of Project Results based on understandings related to, Preparation and readiness, Country ownership/ drive, Stakeholder involvement, Gender perspective, Financial planning, GEF Agency supervision and backstopping, Co-financing and Project Outcomes and Sustainability, Delays and Project Outcomes and Sustainability, whichever is relevant to this TE.

Finally the terminal evaluation report presents the lessons and recommendations in aspects of the project that is considered relevant related to factors that contributed to or hindered the attainment of project objective, sustainability of project benefits, innovation, catalytic effect and replication, and project monitoring and evaluation.

Section 3: Project Description and Development context

3.1 Project start and its duration

The project has an intended duration of sixty (60) months.

Approval, Start, Close, End-Term	
Project Start	5th June 2007
End-Term Review	24 Jan – 28 Feb 2013
Close Date	April 2013

Project Budget (US$)	
GEF Funding	$3,500,000
Co-financing (cash/in-kind)	$ 3,000,000
Total Project Budget	$ 6,500,000

Approximate GEF Funds Remaining as of (3/2013) * in US$ based on CDR	
Total GEF Budget	3,500,000
GEF disbursed 2007	379,504
GEF disbursed 2008	1,387,624
GEF disbursed 2009	1,061,360
GEF disbursed 2010	178,416
GEF disbursed 2011	277,318
GEF disbursed 2012	129,518
GEF disbursed 2013	0
Total GEF Remaining	86,260

Note: Evaluation estimates of GEF funds spent to date is based on CDRs.

3.2 Problems that the project aimed to address

The project documents states:

Climate variability and climate change are serious threats to poverty eradication. Such development challenges posed by climate change are being grappled at national as well as international levels. India's vulnerability to climate change manifest into greater challenges due to its size, diversity and population. India's steady progress towards the goal of human development has been captured in the Human Development Index, which has increased from 0.571 in 1999 to 0.602 in 2005. However regional and inter-state disparities and increasing extreme events such as floods, earthquake, and drought reverse the development process to a great extent and worsen the situation of the disadvantage and vulnerable groups. The need to integrate development programs would be a key to achieving the MDGs.

UNFCCC recognizes common but different responsibilities and respective capabilities towards achieving sustainable development goals. Being a party to UNFCCC, India submitted its INC to UNFCCC during June 2004, where the INC had identified many technical, scientific, financial and policy related constrains. UNDP, India supported INC and continued to support the SNC, as a part of the country programme thematic focus for building national capacities to meet commitment to the international convention. The SNC project was supposed to complement the MoEF's programme in broadening the India's network on scientific, technical and other stakeholders, established during INC, to act as a conduit for policy makers in the area of CC.

3.3 Immediate and development objectives of the project

Overall goal: Strengthen technical and Institutional Capacity to Assist India mainstream climate change concerns into sectoral and national development priorities.

Objective: The project will enable India prepare and submit the Second National Communication to the UNFCC and meet the Convention obligations.

The SNC will build on the results on the Initial National Communication. The coverage of the SNC will be more extensive and will address reporting requirements of the 17/CP.8 with respect to 10CP.2 address the gaps identified in the INC and focus on prioritized activities taking into account the national circumstances, priorities and development needs.

3.4 Results expected

The project was organized around four outcomes and eight outputs.

Outcome 1	**A consistent, comparable, comprehensive, and transparent national GHG emission inventory for the year 2000 with reduced uncertainties**
Output 1.1	GHG inventory by source and sink for the year 2000
Output 1.2	A National Inventory Management System
Output 1.3	Strengthen institutional networks and improved scientific measurement, monitoring, reporting, and learning capacities and informed decision making.

Outcome 2	**An integrated assessment of impacts of climate change and associated vulnerabilities in the various regions of India**
Output 2.1	Development of climate change and Socio-economic Scenarios
Output 2.2	Improved Sectoral impact analysis and comprehensive assessment of impact of climate change on key sectors.
Output 2.3	Integrated vulnerability assessment framework in selected areas to provide representative samples of climate change impact and adaptation responses by developing an adaptation framework.
Output 2.4	Enhanced Institutional capacity for undertaking V&A assessment and informed decision making.

Outcome 3:	**A description of Indian National Circumstances and the steps taken or envisaged to implement the Convention**
Output 3.1	A description of Indian National Circumstances and the steps taken or envisaged to implement the Convention

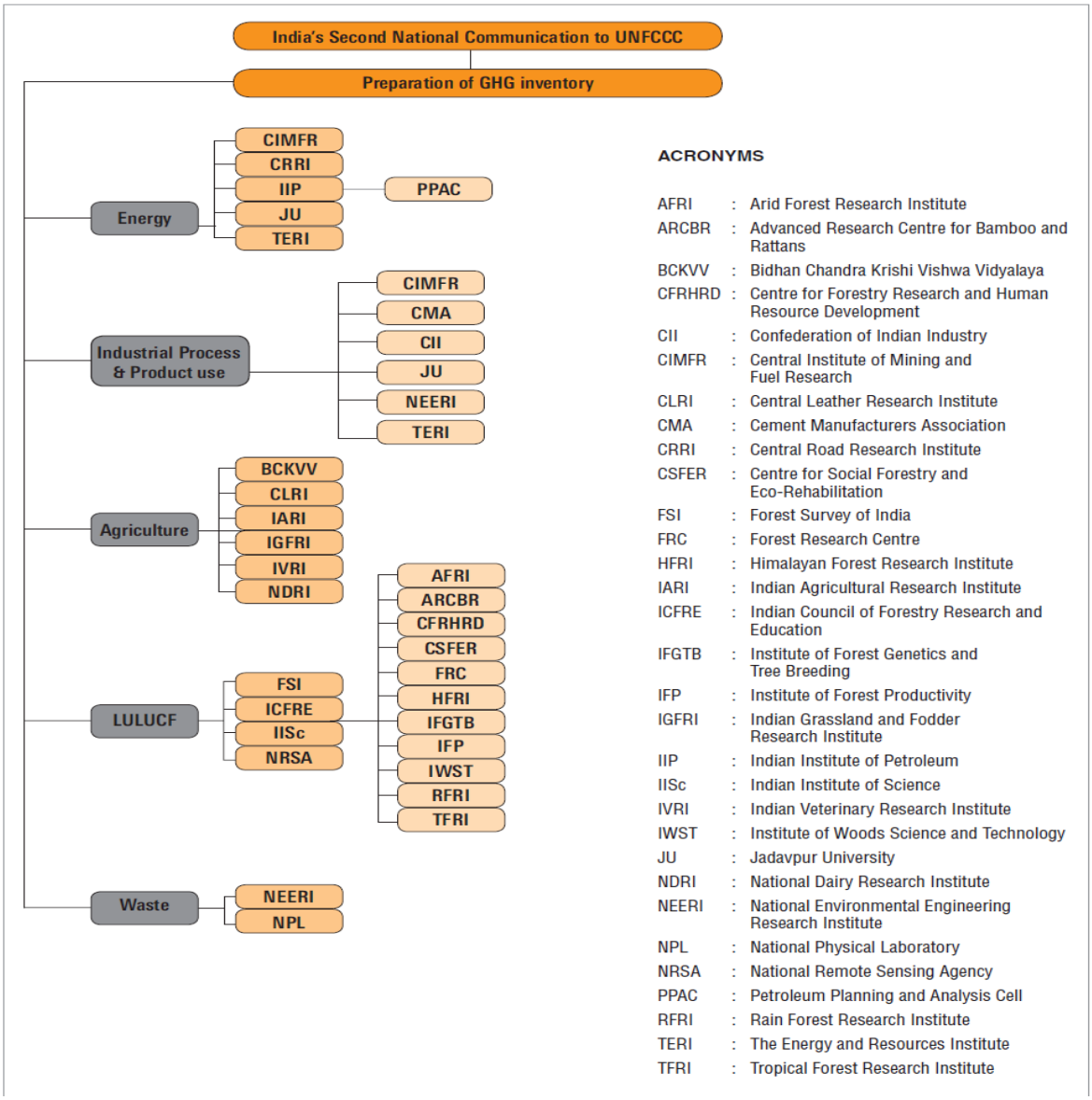
Outcome 4	**Preparation of Second National Communication on project management, monitoring & evaluation.**

3.5 Main stakeholders

The main stakeholders of the evaluation included the following: Ministry of Environment and Forests (MoEF), Government of India, New Delhi; about 127 organizations representing Government Ministries and Departments, autonomous institutions and national research laboratories, universities, non-governmental agencies, industry associations, and private sector, The Global Environment Facility (GEF) represented by UNDP India Country Office, New Delhi and UNDP Regional Office, Bangkok. The NATCOM network has been categorized into three broad categories, as described below:
1. GHG Inventory Network,
2. V & A Network and
3. National Circumstances Network.

The National Communication Support Programme, in its recent publication on "Lessons Learned and Experiences from the Preparation of National Communications from Non-Annex I Parties to the UNFCCC" has cited under "Lessons Learned and Best Practices from the National Communication Process", India's institutional mechanism for managing the NC process as a case study.

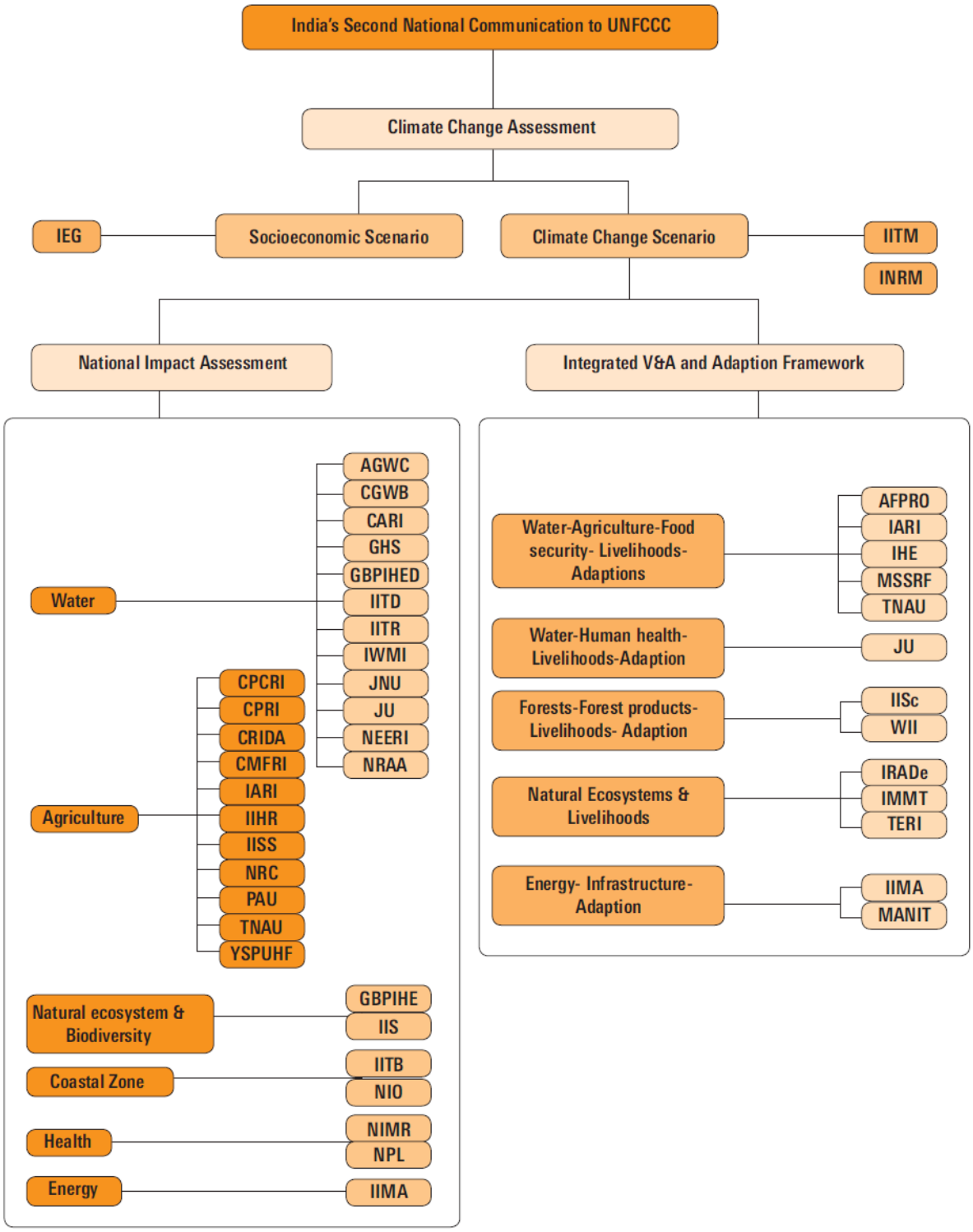
Institutional Framework
GHG Inventory Network



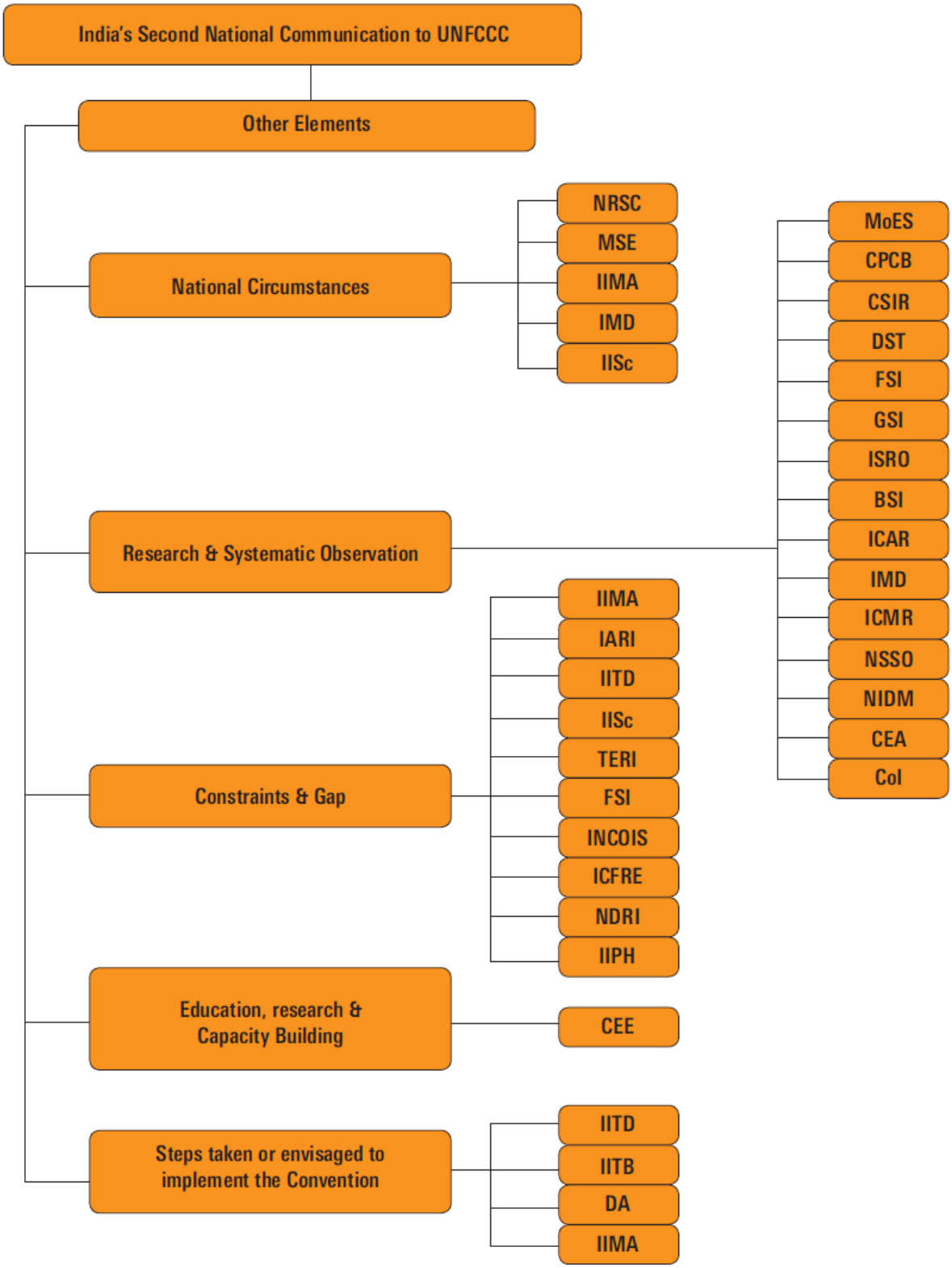
ACRONYMS

AFRI	:	Arid Forest Research Institute
ARCBR	:	Advanced Research Centre for Bamboo and Rattans
BCKVV	:	Bidhan Chandra Krishi Vishwa Vidyalaya
CFRHRD	:	Centre for Forestry Research and Human Resource Development
CII	:	Confederation of Indian Industry
CIMFR	:	Central Institute of Mining and Fuel Research
CLRI	:	Central Leather Research Institute
CMA	:	Cement Manufacturers Association
CRRI	:	Central Road Research Institute
CSFER	:	Centre for Social Forestry and Eco-Rehabilitation
FSI	:	Forest Survey of India
FRC	:	Forest Research Centre
HFRI	:	Himalayan Forest Research Institute
IARI	:	Indian Agricultural Research Institute
ICFRE	:	Indian Council of Forestry Research and Education
IFGTB	:	Institute of Forest Genetics and Tree Breeding
IFP	:	Institute of Forest Productivity
IGFRI	:	Indian Grassland and Fodder Research Institute
IIP	:	Indian Institute of Petroleum
IISc	:	Indian Institute of Science
IVRI	:	Indian Veterinary Research Institute
IWST	:	Institute of Woods Science and Technology
JU	:	Jadavpur University
NDRI	:	National Dairy Research Institute
NEERI	:	National Environmental Engineering Research Institute
NPL	:	National Physical Laboratory
NRSA	:	National Remote Sensing Agency
PPAC	:	Petroleum Planning and Analysis Cell
RFRI	:	Rain Forest Research Institute
TERI	:	The Energy and Resources Institute
TFRI	:	Tropical Forest Research Institute

Institutional Framework
Vulnerability Assessment and Adaptation Network



Institutional Framework
National Circumstances



Section 4. Evaluation Methodology

4.1 Structure of the evaluation

The terminal evaluation of "Enabling Activities for Preparation of India's Second National Communication to UNFCCC Project" follows the guidance of UNDP and GEF, including UNDP's "Handbook on Planning Monitoring and Evaluation for Development Results" and GEF's "Monitoring and Evaluation Policies and Procedures" and by the comprehensive terms of reference developed by the PMU and UNDP/India, where the TOR defines the scope and framework for the evaluation process to be followed.

4.2 Methods employed

Two independent consultants were retained to conduct the evaluation. Dr Sukumar Devotta, Former Director, National Environmental Engineering Research Institute, Nagpur, served as the Team Leader. Dr. Devotta has been involved in the India's programmes on Montreal Protocol, UNFCCC, and broad areas of environment protection. He has also been associated with IPCC, UNEP, World Bank, and WHO. Randhir Singha served as the national consultant. Mr. Singha possesses a working experience of over seventeen years on Renewable Energy for planning and operations, Integrated Water Resource Management, IV&A, Forestry/ Biomass production, Community based Natural Resources Management, Sustainable Land & Ecosystem management.

The evaluation commenced with a comprehensive desk review of all pertinent project document and included an identification of preliminary focus topics/priorities and establishing the mission itinerary with the UNDP Country Office and PMC. The evaluations included a joint 9 day field mission covering the nodal ministry, MoEF, PMC, UNDP Country Office and the following five project stakeholders: IIT, Delhi; IARI, New Delhi, National Dairy Research Institute (NDRI), Karnal all at Delhi; IIM, Ahmadabad; IISc, Bangalore. Stakeholder visits were conducted to understand the roles played by various key stakeholders and the results achieved by the project by holding discussions with the key persons to assess the extent of outcome achieved; analyze the level of stakeholder's participation on-the-ground project implementation; determine best practice and lessons learned for the future.

Evaluation techniques included semi-structured interviews with stakeholders/implementation partners. A questionnaire was also prepared and sent to all the key stakeholders prior to the team's visits. In most cases, evaluators interviewed individual scientists and/or small groups of scientific communities. Meeting agendas were organized according to the topics and areas of the specific research of the stakeholder being met. Each meeting (2 – 4 hour) was framed according to the questionnaire that was circulated earlier. This standardized approach maintained discussions on the topic, solicited and revealed answers required to satisfy key evaluation needs, and allowed adequate leeway to catalyze vibrant discussions and candid

responses. Effort was made to ensure that all stakeholders participated in the discussions. Kindly refer to Annexure 1 for Mission Schedule and List of Individuals, Groups Interviewed or Consulted.

Discussions were held with PMC, NPD, MoEF, Govt. of India (the implementing agency) and UNDP -India (the executing agency), regarding the progress, management, budget, and project design/implementation, outcomes and shortcomings, allowing for immediate resolution of detailed project questions. Following the mission, a draft evaluation report was completed and circulated to all key project stakeholders. Feedbacks both during the debriefing meeting with NPD, New Delhi and UNDP-India and UNDP Regional Office, were used to revise the report and strengthen findings/ recommendations.

Section 5: Findings

5.1 Project Design/Formulation

The project objectives and components were found to be clear, practicable, feasible and comprehensive. The project document states "India's vulnerability to climate change manifests into greater challenges due to its size, diversity and population. Regional and inter-state disparities and the increasing extreme events such as floods, earthquakes, and droughts reverse the development process to a great extent and worsen the situation of the disadvantaged and vulnerable groups. The need to integrate vulnerability to climate change concerns and develop adaptation strategies into development programmes would be a key to achieve a sustainable development".

The SNC to the UNFCCC is an Enabling Activity and aimed to build upon India's INC, especially on the methodological issues, information and capacity development. The project was focused on three components:

- GHG Emission Inventory
- Integrated Assessment of CC and associated vulnerabilities in various hotspots of India
- Description of National Circumstance

The INCCA established during INC was extended and partnership arrangements were identified and roles and responsibilities negotiated. Out of the total cumulative budget of US$ 6.5 million, a counterpart resource funding of US$ 3 million from Government of India was formally committed and adequate project management arrangements were found to be in place during the project commencement.

The project assumptions and risks are well articulated in the PIF and project document. The general assumption that were common to all activities were that GEF financing would be available at the level requested and the co-financing from Govt. of India would be maintained along with stable institutional support.

5.1.2 Country-ownership/Drivenness

India is a Party to the UNFCCC, and the Indian government signed the Convention in 1993 towards fulfillment of obligation under the UNFCCC, India submitted its INC to the UNFCCC Secretariat in June 2004 in pursuance of Article. 4.1 and Article. 12 of the UNFCCC and in accordance to the 10/C.P.2 Guidelines specified for preparation of National Communication of Non Annex 1 parties to the UNFCCC. It was observed that during the process of preparation of SNC, a broad-based participatory approach has been pursued, which ensured an enhanced participation and extension of the INCCA, where representatives from the Government, national research and academic Institutions actively participated in project identification, planning and implementation and in project steering committee.

The Government of India had made in-kind financial commitment towards the project. Although it is not formally accounted the participation of many scientists and individuals in the large network of institutions and the associated facilities and infrastructure offered by those agencies along with their knowledge banks of many man-years of expertise are considered to justify the in-kind contribution of GOI.

India in its 12th Five year Plan has incorporated a National Action Plan for Climate Change evolved from the outcomes of INC and SNC process. In recent years, India has embarked on landmark environmental measures that have targeted conservation of rivers, improvement of urban air quality, enhanced forestation and significant increase in installed capacity of renewable energy technologies, improved energy efficiencies of key industries including the thermal power stations.

5.1.3 Stakeholder participation

The core components of the full-scale project was developed based on inputs received through the broad-based consultative process undertaken during the PDF-B phase of SNC, which involved stakeholders from research organizations, universities, NGOs, industry associations, and policy-and decision makers at the national and state levels. A series of sectoral consultative meetings were organized involving the above-mentioned stakeholders to identify new institutions for further capacity building and for the identification of key existing and emerging issues. The National Project Director, assisted by the PMC, coordinated this nationwide consultative process. The list of the consultative meetings undertaken is given below:

- Consultative meeting on Uncertainty Reduction in Inventory Estimation, 30th June and 1st July 2005 at National Physical Laboratory, New Delhi
- Consultative Meeting for Developing a Framework for Estimating GHG Emissions from the Energy Sector, July 20, 2005, NATCOM- PMC, New Delhi
- Consultative Meeting on Development of a Framework for Vulnerability Assessment and Adaptation for Water Resources, Agriculture, Coastal Zones and Human Health, July 22, 2005, Indian Institute of Technology, Delhi
- Consultative Meeting on Land Use, Land Use Change and Forestry, Natural Ecosystems, Energy and Infrastructure, July 26 - 27, 2005, Indian Institute of Science, Bangalore
- Consultative Meeting on Developing a Framework for Estimating GHG Emissions from the Industrial Processes and Product Use (IPPU) Sector, July 30, 2005, NATCOM- PMC, New Delhi
- Consultative Meeting on Developing a Framework to Estimate GHG Emissions from Agriculture Sector, August 1, 2005, NATCOM - PMC, New Delhi

- Consultative Meeting on Developing a Framework to Estimate GHG Emissions from Waste Sector, August 2, 2005, NATCOM - PMC, New Delhi
- Consultative Meeting on Other Steps, September 24, 2005, MoEF, New Delhi
- Inception Workshop for SNC to the UNFCCC May 3, 2005, SNATCOM - PMC, New Delhi

5.1.4 Replication approach

The capacity created through the various training programmes during the project period has enabled researchers at both national and regional levels to prepare in the GHG inventory estimation, undertake uncertainty management activities, generate climate impact scenarios, and develop integrated inter-sectoral vulnerability framework. Some of the methodologies developed during the SNC process have been used by researchers and practitioners in other assessments in their respective sectors as well as in regional levels. The methodology for assessing vulnerability, simulation modelling and GHG measurements are being replicated in ICAR and State Agriculture Universities. An international SWAT Conference was organized by IITD, at New Delhi, India, dated 18-20 July 2012. Over 200 delegated participated and presented 133 papers over three days. The pool of trained manpower under SNC will be able to take forward the research in their respective areas of climate change, ensuring replication.

5.2 Project Implementation

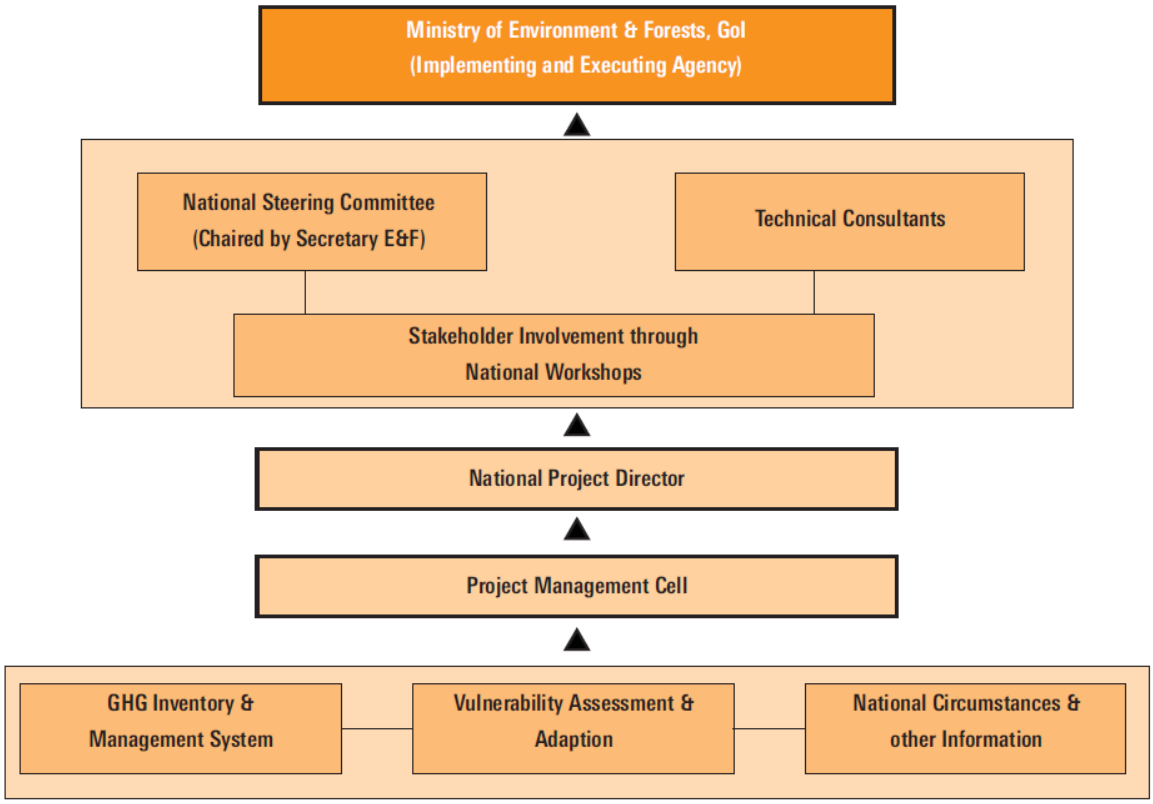
5.2.1 Implementation Approach

The Ministry of Environment & Forests is the SNC project implementing and executing agency. A Steering Committee, under the Chairmanship of the Secretary, Ministry of Environment and Forests, Government of India, had overseen the project implementation. The Technical Advisory Committee looked into the technical aspects of the SNC. The NPD supported by PMC, created during the INC, continued to be responsible for the day to day coordination, management and project implementation. The PMC also coordinated with different research networks created for inventory estimation, V&A, national circumstances, and for capacity building activities to facilitate the preparation of the SNC.

The institutional mechanisms for each of the network were different and unique, based on the requirements of the task. GHG inventory estimation required extensive sectoral data collection and validation, a framework of sectoral Lead Institutes, supported by Participating Institutes, was formulated and implemented. For V&A, a national level modeling team was constituted for a macro view on the various sectors. These were conducted at premier national institutes, under the guidance of designated internationally recognised national experts. Independent case studies were also conducted to assess the broader canvas of V&A research requirements. UNDP, India, as the GEF supervision and backstopping agency, assumed the role of project assurance, provided an independent project oversight and executed the monitoring functions.

(i) *The use of the logical framework as a management tool*
The project appears to have used and/or referenced the logical framework in a meaningful way. The project has been reporting on logical framework of progress through the APR/PIR process.

(ii) Other elements that indicate adaptive management
There was no change in the environment and development objective of the project during the project implementation period and hence the project was not practicing adaptive management.



(iii) The general operational relationships between the institutions involved
The level of cooperation amongst the institutions involved is very high, and this is attributed by all stakeholders to the extraordinary commitment and leadership skills and efficient communication at the NPD as well as the level of support that the PMC team provided. The PMC has been effective in playing a catalytic role to energize the process. Beyond the NDP and the PMC, the level of ownership and commitment towards the process amongst the entire participating stakeholder agency has also been very high, which collectively has made the operational relationship highly effective.

(iv) Technical capacities associated with the project
The project benefits from a very dedicated cohort of diverse national reputed agencies that assisted, with technical support, by undertaking the research. The level of energy and

commitment of the thematic project implementation agencies has been exceptional. The researcher communities have an unyielding working knowledge on the potential sectors under assessment. However, new scientific knowledge gathering requires a continuous update e.g. new modeling techniques using RCPs.

5.2.2 Monitoring and Evaluation

The project monitoring and evaluation has been done following the UNDP GEF procedures. The logical framework matrix has provided adequate indicator for monitoring achievements of outcomes and outputs and this appears to be well conceived.

Monitoring & Evaluation rating: Highly Satisfactory (HS), Satisfactory (S), Moderately Satisfactory (MS), Moderately Unsatisfactory (MU),Unsatisfactory (U), Highly Unsatisfactory (HU):		
Criteria	**Rating**	**Remark**
Overall quality M&E	S	Followed the procedures as per project document as per M&E agreement.
M&E design at project start up	S	The project Inception workshop was organized for the SNC during may3, 2005, in New Delhi, where relevant ministries, research institutions, industries, associations participated.
M&E Plan implementation	S	The NSC meetings were organized thrice during the year 2007, 2008, and 2011. The technical advisory committee (TAC) meeting was organized during September 28, 2005, New Delhi. Annual monitoring was organized for Tripartite review.
Project Monitoring Reporting	S	The project inception workshop report is available. A self assessment monitoring, APR, which is a UNDP requirement and a part of UNDP country office central oversight, monitoring and project management were all in place. The PIR tool, which is a GEF mandated monitoring process, has been prepared and reported. QPRs have been prepared periodically and submitted to UNDP. In all 63 technical reports; 27 under GHG inventory and 36 under V&A have been prepared by participating agencies and submitted to the PMC.

5.2.3 Stakeholder participation in the implementation

The SNC has adopted a broad-based participatory approach to implement the activities, with an expansion of as INCCA, where representatives from the government, national research and academic Institutions actively participated in the project identification, planning and implementation. INCCA as on date has about 127 research institutions and over 220 scientists from across the country. Till now, INCCA has completed two Assessment Reports

and one Science Plan. Industry associations have also played an active participation in awareness generation through various activities like preparation of technology transfer projects, workshops, training, publication, and interactive and knowledge based websites. Consultative meetings on “Uncertainty Reduction in Inventory Estimation, GHG framework development, IV&A, LULUCF, Estimate GHG Emissions from Agriculture, Waste, Industrial Processes and Product Use” were undertaken separately amongst stakeholders. A national dissemination workshop on the SNC was also organized.

5.2.4 Financial Planning: Status at End-Term

(i) The actual project cost by objectives, outputs, activities

GEF Funds as of March 2013 (US$)
Please Note: These figures are based upon estimates by UNDP/CO.

GEF Outcome/Atlas Activity	Amount Year 1 (USD) 2007	Amount Year 2 (USD) 2008	Amount Year 3 (USD) 2009	Amount Year 4 (USD) 2010	Amount Year 5 (USD) 2011	Amount Year 6 (USD) 2012	Amount Year 7 (USD) 2013	Total (USD)
Outcome 1:								
Total Pro PRODOC Budget	425,000	4,00,000	340,000	210,000				1,375,000
AWP (as in Atlas)	405,000	420,865	400,000	85,043	94,129	41,025	20,000	14,66,062.08
Disbursed (to date)	381,187	453,257	400,255	53,189	50,023	52,385		1390,295
Remaining GEF Funds	43,813	-53,257	-60,255	156,811	-50,023	-52,385	0	-15,295
Outcome 2:								
Total Pro PRODOC Budget	599,500	445,000	427,500	120,000				1,592,000
AWP (as in Atlas)	1,94,750	832,662	445,000	65,435	124,000	24,111	20,000	1,705,958
Disbursed (to date)	0	842,901	379908.32	63,748	78,134	10,812		1,375,504
Remaining GEF Funds	599,500	-397,901	47,592	56,252	-78,134	-10,812	0	216,496
Outcome 3:								
Total Pro PRODOC Budget	50,000	50,000	50,000	50,000				200,000
AWP (as in Atlas)	16,750	101,000	80,000	54,348	11,000	7,646	5,000	275,744
Disbursed (to date)	0	22,719	194,501	25821	40,090	16,021		299,153
Remaining GEF Funds	50,000	27,281	-144,501	24,179	-40,090	-16,021	0	-99,153

Outcome 4:								
Total Pro PRODOC Budget	85,000	83,000	82,000	83,000				333,000
Annual Work Plan (as in Atlas)	42,250	50,615	81,500	52,174	145,882	113,995	35,260	521,676
Disbursed (to date)	2,978	42,541	92,693	38,292	105,305	41,458		323,267
Remaining GEF Funds	82,022	40,459	-10,693	44,708	-105,305	-41,458	0	9,733
5: Project Assurance								
Disbursed (to date)	0	0	0	0	3,221	7,282	0	10,503
6. Activity O								
Disbursed (to date)	-4,660	26,206	-5,997	-2,633	543	1,560	0	15,019
Grand Totals								
Total Prot PRODOC Budget	1,159,500	978,000	899,500	463,000				3,500,000
AWP (as in Atlas)	658,750	1,405,142	1,006,500	257,000	375,011	186,777	80,260	3,969,440
Disbursed (to date)	379,504	1,387,624	1,061,360	178,416	277,318	129,518		3,413,740
Remaining GEF Funds	779,996	-409,624	-161,860	284,584	-277,318	-129,518	0	86,260

(ii) The cost-effectiveness of achievements

As of March 2013, the project had spent approximately US$ 3,413,740 or 98% of the total GEF project budget and approximately US$ 86,260 or 2% is remaining. About 72 % of the project cost has been spent under activity Co-studies and & Research, 10 % expenses under Sundry/ misc., 9 % expenses under common services - premises, 3 % against Local Consult.-Short Term-Supp and remaining 6 % under various activities.

Under Outcome 1, US$ 1,390,295 or 40 % of the budget has been spent, with an overdraft of 0.43% against the total Outcome budget of US $ 1,375,000. Out of the three outputs, two outputs have been achieved completely, while one of the outputs has been partially achieved.

Under Outcome 2, US$ 1,375,504 or 39 % of the budget has been spent, with an under spending of 6 % against the total Outcome budget of US $ 1,592,000, where the four outputs have been achieved satisfactorily.

Under Outcome 3, US$ 299,153 or 9 % of the budget has been spent, with an under spending of 0.27% against the total Outcome budget of US $ 200,000, while the output has been achieved satisfactorily.

Under Outcome 4, US$ 323,267 or 9 % of the budget has been spent, with an overdraft of 3 % against the total Outcome budget of US $ 333,000, while the output has been achieved satisfactorily.

Under Project Assurance, US$ 10,503 or 0.30 % of the budget has been spent.

Under Unrealized Loss and Unrealized Gain, US$ 15,019 or 0.43% has been expended.

Account code	Atlas budget description	Amt. USD, year 2007	Amt. USD, year 2008	Amt. USD, year 2009	Amt. USD, year 2010	Amt. USD, year 2011	Amt. USD, year 2012	Total amt. USD
71305	Local Consult.-Short Term-Supp		32498	20413	11268	20225	13096	97500
72125	Svc Co-Studies & Research Serv	384164	1181159	757339	40567	98337	-1751	2459815
72405	Acquisition of communication equipment		103	4123		0	2545	6771
72415	Courier charge		145				2107	2252
74525	Sundry/ Misc		52712	96982	104096	59847	25352	338988
72420	Land telephone charge		934	743	200	7981	624	10482
72445	Common services - communication			1000	1000	2000	1000	5000
73125	Common services - premises		75986	85758	8497	58958	70407	299606
73305	Maintenance & licensing of hardware		4769	2506	959	1328	2937	12499
73505	Reimb. to UNDP for Supp. Srvs.			5000	3500		2500	11000
76120	Unrealized Loss		41203	4858	2070	2963	5869	56962
76135	Realised gain		-1278		-50			-12838
76130	Unrealised gain	-4660	-2209	-10855	-4703	-2419	-4309	-29156

71610	Travel tkt local		9886	54473	1888	765	1056	68068
71605	Travel tkt International		6623					663
74110	Audit fee			945	1046	1045	1520	4556
72510	Publications		822	4355	283	34398	8068	47926
74210	Printing & publications				301			301
72505	Stationery & Other office supplies		304	33721	18589	224	553	53391
74510	Bank charges				-11095	-8333	-2056	-21484
71615	Daily subsistence allow-intl		1437					1437
	Total	379504	1387624	1061360	178416	277318	129518	3413740

Although the Sundry/Misc is about 9.93% of the overall budget and may be considered as high, it should be noted that these budgets were as planned, allocated and approved by UNDP as seen in the annual CDRs. NPD also has their expenditure within the approved limit.

(iv) Co-financing

During the terminal evaluation, the co-financing issues were discussed with the NPD. It was stated that there was no formal estimate of the contribution of the co-financing commitments made by GOI. Therefore, NPD did not provide data to be filled into the following table.

Co financing (Type/Source)	IA own Financing (mill US$)		Government (mill US$)		Other* (mill US$)		Total (mill US$)		Total Disbursement (mill US$)	
Grants	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual
Loans/Concessions (Compared to market rate)										
- Credit										
- Equity investments										
- In-kind support										

- Other (*)										
TOTALS										

NPD stated that the in-kind contribution of GOI for SNC came in many ways, and is felt that it was more than the originally planned. There was a high level Inter-ministerial National Steering Committee (NSC) to monitor the progress of the activity and facilitating the entire project. This is a unique project of its kind in the GOI circles. It required enormous commitment from all stakeholders from diverse fields of expertise and coordination and cooperation among them, especially when the areas are overlapping or output of one is the input for another. Over these years, a trust has been developed across the scientific institutions and scientists and government agencies for knowledge and data sharing. NPD has been only facilitator in the whole exercise.

All activities proposed in the Project Document (PD) were divided into a few sub- activities. These sub-activities were then formulated as 29 projects and contracted to 19 R&D institutions and similar agencies. These projects had their own defined TOR with the institutions, timelines and funds. More than 200 scientists and experts from 127 institutions had participated in this exercise. The progress was monitored by NPD through a Monitoring Committee. No salary component of the experts employed in their respective institutes was paid for their contribution to SNC out of the GEF Fund.

Most of the agencies have been working on the related areas of SNC. Some were associated with India's Initial National Communication (INC). They have directed their effort towards GHG emissions, impacts and vulnerability to contribute to SNC. They all used their long term knowledge base and existing experimental, analytical and simulation facilities for SNC without accounting for all such services and expenses.

5.2.5 Execution and implementation modalities/ coordination, and operational issues

(i) Was project implementation being done in an efficient and effective manner?

The Project Monitoring Cell (PMC) had a National Project Director, National Expert Consultant, a Project Associate –Technical and a Technical Consultant PMU working full-time to support the project implementation process. In addition, lead consultant supports were availed from dedicated stakeholders, mostly research and academic institutions on specific themes. UNDP – India provided the central oversight, monitoring and project management support.

Management Framework as Designed	Management Framework as Implemented
Project Steering Committee (representatives from MoEF, heads of Line Depts. UNDP	The project steering committee was established. Membership is strong represented by Secretaries of ministries with stakeholder ownership. The PSC meetings have been held once annually to provide oversight to project and ensure overall coordination of the programme.
Technical Advisory Committee (TAC)	The TAC is in place and has provided necessary guidance technical & scientific inputs to the SNC.
National Project Director (Advisor, Ministry of Environment & Forest, GOI)	The NPD is in place. The NPD is highly capable and has played a commendable role on enhancing and expanding the INCCA. All the stakeholders have high regards and appreciation for the NPD.
Project Management Cell (PMC)	The PMC is headed by the NPD, and was established during the INC and is responsible for overall coordination of the activities. It acts as a conduit for the NSC, TAC, and amongst stakeholders. The NPD is supported by two consultants, and two project associate; Project Associate –Technical and a Technical Consultant.
UNDP (Quality Assurance)	UNDP oversees/tracks budgets and performs other quality assurance measures through their Country office. The UNDP/GEF/RTA/Bangkok and UNDP/India management staff actively support quality assurance and are attentive to making certain the project is on-track and being implemented according to the signed project document. The program officer at UNDP India handling the project is qualified and competent besides possessing a high level of commitment, which is a very good indication of UNDP project support.

ii) Was there effective communication between critical actors in response to the needs of implementation?

There has been a good communication between implementation organizations and participating agencies including research and academic institutions, private organizations, and industry associations. This has been well coordinated by PMC. All the five stakeholders, visited and discussed by the TE Team, have replied in emphatically positive.

(iii) Were the administrative costs of the Project reasonable and cost efficient?

The budget in CDRs for the financial year 2008, 2009, 2012 was not been divided into Activity/ Outcome, besides activity budget codes are crosscutting hence outcome wise expenditure and cost effectiveness of achievement could not be analyzed.

5.3 Attainment of Results

5.3.1 Attainment of Outcomes/ Achievement of project objective

Rating scales

Highly Satisfactory (HS)	The project had no shortcomings in the achievement of its objectives in terms of relevance, effectiveness, or efficiency
Satisfactory (S),	There were only minor shortcomings
Moderately Satisfactory (MS),	There were moderate shortcomings
Moderately Unsatisfactory (MU),	The project had significant shortcomings
Unsatisfactory (U),	There were major shortcomings in the achievement of project objectives in terms of relevance, effectiveness, or efficiency
Highly Unsatisfactory (HU):	The project had severe shortcomings

	Rating
Objective: The project will enable India prepare and submit the Second National Communication to the UNFCC and meet the Convention obligations. The SNC will build on the results on the Initial National Communication. The coverage of the SNC will be more extensive and will address reporting requirements of the 17/CP.8 with respect to 10CP.2 address the gaps identified in the INC and focus on prioritized activities taking into account the national circumstances, priorities and development needs.	HS
Remark: The SNC process was comprehensive in terms of involvement of numerous eminent scientists from a large number of reputed R&D Institutions. Significant technical	

coordination efforts have gone in to reconcile the diverse assessment methodologies and results from different research teams.	
Outcome 1- A consistent, comparable, comprehensive, and transparent national GHG emission inventory for the year 2000 with reduced uncertainties	HS
The GHG inventory process has been coordinated by the MoEF through the PMC under the guidance of the NPD assisted by a GHG inventory expert responsible for planning and management. The PMC has been responsible for ensuring conformity and integrity of the inventory with the updated UNFCCC reporting guidelines and information exchange amongst stakeholders. The GHG inventory has been prepared by scientist and experts from a network of diverse mix of institutions from respective disciplines across the country, through sub-contracting arrangements with defined roles and responsibilities. For QA/QC uncertainty management, the GHG Inventory Working Group met twice annually to review the process following general inventory QC procedures and also undertook peer review. The inventory was further subjected to final review through technical consultation, expert meetings, and peer review for improving the quality of GHG inventory. Besides, NPL provided QA/QC support for GHG emission measurements of CO2, CH4 and N2O. Dissemination of information through a web based management tool has been achieved and has been portrayed through www.envfor.nic.in. The overall activities have resulted in satisfactory completion of Outcome 1. *Remark: Under SNC, the parties were expected to submit the national GHG inventory only up to 2000. However, India under SNC has submitted the inventory up to 2007. It is claimed that India is the only developing country to do so. According to the mandatory process, only 1996 IPCC Guidelines are supposed to be used. However, SNC has used 2006 Guidelines beyond the mandatory guidelines. Additional research has been undertaken to reduce the uncertainties in activity data and country specific emissions coefficients. However, uncertainties in emission coefficients and activity data need to be further reduced.*	
Output 1.1 GHG inventory by source and sink for the year 2000	HS
Remark: *Major indicative activity deliverables in the Energy, Agriculture Forest & Land Use, IPPU and for the Waste sector have been achieved. More country specific EFs could have achieved to ride higher on the tier ladder.*	
Output 1.2 A National Inventory Management System	MS
Remark: *Standardize the requisite data generation mechanism, its continuity and systematize the NIMS. Generate a sustained support mechanism for NIMS* *Web platform for dissemination and awareness on CC activities achieved. Web links http://envfor.nic.in/modules/about-the-ministry/CCD/*	
Output 1.3 Strengthen institutional networks and improved scientific measurement, monitoring, reporting, and learning capacities and informed decision making.	S

Remark: *Workshop proceeding & technical manuals on measurement protocols Knowledge products of SNC in form of CD/printed documents, Production of documents like brochures, posters, CDs, etc successfully achieved. Refer to Annex - V in the SNC document.*	
Outcome 2 An integrated assessment of impacts of climate change and associated vulnerabilities in the various regions of India	S
Remark*: The climate scenarios and vulnerability studies could have been aligned better though a comprehensive integrated framework. Assessments of impacts and vulnerability could be improved by using more number of GCM/RCM outputs and also integrating the outputs of future water scenarios.*	
Output 2.1 Development of climate change and Socio-economic Scenarios	S
To refine the initial national climate change impacts assessments, high-resolution simulations for India were carried out using HadRM2, and new scenarios from IPCC SRES, A1B scenario was added as the most appropriate. Climate change scenarios has been analyzed by IITM using high resolution climate change model PRECIS, for three QUMP for A1B scenario for the period 1961–90 (baseline simulation) and for three time slices-2020s, 2050s, and 2080s. Basic parameters like rainfall, surface air temperature, and mean sea level pressure were used to make climatic projections towards the end of the present century. An integrated vulnerability framework for climate hotspot regions like Himalayan, Western Ghats, Costal Areas, North Eastern Region and assessment of adaptation options for various issues like Water, Sea-level Rise, National Ecosystem and Biodiversity, Agriculture and Health has been achieved. INCCA, established by the MoEF, has released a publication "Climate Change and India: A 4x4 Assessment, A sectoral and regional Analysis for 2030s" and disseminated for policy makers and the public. Remark: *Three QUMP simulations of PRECIS regional climate model of HadRM3 were executed. Report on future socio-economic scenarios was also generated.*	
Output 2.2 Improved Sectoral impact analysis and comprehensive assessment of impact of climate change on key sectors.	S
Compared to the preliminary stand alone sectoral assessments of CC impacts made during INC, a more in-depth assessment of the CC impacts under SNC for different CC projections has been achieved for the identified critical sectors. Water resources: Using PRECIS outputs, assessment on the future CC impacts on water resource for scenarios A1B-2030 and A1B 2080has been analyzed. Agriculture: Scenarios for kharif crops with changes in temperature and rainfall for PRECIS A1B-2030, A1B-2080 were developed. Forests and natural ecosystems: SRES scenario A1B has been considered for two future time-frames: (i) timeframe of 2021–50 (atmospheric CO2 concentration reaches 490 ppm), which is labelled as "2035" and (ii) timeframe of 2071–2100 (atmospheric CO2 concentration reaches 680 ppm), which is labelled as "2085". Coastal zones and Human health: Malaria under A1B scenario and determination of transmission windows of malaria, based on temperature and temperature and relative humidity have been assessed.	

Energy and infra-structure: Climate projections linked to energy systems for business–as-usual for temperatures above 40ºC or for relative humidity above 80% and temperature above 30ºC. About 32 research institutions were associated with 36 research projects in the V&A assessment. The Planning commission and 20 Nodal GOI Ministries, which represent the high level decision/policy makers of the respective sectors, were apprised of the assessments.

Remark: *National impact assessment on key sectors, including water resources, agriculture, natural ecosystems and forestry, costal zones, health, energy and infrastructure have been executed. Reports are available with PMC.*

Output 2.3 Integrated vulnerability assessment frameworks in selected areas to provide representative samples of climate change impact and adaptation responses by developing an adaptation framework.	S

Under Integrated V&A Assessments that provides a representative sample of climate change impacts and responses according to India's diversity, IITD conducted a study, "Climate Change impact assessment of water resources of Indian river basins", in prioritized hotspot areas, e.g. Indus, Ganges, Brahmaputra, Narmada within the constraints of uncertainties of CC predications using the PRECIS daily weather data to determine the spatio-temporal water availability in the river systems. SWAT tool has been used to analyze severity of drought and floods in identified hotspots that will require attention in response to CC.

IISc conducted the study on "Assessment of the impacts and vulnerability of Indian forests and adaptation Framework", where the assessment inferred that 45% of the forested grids are likely to change in the upper Himalayas, parts of Central India, northern Western Ghats, and Eastern Ghats.

IARI conducted the study, "Impact assessment of climate change on major crops and integrated vulnerability assessment of agriculture in India" with a primary objective to draw findings on impact on yield, physiological response, quality and change in pest dynamics of major crops under irrigated and rain-fed areas, vulnerability to food security and livelihood assessment and finally develop a matrix of adaptation response. Annexure -I provides a list of institutions and specialists who participated in the projects/activities undertaken under V&A assessment.

The host of additional activities for extreme events and human health, coastal zones, energy and infrastructure were also undertaken by diverse institutions.

This network of institutions assured an efficient, cost-effective and stable institutional arrangement for project implementation. The fact that no cost of infrastructure and scientific manpower support from the institutes was borne by NATCOM, articulates the attainment of Co-financing commitments made by GOI.

Remark: *Studies on Water, Agriculture, Food Security,-Livelihoods & Adaptation, Energy, Infrastructure, Adaptation have been achieved. Reports are available with PMC.*

Output 2.4 Enhanced Institutional capacity for undertaking V&A assessment and informed decision making.	S

In order to enhance the capacity for undertaking V&A assessment and informed decision-making, a number of thematic, training, inter-sectoral workshops and meeting were organized and knowledge products (brochure/ proceeding/books/web-pages) were also developed for awareness raising. The SNC document has been published on the MoEF website http://envfor.nic.in. ENVIS www.envis.nic.in is a network programme of MoEF to provide free access to environmental information on a variety of topics to all including decision makers, policy planners, scientists, engineers, and research workers. The DST has initiated MONTCLIM and ICRP for sustained capacity building of personnel involved in climate change assessment, on Dynamic Simulation Modelling of Crop Weather Interactions in Brassica at CRIDA, Hyderabad, Agromet Database Management at CRIDA, Hyderabad, LASPEX at Gujarat Agricultural University, Anand, XBT-training at National Institute of Oceanography, Goa, and on Geosphere–Biosphere Interactions Workshop organized at Guwahati. Remark**:** *A number of thematic, training, inter-sectoral workshops and meeting, hands-on training to all research partners were organized.*	
Outcome 3: A description of Indian National Circumstances and the steps taken or envisaged to implement the Convention	S
Remark: *A chapter on National Circumstances and the steps taken or envisaged to implement the Convention is presented in the SCN document.*	
Outcome 4 Preparation of Second National Communication on project management, monitoring & evaluation.	S
Remark: *Completed and submitted to UNFCCC and published at the MoEF http://envfor.nic.in/*	

5.3.2 Sustainability: Financial, Sociopolitical, Institutional, and Environmental

Rating scales & comments:

Likely (L)	Negligible risks to sustainability, with key outcomes expected to continue into the foreseeable future.
Moderately Likely (ML)	Moderate risks, but expectations that at least some outcomes will be sustained
Moderately Unlikely (MU)	Substantial risk that key outcomes will not carry on after project closure, although some outputs and activities should carry on.
Unlikely (U)	Severe risk that project outcomes as well as key outputs will not be sustained.

Sustainability Factor	Rating	Comments
Financial risks	ML	While a substantial financial support is gained from the national stakeholder institutions in form of salaries to researcher and infrastructure support along with its management, some Indian core funding will be essential

		to sustain the CC related sector specific activities in generating the baseline and associated database for the future national communications to UNFCCC.
Socio-economic risks	L	The level of stakeholder ownership (including ownership by governments and other key stakeholders) is extremely high. This inference is based on the achievements of output and outcomes and discussions during the field visits. The key stakeholders realize that the project is in their area of interest and desire that benefits continue to flow. There is sufficient public/stakeholder awareness in support of the projects long-term objectives.
Institutional Framework and Governance	L	The project operates within the legal frameworks, policies, and local governance structures and processes within the project supports sustainability of project benefits as 127 organizations; research institutions, associations, private organization have actively contributed to the process. The system for accountability and transparency, and required technical knowhow, is in place. The network of institutions assured an efficient, cost-effective and stable institutional arrangement for project implementation. The fact that no cost of infrastructure and scientific manpower support from the institutes was borne by NATCOM, articulates the attainment of Co-financing commitments made by GOI.
Environmental risks	L	The project outcomes relate to creating an enabling environment and no environmental risk can be accounted.

Section 6: Lessons learned

1. Standardize the requisite data generation mechanism, its continuity and systematize the NIMS.

Basic data collection mechanism should become a part of a regular process, in order that the entire process is not repetitive. This calls for a shift from the current implementation arrangement, project mode to a system mode. The foremost task would be to organize the NIMS, into a repository for a common database sharing format for exchange and reporting mechanism amongst the various stakeholder including, national research institutions and other participating agencies.

2. Generate a sustained support mechanism for NIMS

The future requirements call for making a stable move, with basic administrative level support from the nodal implementing ministry to sustain NIMS. NIMS forms the central core with a common data inventory format for data exchange and for its effective functionality, administrative coordination amongst other stakeholder ministries will be a prerequisite.

3. Integrate state level hydrometeorology data and other development programs to a national information system for sustainable futuristic planning on agriculture, food & socio-economic security and other interrelated component.

Water is non dynamic resource and to understand its sustainability continuous knowledge generation on the interlinked nexus becomes important and is only possible with a framework. To bring out a broader understanding on the current water resources scenario and on futuristic planning for sustainability, agriculture, food and socio-economic security and other interrelated component, a continuous update from the State level on the development projects operated, reservoir characteristics, hydro-meteorological data becomes a perquisite. Therefore, integration of State level data to the National level is required.

4. Expand research in finer areas cross the geographical spread, adopt continuous capacity building of researchers/organizations on new modelling scenarios.

In order to get a reliable estimate of future climate patterns on a regional scale, there is a need for systematic validation of the climate models. However, lack of time series data is becoming a limiting factor for this validation step. This calls for the involvement of additional stakeholder organizations across the geographical spread undertaking research to strengthen the baseline data generation with finer details, together with continuous capacity building of researchers/organizations on new modelling scenarios using RCPs. Some finer areas e.g. agriculture and livestock require some special attention.

5. *Establish long term carbon inventorying monitoring plots to estimate the rates of change in perennial biomass and soil organic carbon in all the IPCC land categories*

To follow the Good Practice Guidance 2003 for LULUCF, quantification of uncertainties at the source or sink category level, and for the inventory as a whole, requires establishing long term carbon inventory monitoring plots to estimate the rates of change in perennial biomass and soil organic carbon in all the IPCC land categories: Forest land, Cropland, Grassland, Wetland, Settlements. Some special programmes at the national level may be planned.

Section 7: Conclusions and Recommendations

The SNC has achieved the committed outputs and objectives. The evaluation team has a few collective observations to put forward.

Compared to the India's scientific potential, more country specific EFs can be determined and used to ride the tier ladder that aids in improving the inventory estimation of key categories using Tier II and Tier III methodologies. The process calls for a meticulous national planning and implementation of a strategic framework, that is sustainable, also requires the basic financial resource allocation to facilitate the process.

GOI needs to ensure the timely availability of spatial and non spatial data to the climate modeling community, through PMC, to facilitate research under multiple scenarios for as many areas as possible. Such an effort will not only enhance the national co-financing contribution but also increase the country ownership.

Considering India's capabilities, better results on vulnerability assessment and adaptation could have been achieved, where only generic studies have been undertaken under SNC. Developing better methodology and framework for different sectors based on socio economic and biophysical scenarios may be useful. While the lack of historic data is one impediment in undertaking the research is such areas, there is a need to establish a good baseline from now onwards.

SNC has produced numerous reports based on various projects, which mostly lay with the PMC without public access. These may be uploaded into NATCOM website for easy access. These reports will also useful for other developing countries in developing their skills. Although some special issues of Current Science were brought out under SNC, more formal integrated publications could have been brought out, as in INC, where such reports can get cited in IPCC and other global publications, boosting the morale of the involved researchers.

Recommendations

- Increased project ownership amongst the GOI ministries, Industry associations, research institutions can resolve issues related to the data availability and accessibility.
- Devising a consistent IPCC friendly reporting format for repository at National Inventory Management System (NIMS) and exchange between potential stakeholders at regular intervals.
- Supplementary capacity building of participating individuals/organizations on inventory methodologies and IV&A can reduce uncertainties in emission coefficients and activity data needs.
- In SNC, only 7% of GHG emission inventory was based on county specific EF; there is a need to considerably improve upon the country specific EFs and Biennial Update Reporting under TNC may assist in improving the Tier.

- SRES may be replace by RCPs, as it will facilitate the projections of integrated scenarios and the response of climate system to human activities, in parallel to development of emissions and other scenarios for use in impacts, adaptation, vulnerability and mitigation assessments.

- Improve strategic understanding on Integrated Vulnerability & Assessment (IV&A) based on a bottom up approach for sustained ecosystem and socio-economic development and cross-sectoral issues with respect to CC, under different spatial and temporal variables, for better science-policy and economic instruments.

- Considering the range of technical consultation requirements related to the reporting, it is desirable to have a scientific expert working group to assist implementation and better publication record. This was done under INC

- From SNC to TNC, maintaining the momentum and continuity (including PMC and research projects) faces financial impediment. Basic bridge funding mechanism may tide over this issue.

Annexure I - List of Individuals, Groups Interviewed or Consulted

SL No.	Name & Designation	Organization	Date	Activity
1	Ms. Lianchawii	UNDP India	22 Jan. 2013	Review of project documents, Mission Preparation - UNDP Country Office
			8 April 2013	Debriefing meeting at NPD, MOEF, New Delhi Evaluation Team; Dr S Devotta, Mr. R Singha
2	Mr. Butchaiah Gadde. Regional Technical Advisor	UNDP Regional Office, Bangkok	11 April 2013	Via email – Comments on the draft report
3	Ms. Preeti Soni	UNDP India	1st Feb 2013	Evaluation Mission - UNDP Country Office Evaluation Team; Dr S Devotta, Mr. R Singha
4	Dr Subodh K Sharma, NPD, NATCOM, Advisor MoEF	MoEF, GOI, New Delhi, India	1st Feb 2013	Evaluation Mission - Stakeholders Meeting at NPD, MoEF. New Delhi
			8 April 2013	Debriefing meeting at NPD, MOEF, New Delhi Evaluation Team; Dr S Devotta, Mr. R Singha
5	Ms Pooja Kotiyal, Project Associate – Technical	NATCOM PMC, New Delhi, India	7th Feb 2013	Evaluation Mission - Stakeholders Meeting at PMC, NATCOM, New Delhi Evaluation Team; Dr S Devotta, Mr. R Singha
6	Dr. Amir Basher Bazaz,	SSOE, Pune, India (Formerly with NATCOM PMC, New Delhi)	7th Feb 2013	Evaluation Mission - Stakeholders Meeting at PMC, NATCOM, New Delhi Evaluation Team; Dr S Devotta, Mr. R Singha
7	Prof. Amit Garg, Public System Group	IIM, Ahmedabad, India	8th Feb 2013	Evaluation Mission – Stakeholders meeting at IIMA, Ahmedabad Evaluation Team; Dr S Devotta, Mr. R Singha
8	Prof. P.R. Shukla, Public Systems Group	IIM, Ahmedabad, India	8th Feb 2013	Evaluation Mission – Stakeholders meeting at IIMA, Ahmedabad Evaluation Team; Dr S Devotta, Mr. R Singha
9	Prof. A.K. Gosain, Department of Civil	IITD, India	1st Feb 2013	Evaluation Mission – Stakeholders meeting at IIT, New Delhi Evaluation Team; Dr S Devotta, Mr. R Singha

	Engineering			
10	Prof. N.H. Ravindranath,	Centre for Sustainable Technologies, IISc, Bengaluru	18th Feb 2013	Evaluation Mission - Stakeholders Meeting at IISc, Benhgaluru Evaluation Team; Dr S Devotta, Mr. R Singha
11	Dr. Himanshu Pathak, Senior Scientist	IARI, New Delhi	2nd Feb 2013	Evaluation Mission - Stakeholders Meeting at IARI, New Delhi Evaluation Team; Dr S Devotta, Mr. R Singha
12	Dr. Arti Bhatia, Senior Scientist	IARI, New Delhi	2nd Feb 2013	Evaluation Mission - Stakeholders Meeting at IARI, New Delhi Evaluation Team; Dr S Devotta, Mr. R Singha
13	Dr. Madhu Mohini, Senior Scientist	IARI, New Delhi	2nd Feb 2013	Evaluation Mission - Stakeholders Meeting at IARI, New Delhi Evaluation Team; Dr S Devotta, Mr. R Singha
14	Dr. Niveta Jain, Senior Scientist	IARI, New Delhi	2nd Feb 2013	Evaluation Mission - Stakeholders Meeting at IARI, New Delhi Evaluation Team; Dr S Devotta, Mr. R Singha
15	Dr. Naresh Kumar, Principal Scientist	IARI, New Delhi	2nd Feb 2013	Evaluation Mission - Stakeholders Meeting at IARI, New Delhi Evaluation Team; Dr S Devotta, Mr. R Singha
16	Dr. Amita Choudhary, Senior Scientist	NDRI, Karnal	2nd Feb 2013	Evaluation Mission - Stakeholders Meeting at IARI, New Delhi Evaluation Team; Dr S Devotta, Mr. R Singha

Annex II. List of documents reviewed

Sl no	Name of Document
1	Project Document: Enabling activities for preparation of India's Second National Communication to UNFCCC
2	Annual Project Review and Project Implementation Report for 2010 & 2011
3	Annual Work Plans for the year 2007, 2008, 2009, 2010, 2011, 2012 and 2013
4	Quarterly Progress Report cum PO's Report Template, 2007 – 2012.
5	Combined Delivery Report With Encumbrance for the financial years 2007 to 2012
6	Guidance for Conducting Terminal Evaluations of UNDP- Supported GEF-Financed Projects
7	IPCC Guidelines for National Greenhouse Gas Inventories. Task Force on National Greenhouse Gas Inventories, 2006
8	IPCC Good Practice Guidance for Land Use, Land Use Change and Forestry. Published by the Institute for Global Environmental Strategies (IGES) for the IPCC, 2003
3	India's Second National Communication to the United Nations Framework Convention on Climate Change – Work Programme, Ministry of Environment and Forests, GOI, New Delhi
9	India's Initial National Communication to the United Nations Framework Convention on Climate Change. Ministry of Environment and Forests, GOI, New Delhi, 2004
10	Climate Change and India, A 4x4 Assessment, A sectoral and regional Analysis for 2030s
11	A K Gosain, S Rao, A Arora Climate Change impact assessment of water resources of India. Current Science, Vol. 101, No. 3, 10 August 2011
12	Emissions Scenarios, A Special Report of IPCC Working Group III, ISBN: 92-9169-113-5
13	Handbook for the Montreal Protocol on Substances that Deplete the Ozone Layer, Ninth Edition (2012)
14	Kyoto Protocol Reference Manual on Accounting of Emissions and Assigned Amount

Annex III. Results Framework Progress

Achievement of Project Outcomes and Outputs, updated by PMC

Outcome 1		**A consistent, comparable, comprehensive, and transparent national GHG emission inventory for the year 2000 with reduced uncertainties**		
Output	**Description**	**Indicative Activity**	**Deliverables**	**Status at the time of terminal evaluation**
Output 1.1	GHG inventory by source and sink for the year 2000	**Energy Sector**		
		1.1.1 Develop energy balance matrix to ascertain energy flow across sectors.		Data Set Generated (1994-2007)
		1.1.2 Refine NCVs of cooking, non cooking and lignite consumed in thermal power plants	Uncertainties in the GHG inventory from solid fuels in NATCOM -2 may be reduced further compared to NATCOM -	Report Available, reduction in uncertainties through refinement in measurements
		1.1.3 Measure plant level –technology specific GHG emission factor for thermal power plants	Case study in power plants (parameters: vintage, fuel, unit capacity, ownership: public/private)	Case studies done, report available
		1.1.4 Refine GHG estimates from road transport sector by appropriation of fossil fuel used	Report on fossil fuel consumption by different vehicles in the road transport sector.	Report available
		1.1.5 Refine emission factors for different types of gasoline & diesel driven vehicles incorporating driving cycles.	Provide in-use fleet emission factors from CO2, CH4, N2O, CO, NO, NMVOC, SO2 and particulate matter for relevant category of Vehicles.	Experiments conducted and reports available
		1.1.6 Develop methodology & generate data related to oil & natural gas venting, flaring, T&D sectors.	A report on data generated or collected	Data set generated and reports available

		1.1.7 Estimate & compile emission inventory from all category of the energy sector	An inventory report on GHG emission for Energy year 2000.	India's SNC Report, Data generated
		Industrial Process & Product Use		
		1.1.8 Refine GHG emission estimates from Iron & Steel manufacturing	Refine emission factors for preparation of National inventory from Steel production units; identify suitable options for estimating CO2 emissions from Steel pro Units	Case study done , report available
		1.1.9 Determine Technology Specific (Dry,wet,semi dry) GHG emission factor through measurement from cement production.	Refined emission factor for preparation of national inventory from cement production units	Case study done , report available
		1.1.10 Determine Country Specific emission factor for Ammonia production process.	Refined emission factor for preparation of national inventory from Ammonia production units	Experiments conducted , report available
		1.1.11 Estimate & compile emission from inventory from all category of the IPPU Sector.	An Inventory Report on GHG emissions for IPPU sector for 2000.	SNC Report, Data set available, report available
		Agriculture, Forest & Other Land Use		
		1.1.12 Improved N2O emission inventory from cropland	Produce Country Specific Emission Factor for N2O from Croplands	Experimental approach followed, report available
		1.1.13 Improved GHG emissions estimates from rice cultivation in emission hotspots identified in INC.	Refined GHG factor from rice paddy fields.	Experiments conducted, report available
		1.1.14 undertake region wise survey of livestock feed intake, milk, production etc. and estimate EF of CH4 form its source.	National Survey on Animal body weight of Bovine population & reduction in uncertainties in emission factor form bovine stock.	Experiments conducted, report available

		1.1.15 Undertake Region specific measurement of CH4 emission due to enteric fermentation in dairy cattle.	Country specific CH4 emission factor for Dairy cattle.	Experiments conducted, report available
		1.1.16 Develop a matrix of land use change of areas under crops, forest, waste land, settlement and others through literary survey, remote sensing and on site assessment.	▪ Change matrix detailing area transitions for 6 land use cover class for time period 1990 to 2000 at dist level ▪ Maps highlighting areas of significant change	Remote sensing, field data, consolidated & reports available at national level. Report available
		1.1.17 Assess Biomass stock , Carbon fraction of Biomass, biomass growth rate of various types of species (crop/ forest)	A report containing data on biomass stock in forest, cropland, Grassland as well as carbon fraction in biomass & Soil.	Report available
		1.1.18 Estimate & compile emission inventory for categories of the AFOLU sector.	An Inventory report on GHG emission for Agriculture, Forestry, & other land use AFOLU sector.	SNC Report, Data set available
		Waste		
		1.1.19 Generate data on MSW handling practices for Urban areas	Assessment Report on MSW generation Constitution & disposal practices.	Report available
		1.1.20 Determine CE-EF of CH4 from landfills	Country specific factor for CH4 emissions from landfills	Case Studies done, report available
		1.1.21 Undertake detail chemical analysis of water in key industries	Country specific factor for CH4 emissions for waste water handling, amt of degradable organic matter in chosen waste water & CH4 emission from Industrial waste water.	Case Studies done, report available
		1.1.22 Estimate & compile emission inventory from all category from waste sector.	An Inventory Report on GHG from the waste sector.	SNC Report, Data set available

Output 1.2	A National Inventory Management System	1.2.1 Develop systematic & procedures National Inventory Management System (NIMS)	Establishment of NIMS	Various elements of NIMS identified, to be sustained during TNC
		1.2.2 Design for Dissemination of Information through Web based mgt. tool	Establishment of Dissemination & Awareness raising medium	Dissemination national workshop conducted; through National portal
Output 1.3	Strengthen institutional networks and improved scientific measurement, monitoring, reporting, and learning capacities and informed decision making.	1.3.1 Conduct technical trg. Programs on IPCC good practice guidance, measurement standards and calibration techniques, devp. Of measurement protocols.	Workshop proceeding & technical manuals on measurement protocols	Workshop and Consultation Conducted
		1.3.2 Conduct Science policy workshop & prepare appropriate material for information dissemination related to inventory development.	Workshop proceedings & Knowledge products of SNC in form of CD/printed documents	Many consolidated reports produced (as per Annexure V, SNC report)
		1.3.3 Undertake awareness raising activity on GHG inventory focused on promoting the importance of an institutionalized inventory process beyond the national GHG inventory to policymakers.	Production of documents like brochures, posters, CDs, etc.	Many competitions, etc produced (As per annexure , SNC Report)

Outcome 2	**An integrated assessment of impacts of climate change and associated vulnerabilities in the various regions of India**			
Output	**Description**	**Indicative Activity**	**Deliverables**	**Status at terminal evaluation**
Output 2.1	Development of climate change and	Climate Change Scenario		
		2.1.1 Generate projections of climate change for India using regional Climate	Development of future climate change scenarios for India & establishment of Regional Climate Change data mining & distribution system for impact	Completion of A1B, SRES scenario

	Socio-economic Scenarios	Change Models (HadRM3, PRECIS)	assessment.	
		2.1.2 Comprehensive diagnostic of the nature of climate change simulation for current climate as well as future projections under different scenarios by 15 AOGCMs	Report on analysis on AOGCM simulation for future climate change in India	Completed, data set and report available
		2.1.3 Sort-listing the models which display reasonable skills in depicting the monsoon for further details analysis	Report on Short listed models	Report available
		2.1.4 Develop future socioeconomic scenarios for India	Report on future Socioeconomic scenarios	Assessment done & report available
Output 2.2	Improved Sectoral impact analysis and comprehensive assessment of impact of climate change on key sectors.	**Water Resources**		
		2.2.1 Improve river runoff estimates using SWAT for all the river basins considered in INC	▪ Improved climate scenarios using SRES of HaRM3 ▪ Flood plain zoning ▪ Rep on Imp of CC on water resources. ▪ Identification of Hotspots with respect to floods & droughts.	Assessment done & report available
		2.2.2 Accessing River runoff in the flood prone river system of the Eastern region using HEC-HMS model and compare with drought prone river basins.	Water resources accessed for some imp Eastern & North Eastern river basins under climate change scenario.	Assessment done & report / data available
		2.2.3 Accessing impact of Climate change in selected snow fed rivers.	▪ Impact assessment of CC on melt runoff, rainfall runoff, & total stream flow of Sutlej river basin upto Bhakra dam on seasonal & annual scales. ▪ Formulation of adaptation strategies depending	Assessment done & report available

			upon hydrological response of the study basin under projected climate change scenarios for future	
		2.2.4 Assessing impact of Climate Change on selected Glaciers	An understanding of the glacier-climate interaction in the Indian Himalayas & a general scenario of the CC impact that have taken place.	Assessment done & report available
		2.2.5 Assessing the impact of Climate change on water demands in the future at the National Level	Projected water demand under the climate change scenario in India for policy planning	Assessment done through modeling studies & report available
		Agriculture		
		2.2.6 Undertake an assessment of impact of climate change on the major crops of rice and wheat.	Quantified cereal production projections for 2050 and location of areas which will generate revenue through cultivation of these crops in the climate change regime	Assessment done & report available
		2.2.7 Undertake an assessment of impact of climate change in rainfed crops (sorghum & groundnut) by integrating HadRM3 inputs.	An improved understanding of CC impact on Rainfed crop production	Assessment done & report available
		2.2.8 Undertake and assessment of impact of Climate change on livestock & fisheries.	Report on impact of CC on livestock & fisheries.	Assessment done & report available
		Forest & Natural System		
		2.2.9 Undertake Assessment of impact of projected climate change on forest system – forest boundaries and extent, biodiversity and net primary productivity at the national level, dominant forest types, economically	Assessment report on identified themes	Assessment done & report available

		important species and protected areas.		
		2.2.10 Study the impact of Climate change on selected vulnerable Mangroves, wetlands, Coral reefs and Grasslands.	Impact study on CC on selective Mangroves, wetlands, Coral reefs and Grasslands.	Assessment done & report available
		Costal Zones		
		2.2.11 Assess the impact of the present climate and climate change on the 3 most current vulnerable district of India	Identification of the extent on the costal zones due to current climate & climate change	Case studies done and report available
		Energy & infrastructure		
		2.2.12 Identify current & potential impact of climate change on diverse industrial services and infrastructural sectors with reference to energy.	▪ A report describing the likely vulnerabilities & impact related to energy & infrastructure ▪ Comprehensive reference list along with assessment of knowledgebase & data related to impacts	Case studies done and report available
		Human Health		
		2.2.13 Assess the impact of climate change on malaria and dengue in the hotspots of India as well at national scale and access the impact of heat stress on human health.	▪ An understanding of the conditions driving malaria at the local level ▪ Transmission window of malaria & dengue defined in terms of Climate & Socioeconomic economic parameters for such small unit. ▪ GIS based output indicating the extent of disease spread (malaria/dengue/heat stress) under CC conditions versus current climate.	Assessment through model/ Case studies done and report available
Output 2.3	Integrated vulnerability assessment	2.3.1 Undertake IVA studies in identified climatologically hotspot regions, establishing linkages between climate, water resources, agriculture productivity, food	▪ An integrated vulnerability framework for assessing climate change impact on water resources agricultural productivity, livelihood.	Identifies theme based case studies completed, report available

	framework in selected areas to provide representative samples of climate change impact and adaptation responses by developing an adaptation framework.	security & livelihood for developing an adaptation framework.	▪ An integrated framework for assessing related adaptation concerns under climate change scenarios	
		2.3.2 Undertake IVA studies in identified climatologically hotspot regions, establishing linkages between extreme events, water resource, status of human health, associated livelihood for developing an adaptation framework.	A vulnerability adaptation framework for cholera and malnutrition	Identifies theme based case studies completed, report available
		2.3.3 Undertake IVA studies in identified climatologically hotspot regions, establishing linkages between climate change, forest, other natural ecosystem products associated with livelihood for developing an adaptation framework.	▪ Vulnerable forest ecosystems/plantation and locations identified and ranked ▪ Changes in forest area and geographic distribution under climate impacted sceneario estimated for selected project site ▪ Implications for biodiversity for different forest types assessed ▪ Changes in NPP and biomass (timber and fuelwood) production estimated ▪ Impacts on livelihoods and timber imports and exports assessed ▪ Adaptive capacity of forest management institutions evaluated ▪ Adaptation techniques and policies developed ▪ Institutional and capacity development needs for adaption identified] ▪ Adaptation projects developed	Assessment completed, data/ report available
		2.3.4 Undertake IVA studies in identified climatologically hotspot regions, establishing linkages between climate	▪ Framework development for impact assessment ▪ Comprehensive reference list along with assessment of knowledge base and data related	Assessment completed, data/ report available

		change, and energy infrastructure for developing an adaptation framework.	to impacts ▪ A report describing the likely vulnerabilities and impacts related to energy and infrusture in Inida ▪ Assessment of risk mitigation and risk coverage through insurance	
Output 2.4	Enhanced Institutional capacity for undertaking V&A assessment and informed decision making.	**Enhanced Institutional capacity**		
		2.4.1 Conduct focused thematic training workshops for enhancing the assessment capacities of researchers	Workshop & proceeding reports	Proceedings reports available
		2.4.2 Conduct inter-sectoral workshops to facilitate integration of the assessments;	Workshop & proceeding reports	Proceedings reports available
		2.4.3 Conduct workshops to sensitise the policymakers, media, and NGOs about the outputs of the assessments	Workshop & proceeding reports	Proceedings reports available
		2.4.4 Disseminate results amongst the general public using web-based and print media	A description of current National Circumstances	Through workshops and consultation meetings

Outcome 3:	**A description of Indian National Circumstances and the steps taken or envisaged to implement the Convention**			
Output 3.1	National Circumstances	3.1 .1 Collate info on national circumstances & update the same information provided in the INC.	Develop a chapter in the SNC on national circumstances	Completed (chapter 1)
Output 3.2:	Steps taken to integrate climate change into relevant social, economic and developmental policies	3.2.1 Collate information on major policies /programmes and projects that address climate change concerns directly or indirectly	A chapter in the SNC containing info on major policies & programs that address climate change.	Completed (Chapter 4)

Output 3.2.2	Activities related to technology transfer	3.2.2 Review the UNFCCC technical paper on Methodology & Technological issues for technology transfer & identify barriers to technology transfer.	Report on information about barriers to Technology Transfer	Completed (Part of SNC Report)
Output 3.2.3	Climate change research and systematic observation and research to adapt and mitigate to climate change	3.2.3 Collate information on India's research initiatives, research networks, observing systems; information on India's contribution to activities and programs, in national, regional and global research networks and observing systems; and on initiatives on designing new technologies for mitigating Climate change.	Report on India's Research Initiatives	Completed (Chapter 5, SNC report)
Output 3.2.4	Information on education, training, public awareness, and capacity building at the national and regional level.	3.2.4 Collate information on initiatives to enhance education, training, awareness on Climate Change issues in India	All available information will be collated & synthesized for preparation of report on initiatives to enhance education, trg., etc.	Completed (chapter 6)
Output 3.2.5	Constraints and gaps, and related financial, technical and capacity needs	3.2.5: Constraints and gaps, and related financial, technical and capacity needs	A synthesized report on constrains & Gaps	Completed (SNC Report, chapter 7)

Outcome 4	**Preparation of Second National Communication on project management, monitoring & evaluation.**

Annexure IV Terminal Evaluation Work Plan

Enabling Activities for Preparation of India's Second National Communication to UNFCCC

UNDP GEF project ID PIMS 2964

Evaluation time frame and date of evaluation
24 January to 28 February 2013

United Nations Development Programme
Global Environment Facility
Ministry of Environment and Forests, Government of India

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28 January, 2013

1. Project Summary

India is a Party to the United Nations Framework Convention on Climate Change (UNFCCC). The objective of this Convention is to achieve stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level needs to be achieved within a timeframe sufficient to allow ecosystems to adapt naturally to climate change, ensure food security, and enable economic development in a sustainable manner.

According to the Article 4.1 of the UNFCCC, all Parties to the Convention, taking into account their common but differentiated responsibilities and their specific national and regional development priorities, objectives and circumstances, need to periodically report to the Convention a National Communication, the elements of which are described in the Article 12 of the Convention.

The Indian government signed the United Nations Framework Convention on Climate Change (UNFCCC or Convention) in 1993 and towards fulfillment of obligation under the UNFCCC, India submitted its Initial National Communication (NATCOM I) to the UNFCCC Secretariat in June 2004 in pursuance of Article. 4.1 and Article. 12 of the UNFCCC and in accordance to the 10/C.P.2 Guidelines specified for preparation of National Communication of Non Annex 1 parties to the UNFCCC. NATCOM II envisages strengthening technical and institutional capacity to assist India mainstream climate change concerns into sectoral and national development priorities and enhance India's capacity to prepare future NATCOMs. India's Second National Communication to UNFCCC has been prepared in accordance with the revised Guidelines (17/ CP.8) and is in its final stages.

The elements of this communication constitute:

- Information on national GHG emission by sources and removal by sinks for the year 2000
- Generation of climate change projection scenarios and an assessment of sea level rise
- Impacts of climate change on various sectors such as water resources, natural ecosystem and forests, agriculture, human health and energy
- Integrated assessment of vulnerability and development of adaptation frameworks for 7 thematic areas
- Information on national circumstances, and other steps taken or envisaged to address the adverse impacts of climate change

2 Project Goal, Objective, Outcomes and Outputs

Overall goal	Strengthen technical and Institutional Capacity to Assist India mainstream climate change concerns into sectoral and national development priorities.

Objective	The project will enable India prepare and submit the Second National Communication to the UNFCC and meet the Convention obligations. The SNC will build on the results on the Initial National Communication. The coverage of the SNC will be more extensive and will address reporting requirements of the 17/CP.8 with respect to 10CP.2 address the gaps identified in the INC and focus on prioritized activities taking into account the national circumstances, priorities and development needs.

Outcome 1	**A consistent, comparable, comprehensive, and transparent national GHG emission inventory for the year 2000 with reduced uncertainties**
Output 1.1	GHG inventory by source and sink for the year 2000
Output 1.2	A National Inventory Management System
Output 1.3	Strengthen institutional networks and improved scientific measurement, monitoring, reporting, and learning capacities and informed decision making.

Outcome 2	**An integrated assessment of impacts of climate change and associated vulnerabilities in the various regions of India**
Output 2.1	Development of climate change and Socio-economic Scenarios
Output 2.2	Improved Sectoral impact analysis and comprehensive assessment of impact of climate change on key sectors.
Output 2.3	Integrated vulnerability assessment framework in selected areas to provide representative samples of climate change impact and adaptation responses by developing an adaptation framework.
Output 2.4	Enhanced Institutional capacity for undertaking V&A assessment and informed decision making.

Outcome 3:	**A description of Indian National Circumstances and the steps taken or envisaged to implement the Convention**
Output 3.1	A description of Indian National Circumstances and the steps taken or envisaged to implement the Convention

Outcome 4	**Preparation of Second National Communication on project management, monitoring & evaluation.**

3. Guiding Principles and Evaluation Criteria

The evaluation structure will follow the guidance of UNDP and GEF, including UNDP's "Handbook on Monitoring and Evaluation for Results", GEF's "Monitoring and Evaluation Policies and Procedures" and "Guidance for Conducting Terminal Evaluations of UNDP-Supported, GEF-Financed Projects". The evaluation will be guided by the comprehensive Terms of Reference (ToR), where the ToR defines the scope and framework for the terminal evaluation.

Project performance will be measured based on the quantitative and qualitative indicators. The evaluation will consider issues related to management and substantive/technical implementation, including project delivery, implementation, and finances. Particular attention will be given to the strategic approaches taken relevant to achievement of project objectives.

The purposes of a terminal evaluation are to:

- To promote accountability, and transparency, and to assess and disclose the extent of project accomplishments.
- To synthesize lessons that can help to improve the selection, design and implementation of future GEF financed UNDP activities.
- To provide feedback on issues that are recurrent across the UNDP portfolio and need attention, and on improvements regarding previously identified issues. „
- To contribute to the overall assessment of results in achieving GEF strategic objectives aimed at global environmental benefit.
- To gauge the extent of project convergence with other UN and UNDP priorities, including harmonization with other UN Development Assistance Framework (UNDAF) and UNDP Country Programme Action Plan (CPAP) outcomes and outputs.

The key issues to be addressed by the terminal evaluation would:

- Determine the level of achievement of the project's objective and outcomes, based on the three criteria "Relevant", "Effective", and "Efficient"?
- Describe any catalytic or replication effect of the project.
- Assess the Monitoring and Evaluation (M&E) System,
- Monitoring of long-term changes
- Assess process that affected attainment of project results: County ownership, Stakeholder involvement, Gender perspective, Financial planning, GEF Agency supervision and backstopping, Co-financing, delay and project Outcomes and Sustainability.
- Identifying and documenting lessons learned (including lessons that might improve design and implementation of other UNDP/GEF projects), and recommendations.

Both the assessment process and resulting report should be considered as outputs of this evaluation. The process and report should be used to (a) strengthen the adaptive management and monitoring function of the project; (b) ensure accountability for the achievement of the GEF objective, (c) enhance organizational and development learning; and (d) enable informed decision – making.

4. Evaluation Scope and Objectives

The terminal evaluation of the *Enabling Activities for Preparation of India's Second National Communication to UNFCCC* Project will examine and assess the perspectives of the various stakeholders. The following areas will be covered in the terminal evaluation report:

4.1 General Information about the Evaluation: The terminal evaluation report will include information on when the evaluation took place; places visited; who was involved; the key questions; and, the methodology. The terminal evaluation report will also include the evaluation team's TOR and any response from the project management team and/or the country focal point regarding the evaluation findings or conclusions as an annex to the report.

4.2 Assessment of Project Results: The terminal evaluation will assess achievement of the project's objective, outcomes and outputs and will provide ratings for the targeted objective and outcomes. The assessment of project results will seek to determine the extent to which the project objective was achieved, or is expected to be achieved, and assess against the UNFCCC requirements. While assessing a project's results, the terminal evaluation will seek to determine the extent of achievement and shortcomings in reaching the project's objective as stated in the project document and also indicate if there were any changes and whether those changes were approved.

To determine the level of achievement of the project's objective and outcomes, the following three criteria will be assessed in the terminal evaluation:

- **Relevance, Effectiveness, Efficiency**

The evaluation of relevancy, effectiveness and efficiency will be as objective as possible and will include sufficient and convincing empirical evidence. Outcomes will be rated as follows for relevance, effectiveness and efficiency:

> Highly Satisfactory (HS), Satisfactory (S), Moderately Satisfactory (MS), Moderately Unsatisfactory (MU), Unsatisfactory (U), Highly Unsatisfactory (HU)

Evaluators will indicate the steps taken to assess long-term project impacts, especially impacts on local populations, global environment (e.g. reduced greenhouse gas emissions), replication effects and other local effects.

4.3 Catalytic Role: The terminal evaluation will also describe any catalytic or replication effect of the project. If no effects are identified, the evaluation will describe the catalytic or replication actions that the project carried out.

4.4 Assessment of Monitoring and Evaluation (M&E) System: The terminal evaluation will assess whether the project met the minimum requirements for project design of M&E and the implementation of the project M&E plan. The terminal evaluation report will include separate assessments of the achievements and shortcomings of the project M&E plan and of implementation of the M&E plan.

4.5 Monitoring of Long-Term Changes: This section of the terminal evaluation report will describe project actions and accomplishments toward establishing a long-term monitoring system. The review will address the following questions:

- Did this project contribute to the establishment of a long-term monitoring system? If it did not, should the project have included such a component?
- What were the accomplishments and shortcomings in establishment of this system?

- Is the system sustainable – that is, is it embedded in a proper institutional structure and supported by financing?
- Is the information generated by this system being used as originally intended?

4.6 Assessment of Processes that Affected Attainment of Project Results: The evaluation team will consider the following issues affecting project implementation and attainment of project results.

- Preparation and readiness.
- Country ownership/drivenness.
- Stakeholder involvement.
- Gender perspective
- Financial planning.
- GEF Agency supervision and backstopping.
- Co-financing and Project Outcomes and Sustainability.
- Delays and Project Outcomes and Sustainability**.**

5. Evaluation Outputs (Deliverables)

1. Brief Work Plan
2. Draft Evaluation Report
3. Final Evaluation Report

6. Proposed Table of Contents for Final Report

Note: Based on Guidance for conducting TE of UNDP-Supported GEF-Financed projects

Section One: Executive summary
1.1 Project Summary.....
1.2 Context and purpose of the evaluation .....
1.3 Evaluation approach and methods……..
1.4 Conclusions, recommendations and lessons learned .....
1.5 Table summarizing main ratings received .....

Acronyms and Abbreviations

Section Two: Introduction
2.1 Purpose of the evaluation .....
2.2 Scope and Methodology ……
2.3 Structure and content of the report ……

Section Three: Project Description and Development context
3.1 Project start and its duration .....
3.2 Problems that the project seek to address .....
3.3 Immediate and development objectives of the project.....
3.4 Main stakeholders .....
3.5 Results expected .....

Section Four: Evaluation Methodology
4.1 Structure of the evaluation .....
4.2 Methods employed.....

7. Key Dates and Activities

Approximate Date	Activity
22 January 2013	Review of project documents, Mission Preparation
31 January to 3 Feb 2013	Evaluation Mission, UNDP Country Office, Ministry of Environment and Forests, Inspire Network/Project Management Unit, IIT Delhi, IARI New Delhi. Evaluation Team; Dr S Devotta, Mr. R Singha
4th to 10th February 2013	Evaluation Mission to Ahmadabad, Bangalore, Pune Evaluation Team; Dr S Devotta, Mr. R. Sngha
27th February 2013	Evaluation Team submits preliminary draft
9th March 2013	Comments completed by project implementation team & reverted
19th March 2013	Presentation / Final End-term Evaluation Completed

8. Field visit schedule

Date	Location	Programme	In charge
31 January to 3 Feb 2013	New Delhi	Evaluation Mission, UNDP Country Office, Ministry of Environment and Forests, Inspire Network/PMU, IITD, IARI, New Delhi. Evaluation Team; Dr S Devotta, Mr. R Singha	Dr. Subodh K. Sharma NPD/ Ms Lianchawii Chhakchhuak, UNDP
4th to 10th February 2013	Ahmadabad, Bangalore, Pune	Evaluation Mission: IIMA, IISc, PMU Evaluation Team; Dr S Devotta, Mr. R. Singha	Dr. Subodh K. Sharma NPD/Ms. Lianchawii Chhakchhuak, UNDP, Dr. Amir Bazaz, Former PMU

8. Mission Support Team

Sn.	Name	Designation	Work station
1.	Dr. Subodh K. Sharma	National Project Director	New Delhi
2.	Ms. Lianchawii Chhakchhuak	UNDP	New Delhi

9. Initial Information to be Provided by Project Management Cell (PMC)

NOTE: Implementation team will complete fields highlighted in yellow

9.1 List of Key Project Reports and Deliverables

Deliverable	Description	Responsible Party	Approximate Cost

9.2 Project Management Unit

Name	Title/Responsibility	Contact Email	Phone

9.3 Project Steering Committee

Name	Title/Responsibility	Contact Email	Phone

9.4 Stakeholder Involvement in Project Design

Please provide a brief summary (2 – 3 paragraphs) explaining how stakeholders were involved in project design

9.5 Achievement of Project Outcomes and Outputs

Outcome 1		**A consistent, comparable, comprehensive, and transparent national GHG emission inventory for the year 2000 with reduced uncertainties**		
Output	**Description**	**Indicative Activity**	**Deliverables**	**Status at End Term**
Output 1.1	GHG inventory by source and sink for the year 2000	**Energy Sector**		
		1.1.1 Develop energy balance matrix to ascertain energy flow across sectors.		
		1.1.2 Refine NCVs of cooking, non cooking and lignite consumed in thermal power plants	Uncertainties in the GHG inventory from solid fuels in NATCOM -2 may be reduced further compared to NATCOM -	
		1.1.3 Measure plant level –technology specific GHG emission factor for thermal power plants	Case study in power plants (parameters: vintage, fuel, unit capacity, ownership: public/private)	
		1.1.4 Refine GHG estimates from road transport sector by appropriation of fossil fuel used	Report on fossil fuel consumption by different vehicles in the road transport sector.	
		1.1.5 Refine emission factors for different types of gasoline & diesel driven vehicles incorporating driving cycles.	Provide in-use fleet emission factors from CO2, CH4, N2O, CO, NO, NMVOC, SO2 and particulate matter for relevant category of Vehicles.	
		1.1.6 Develop methodology & generate data related to oil & natural gas venting, flaring, T&D sectors.	A report on data generated or collected	
		1.1.7 Estimate & compile emission inventory from all category of the energy sector	An inventory report on GHG emission for Energy year 2000.	
		Industrial Process & Product Use		
		1.1.8 Refine GHG emission estimates from Iron & Steel manufacturing	Refine emission factors for preparation of National inventory from Steel production units; identify suitable options for estimating CO2 emissions from Steel pro Units	
		1.1.9 Determine Technology Specific (Dry,wet,semi dry) GHG emission factor through measurement	Refined emission factor for preparation of national inventory from cement production units	

		from cement production.		
		1.1.10 Determine Country Specific emission factor for Ammonia production process.	Refined emission factor for preparation of national inventory from Ammonia production units	
		1.1.11 Estimate & compile emission from inventory from all category of the IPPU Sector.	An Inventory Report on GHG emissions for IPPU sector for 2000.	
		Agriculture, Forest & Other Land Use		
		1.1.12 Improved N2O emission inventory from cropland	Produce Country Specific Emission Factor for N2O from Croplands	
		1.1.13 Improved GHG emissions estimates from rice cultivation in emission hotspots identified in INC.	Refined GHG factor from rice paddy fields.	
		1.1.14 undertake region wise survey of livestock feed intake, milk, production etc. and estimate EF of CH4 form its source.	National Survey on Animal body weight of Bovine population & reduction in uncertainties in emission factor form bovine stock.	
		1.1.15 Undertake Region specific measurement of CH4 emission due to enteric fermentation in dairy cattle.	Country specific CH4 emission factor for Dairy cattle.	
		1.1.16 Develop a matrix of land use change of areas under crops, forest, waste land, settlement and others through literary survey, remote sensing and on site assessment.	▪ Change matrix detailing area transitions for 6 land use cover class for time period 1990 to 2000 at dist level ▪ Maps highlighting areas of significant change ▪ Detail report on Land Use Change matrix.	
		1.1.17 Assess Biomass stock , Carbon fraction of Biomass, biomass growth rate of various types of species (crop/ forest)	A report containing data on biomass stock in forest, cropland, Grassland as well as carbon fraction in biomass & Soil.	
		1.1.18 Estimate & compile emission inventory for categories of the AFOLU sector.	An Inventory report on GHG emission for Agriculture, Forestry, & other land use AFOLU sector.	
		Waste		
		1.1.19 Generate data on MSW handling practices	Assessment Report on MSW generation Constitution &	

		for Urban areas	disposal practices.	
		1.1.20 Determine CE-EF of CH4 from landfills	Country specific factor for CH4 emissions from landfills	
		1.1.21 Undertake detail chemical analysis of water in key industries	Country specific factor for CH4 emissions for waste water handling, amt of degradable organic matter in chosen waste water & CH4 emission from Industrial waste water.	
		1.1.22 Estimate & compile emission inventory from all category from waste sector.	An Inventory Report on GHG from the waste sector.	
Output 1.2	A National Inventory Management System	1.2.1 Develop systematic & procedures National Inventory Management System (NIMS)	Establishment of NIMS	
		1.2.2 Design for Dissemination of Information through Web based mgt. tool	Establishment of Dissemination & Awareness raising medium	
Output 1.3	Strengthen institutional networks and improved scientific measurement, monitoring, reporting, and learning capacities and informed decision making.	1.3.1 Conduct technical trg. Programs on IPCC good practice guidance, measurement standards and calibration techniques, devp. Of measurement protocols.	Workshop proceeding & technical manuals on measurement protocols	
		1.3.2 Conduct Science policy workshop & prepare appropriate material for information dissemination related to inventory development.	Workshop proceedings & Knowledge products of SNC in form of CD/printed documents	
		1.3.3 Undertake awareness raising activity on GHG inventory focused on promoting the importance of an institutionalized inventory process beyond the national GHG inventory to policymakers.	Production of documents like brochures, posters, CDs, etc.	

Outcome 2	**An integrated assessment of impacts of climate change and associated vulnerabilities in the various regions of India**			
Output	**Description**	**Indicative Activity**	**Deliverables**	**Status at End Term**
Output 2.1	Development	Climate Change Scenario		

	of climate change and Socio-economic Scenarios	2.1.1 Generate projections of climate change for India using regional Climate Change Models (HadRM3, PRECIS)	Development of future climate change scenarios for India & establishment of Regional Climate Change data mining & distribution system for impact assessment.	
		2.1.2 Comprehensive diagnostic of the nature of climate change simulation for current climate as well as future projections under different scenarios by 15 AOGCMs	Report on analysis on AOGCM simulation for future climate change in India	Report
		2.1.3 Sort-listing the models which display reasonable skills in depicting the monsoon for further details analysis	Report on Short listed models	Report
		2.1.4 Develop future socioeconomic scenarios for India	Report on future Socioeconomic scenarios	Report
Output 2.2	Improved Sectoral impact analysis and comprehensive assessment of impact of climate change on key sectors.	**Water Resources**		
		2.2.1 Improve river runoff estimates using SWAT for all the river basins considered in INC	▪ Improved climate scenarios using SRES of HaRM3 ▪ Flood plain zoning ▪ Rep on Imp of CC on water resources. ▪ Identification of Hotspots with respect to floods & droughts.	
		2.2.2 Accessing River runoff in the flood prone river system of the Eastern region using HEC-HMS model and compare with drought prone river basins.	Water resources accessed for some imp Eastern & North Eastern river basins under climate change scenario.	
		2.2.3 Accessing impact of Climate change in selected snow fed rivers.	▪ Impact assessment of CC on melt runoff, rainfall runoff, & total stream flow of Sutlej river basin upto Bhakra dam on seasonal & annual scales. ▪ Formulation of adaptation strategies depending upon hydrological response of the study basin under projected climate change scenarios for future	
		2.2.4 Assessing impact of Climate Change on selected Glaciers	An understanding of the glacier-climate interaction in the Indian Himalayas & a general scenario of the CC impact that	

			have taken place.	
		2.2.5 Assessing the impact of Climate change on water demands in the future at the National Level	Projected water demand under the climate change scenario in India for policy planning	
		Agriculture		
		2.2.6 Undertake an assessment of impact of climate change on the major crops of rice and wheat.	Quantified cereal production projections for 2050 and location of areas which will generate revenue through cultivation of these crops in the climate change regime	
		2.2.7 Undertake an assessment of impact of climate change in rainfed crops (sorghum & groundnut) by integrating HadRM3 inputs.	An improved understanding of CC impact on Rainfed crop production	
		2.2.8 Undertake and assessment of impact of Climate change on livestock & fisheries.	Report on impact of CC on livestock & fisheries.	
		Forest & Natural System		
		2.2.9 Undertake Assessment of impact of projected climate change on forest system –forest boundaries and extent, biodiversity and net primary productivity at the national level, dominant forest types, economically important species and protected areas.	Assessment report on identified themes	
		2.2.10 Study the impact of Climate change on selected vulnerable Mangroves, wetlands, Coral reefs and Grasslands.	Impact study on CC on selective Mangroves, wetlands, Coral reefs and Grasslands.	
		Coastal Zones		
		2.2.11 Assess the impact of the present climate and climate change on the 3 most current vulnerable district of India	Identification of the extent on the costal zones due to current climate & climate change	
		Energy & infrastructure		

		2.2.12 Identify current & potential impact of climate change on diverse industrial services and infrastructural sectors with reference to energy.	▪ A report describing the likely vulnerabilities & impact related to energy & infrastructure ▪ Comprehensive reference list along with assessment of knowledgebase & data related to impacts	
		Human Health		
		2.2.13 Assess the impact of climate change on malaria and dengue in the hotspots of India as well at national scale and access the impact of heat stress on human health.	▪ An understanding of the conditions driving malaria at the local level ▪ Transmission window of malaria & dengue defined in terms of Climate & Socioeconomic parameters for such small unit. ▪ GIS based output indicating the extent of disease spread (malaria/dengue/heat stress) under CC conditions versus current climate.	
Output 2.3	Integrated vulnerability assessment framework in selected areas to provide representative samples of climate change impact and adaptation responses by developing an adaptation framework.	2.3.1 Undertake IVA studies in identified climatologically hotspot regions, establishing linkages between climate, water resources, agriculture productivity, food security & livelihood for developing an adaptation framework.	▪ An integrated vulnerability framework for assessing climate change impact on water resources agricultural productivity, livelihood. ▪ An integrated framework for assessing related adaptation concerns under climate change scenarios	
		2.3.2 Undertake IVA studies in identified climatologically hotspot regions, establishing linkages between extreme events, water resource, status of human health, associated livelihood for developing an adaptation framework.	A vulnerability adaptation framework for cholera and malnutrition	
		2.3.3 Undertake IVA studies in identified climatologically hotspot regions, establishing linkages between climate change, forest, other natural ecosystem products associated with livelihood for developing an adaptation framework.	▪ Vulnerable forest ecosystems/plantation and locations identified and ranked ▪ Changes in forest area and geographic distribution under climate impacted scenario estimated for selected project site ▪ Implications for biodiversity for different forest types assessed	

			▪ Changes in NPP and biomass (timber and fuelwood) production estimated ▪ Impacts on livelihoods and timber imports and exports assessed ▪ Adaptive capacity of forest management institutions evaluated ▪ Adaptation techniques and policies developed ▪ Institutional and capacity development needs for adaption identified] ▪ Adaptation projects developed	
		2.3.4 Undertake IVA studies in identified climatologically hotspot regions, establishing linkages between climate change, and energy infrastructure for developing an adaptation framework.	▪ Framework development for impact assessment ▪ Comprehensive reference list along with assessment of knowledge base and data related to impacts ▪ A report describing the likely vulnerabilities and impacts related to energy and infrastructure in India ▪ Assessment of risk mitigation and risk coverage through insurance	
Output 2.4	Enhanced Institutional capacity for undertaking V&A assessment and informed decision making.	**Enhanced Institutional capacity**		
		2.4.1 Conduct focused thematic training workshops for enhancing the assessment capacities of researchers	Workshop & proceeding reports	
		2.4.2 Conduct inter-sectoral workshops to facilitate integration of the assessments;	Workshop & proceeding reports	
		2.4.3 Conduct workshops to sensitise the policymakers, media, and NGOs about the outputs of the assessments	Workshop & proceeding reports	

		2.4.4 Disseminate results amongst the general public using web-based and print media	A description of current National Circumstances	

Outcome 3:	**A description of Indian National Circumstances and the steps taken or envisaged to implement the Convention**			
Output 3.1	National Circumstances	3.1 .1 Collate info on national circumstances & update the same information provided in the INC.	Develop a chapter in the SNC on national circumstances	
Output 3.2:	Steps taken to integrate climate change into relevant social, economic and developmental policies	3.2.1 Collate information on major policies /programmes and projects that address climate change concerns directly or indirectly	A chapter in the SNC containing info on major policies & programs that address climate change.	
Output 3.2.2	Activities related to technology transfer	3.2.2 Review the UNFCCC technical paper on Methodology & Technological issues for technology transfer & identify barriers to technology transfer.	Report on information about barriers to Technology Transfer	
Output 3.2.3	Climate change research and systematic observation and research to adapt and mitigate to climate change	3.2.3 Collate information on India's research initiatives, research networks, observing systems; information on India's contribution to activities and programs, in national, regional and global research networks and observing systems; and on initiatives on designing new technologies for mitigating Climate change.	Report on India's Research Initiatives	
Output 3.2.4	Information on education, training, public awareness, and capacity building at the national and regional level.	3.2.4 Collate information on initiatives to enhance education, training, awareness on Climate Change issues in India	All available information will be collated & synthesized for preparation of report on initiatives to enhance education, trg., etc.	

Output 3.2.5	Constraints and gaps, and related financial, technical and capacity needs	3.2.5: Constraints and gaps, and related financial, technical and capacity needs	A synthesized report on constrains & Gaps	

Outcome 4	**Preparation of Second National Communication on project management, monitoring & evaluation.**

Required Project Identification and Financial Data

1. **Project Identification**

GEF project ID: PIMS 2964
GEF Agency project ID:
Country: INDIA
Project Title: Enabling Activities for Preparation of India's Second National Communication to UNFCCC
GEF Agency: United Nations Development Programme India

II. Dates

Milestone	Expected date	Actual date
CEO endorsement/approval	5th June 2007	
Agency approval date		
Implementation start	April 2009	
Midterm evaluation		
Project completion		
Terminal evaluation completion	28 February 2013	
Project closing	March 2013	

III. Project Finance / Co finance

Project component	Activity type	GEF financing (in US$)		Co-financing (in US$)	
		Approved	Actual	Approved	Actual
Outcome 1					
Outcome 2					
Outcome 3					
Outcome 4, Project mgt.					
Total					

Co-finance type	IA own Financing US$		Govt. US$		Partner Agency / Others US$		Total US$		Total Disbursement US$	
	Approved	Actual	Approved	Actual	Approved	Actual	Approved	Actual	Approved	Actual
Grants										
Loans/Concessions (Compared to market rate)										
- Credit										
- Equity investments										
- In-kind support										
- Other (*)										
TOTALS										

9.6 Financial Planning: Status at End-Term

GEF Outcome/Atlas Activity	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Amount Year 5(USD)	Total (USD)
Outcome 1: **A consistent, comparable, comprehensive, and transparent national GHG emission inventory for the year 2000 with reduced uncertainties**						
Total Project PRODOC Budget	425,000	400,000	340,000	210,000	1,375,000	2,750,000
Annual Work Plan (as in Atlas)						
Disbursed (to date)						
Remaining GEF Funds						
Outcome 2: **An integrated assessment of impacts of climate change and associated vulnerabilities in the various regions of India**						
Total Project PRODOC Budget	599,500	445,000	427,500	120,000	1,592,000	3,184,000
Annual Work Plan (as in Atlas)						
Disbursed (to date)						
Remaining GEF Funds						
Outcome 3: **A description of Indian National Circumstances and the steps taken or envisaged to implement the Convention**						
Total Project PRODOC Budget	50,000	50,000	50,000	50,000	200,000	400,000
Annual Work Plan (as in Atlas)						
Disbursed (to date)						

Remaining GEF Funds						
Outcome 4: **Preparation of Second National Communication on project management, monitoring & evaluation. Project Management Cost**						
Total Project PRODOC Budget	85,000	83,000	82,000	83,000	333000	666,000
Annual Work Plan (as in Atlas)						
Disbursed (to date)						
Remaining GEF Funds						
Grand Totals						
Total Project PRODOC Budget	1,159,500	978,000	899,500	463,000	3500000	7,000,000
Annual Work Plan (as in Atlas)						
Disbursed (to date)						
Remaining GEF Funds						

Annex V. ToR for the Evaluation

1. Project Background

The Indian government signed the United Nations Framework Convention on Climate Change (UNFCCC or Convention) in 1993. India Second National Communication has submitted in accordance with the revised Guidelines (17/ CP.8). The elements of this communication constitute:

- Information on national GHG emission by sources and removal by sinks for the year 2000
- Generation of climate change projection scenarios and an assessment of sea level rise
- Impacts of climate change on various sectors such as water resources, natural ecosystem and forests, agriculture, human health and energy
- Integrated assessment of vulnerability and development of adaptation frameworks for 7 thematic areas
- Information on national circumstances, and other steps taken or envisaged to address the adverse impacts of climate change

The project *Enabling Activities for Preparation of India's Second National Communication to UNFCCC* is a full scale project, of a total duration of five years, and is operational from 2007. UNDP-GEF policy requires that an independent terminal evaluation take place three months prior to the final Project Steering Committee (PSC) meeting. The Terminal Evaluation Report (TER) will focus on the delivery of the project's results as initially planned. It will look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental goals. The main stakeholders of the evaluation include:

- Ministry of Environment and Forests (MoEF), Government of India
- All co-financing institutions and agencies
- The Global Environment Facility (GEF)
- UNDP India Country Office

2. Evaluation Scope and Objectives

The terminal evaluation of the *Enabling Activities for Preparation of India's Second National Communication to UNFCCC* Project will examine and assess the perspectives of the various stakeholders. The following areas will be covered in the terminal evaluation report:

2.1 General Information about the Evaluation: The terminal evaluation report will include information on when the evaluation took place; places visited; who was involved; the key questions; and, the methodology. The terminal evaluation report will also include the evaluation team's TOR and any response from the project management team and/or the country focal point regarding the evaluation findings or conclusions as an annex to the report.

2.2 Assessment of Project Results: The terminal evaluation will assess achievement of the project's objective, outcomes and outputs and will provide ratings for the targeted objective and outcomes. The assessment of project results will seek to determine the extent to which the project objective was achieved, or is expected to be achieved, and assess against the UNFCCC requirements. While assessing a project's results, the terminal evaluation will seek to determine the extent of achievement and shortcomings in reaching the project's objective as stated in the project document and also indicate if there were any changes and whether those changes were

approved. If the project did not establish a baseline (initial conditions), the evaluator will seek to estimate the baseline condition so that achievements and results can be properly established.

Assessment of project outcomes will be a priority. Outcomes are the likely or achieved short-term and medium-term effects of an intervention's outputs. Examples of outcomes could include but are not restricted to stronger institutional capacities, higher public awareness (when leading to changes of behavior), and transformed policy frameworks or markets. An assessment of impact is encouraged when appropriate. The evaluators will assess project results using indicators and relevant tracking tools.

To determine the level of achievement of the project's objective and outcomes, the following three criteria will be assessed in the terminal evaluation:

- **Relevance:** Were the project's outcomes consistent with the focal areas/operational program strategies and country priorities?
- **Effectiveness:** Are the actual project outcomes commensurate with the original or modified project objective?
- **Efficiency:** Was the project cost effective? Was the project the least cost option? Was the project implementation delayed and if it was, then did that affect cost effectiveness? Wherever possible, the evaluator will also compare the costs incurred and the time taken to achieve outcomes with that of other similar projects.

The evaluation of relevancy, effectiveness and efficiency will be as objective as possible and will include sufficient and convincing empirical evidence. The project monitoring system will deliver quantifiable information that can lead to a robust assessment of the project's effectiveness and efficiency. Outcomes will be rated as follows for relevance, effectiveness and efficiency:

Highly Satisfactory (HS): The project had no shortcomings in the achievement of its objective, in terms of relevance, effectiveness or efficiency.
Satisfactory (S): The project had minor shortcomings in the achievement of its objective, in terms of relevance, effectiveness or efficiency.
Moderately Satisfactory (MS): The project had moderate shortcomings in the achievement of its objective, in terms of relevance, effectiveness or efficiency.
Moderately Unsatisfactory (MU): The project had significant shortcomings in the achievement of its objective, in terms of relevance, effectiveness or efficiency.
Unsatisfactory (U): The project had major shortcomings in the achievement of its objective, in terms of relevance, effectiveness or efficiency.
Highly Unsatisfactory (HU): The project had severe shortcomings in the achievement of its objective, in terms of relevance, effectiveness or efficiency.

When rating the project's outcomes, relevance and effectiveness will be considered as critical criteria. If separate ratings are provided on relevance, effectiveness and efficiency, the overall outcomes rating of the project may not be higher than the lowest rating on relevance and effectiveness. Thus, to have an overall satisfactory rating for outcomes, the project must have at least satisfactory ratings on both relevance and effectiveness.

The evaluators will also assess other results of the project, including positive and negative actual (or anticipated) impacts or emerging long-term effects of a project. Evaluators will indicate the steps taken to assess long-term project impacts, especially impacts on local populations, global environment (e.g. reduced greenhouse gas emissions), replication effects and other local effects. Wherever possible, evaluators will indicate how the findings on impacts will be reported to the GEF in future.

2.3 Catalytic Role: The terminal evaluation will also describe any catalytic or replication effect of the project. If no effects are identified, the evaluation will describe the catalytic or replication actions that the project carried out. No ratings are requested for the catalytic role.

2.4 Assessment of Monitoring and Evaluation (M&E) System: The terminal evaluation will assess whether the project met the minimum requirements for project design of M&E and the implementation of the project M&E plan. The terminal evaluation report will include separate assessments of the achievements and shortcomings of the project M&E plan and of implementation of the M&E plan.

The following elements will be assessed in the evaluation of M&E System.

- M&E design
- M&E plan implementation
- Budgeting and funding for M&E Activities

Project monitoring and evaluation systems will be rated as follows on quality of M&E design and quality of M&E implementation:

Highly Satisfactory (HS): There were no shortcomings in the project M&E system.
Satisfactory(S): There were minor shortcomings in the project M&E system.
Moderately Satisfactory (MS): There were moderate shortcomings in the project M&E system.
Moderately Unsatisfactory (MU): There were significant shortcomings in the project M&E system.
Unsatisfactory (U): There were major shortcomings in the project M&E system.
Highly Unsatisfactory (HU): The Project had no M&E system.

The overall rating of M&E during project implementation will be based solely on the quality of M&E plan implementation. The ratings on quality at entry of M&E design and sufficiency of funding both during planning and implementation stages will be used as explanatory variables.

2.5 Monitoring of Long-Term Changes: This section of the terminal evaluation report will describe project actions and accomplishments toward establishing a long-term monitoring system. The review will address the following questions:

- Did this project contribute to the establishment of a long-term monitoring system? If it did not, should the project have included such a component?
- What were the accomplishments and shortcomings in establishment of this system?
- Is the system sustainable – that is, is it embedded in a proper institutional structure and supported by financing?
- Is the information generated by this system being used as originally intended?

2.6 Assessment of Processes that Affected Attainment of Project Results: The evaluation team will consider the following issues affecting project implementation and attainment of project results. These would be considered in the performance and results sections of the report:

a) **Preparation and readiness.** Were the project's objectives and components clear, practicable and feasible within its timeframe? Were the capacities of the executing institution(s) and its counterparts properly considered when the project was designed? Were lessons from other relevant projects properly incorporated in the project design? Were the partnership

arrangements properly identified and the roles and responsibilities negotiated prior to project approval? Were counterpart resources (funding, staff, and facilities), enabling legislation, and adequate project management arrangements in place at project entry?

b) **Country ownership/drivenness.** Was the project concept in line with the sectoral and development priorities and plans of the country? Are project outcomes contributing to national development priorities and plans? Were the relevant country representatives, from government and civil society, involved in the project? Did the recipient government maintain its financial commitment to the project? Has the government approved policies or regulatory frameworks that are in line with the project's objectives?

c) **Stakeholder involvement.** Did the project involve the relevant stakeholders through information sharing, consultation and by seeking their participation in the project's design, implementation, and monitoring and evaluation? For example, did the project implement appropriate outreach and public awareness campaigns? Did the project consult with and make use of the skills, experience and knowledge of the appropriate government entities, NGOs, community groups, private sector, local governments and academic institutions in the design, implementation and evaluation of project activities? Were perspectives of those who would be affected by project decisions, those who could affect the outcomes and those who could contribute information or other resources to the process taken into account while taking decisions? Were the relevant vulnerable groups and powerful supporters and opponents, of the processes properly involved?

d) **Gender perspective:** To what extent did the project account for gender differences when developing and applying project interventions? How were gender considerations mainstreamed into project interventions?

e) **Financial planning.** Did the project have the appropriate financial controls, including reporting and planning, that allowed management to make informed decisions regarding the budget and allowed for timely flow of funds? Was there due diligence in the management of funds and financial audits? Did promised co-financing materialize?

f) **GEF Agency supervision and backstopping.** Did UNDP staff identify problems in a timely fashion and accurately estimate their seriousness? Did UNDP staff provide quality support and advice to the project, approve modifications in time and restructure the project when needed? Did UNDP provide the right staffing levels, continuity, skill mix, and frequency of field visits for the project?

g) **Co-financing and Project Outcomes and Sustainability.** If there was a difference in the level of expected co-financing and the co-financing actually realized, what were the reasons for the variance? Did the extent of materialization of co-financing affect the project's outcomes and/or sustainability, and if so, in what ways and through what causal linkages?

h) **Delays and Project Outcomes and Sustainability.** If there were delays in project implementation and completion, what were the reasons? Did the delays affect the project's outcomes and/or sustainability, and if so, in what ways and through what causal linkages?

3. Lessons and Recommendations

The evaluators will present lessons and recommendations in the terminal evaluation report on all aspects of the project that they consider relevant. The evaluators will give special attention to analyzing lessons and proposing recommendations on aspects related to factors that contributed to or hindered: attainment of project objective, sustainability of project benefits, innovation, catalytic effect and replication, and project monitoring and evaluation.

Evaluators will refrain from providing recommendations to improve the project. Instead they will seek to provide a few well formulated lessons applicable to the type of project at hand or to GEF's overall portfolio. Terminal evaluations will undertake the motive of appraisal, preparation,

or justification, for a follow-up phase. Wherever possible, the terminal evaluation report will include examples of good practices for other projects in a focal area, country or region.

4. Methodology

An outline of an evaluation approach is provided below. The evaluation will provide evidence-based information that is credible, reliable and useful. It will be easily understood by project partners and applicable to the remaining period of project duration. The evaluation will provide as much gender disaggregated data as possible, if applicable and available.

The methodology used by the evaluation team will be presented in the report in detail. It shall include information on:

- Documentation review (desk study) - the list of documentation to be reviewed is included in Annex 1 of the Terms of Reference;
- Meetings will be held with the UNDP India CO, MoEF, project team and key stakeholders and/or partners;
- Field visits;
- Questionnaires, participatory techniques and other approaches for gathering and analysis of data.

The evaluation team would have completed most of its desk review prior to the field mission. The team will use the time during the field mission to verify and cross check its analysis and assessment before conducting the stakeholder workshop and presenting preliminary results.

5. Products expected from the evaluation

The key product expected from the evaluation is a comprehensive analytical report. The length of the terminal evaluation report shall not exceed 50 pages in total (not including annexes). The report will be submitted to the UNDP India CO as per Annex 2 and Annex 3 of TOR.

The timeline, counted from the date of Order for the assignment is given below. Considering the tight timelines and the geographic locations of the stakeholders, most of the communications will be through electronic mode as much as possible except for Interviews, discussions and consultations. It is hoped that all stakeholders will be able to provide the necessary feedback to the team in time for the completion of the TER. Web based interviews may also be used in case any of the stakeholders are not available for personal discussion.

Deliverable	Timeline
Presentation by evaluators to project stakeholders on overview of the terminal evaluation, the methodology applied, progress to date, the anticipated outcomes, and some preliminary results if possible.	**Week 2**
Completion of stakeholder consultations	**Week 4**
Draft terminal evaluation report that adheres to the outline and structure as provided in Annex 3. The draft report	**Week 5**

will be circulated among key stakeholders for their review and feedback.

Final terminal evaluation report that incorporates feedback and recommendations from the stakeholders. **Week 6**

6. List of documentation to be reviewed

The terminal evaluation team will review all the project documents and outputs for team members to familiarize with core concepts and design of the project and conduct the initial desk review. It is presumed that the team will be assisted by both PMU and UNDP India CO to provide additional information or clarification associated with these documents.

7.1 INTERNAL:

1. Project Document;
2. Minutes of Project Steering Committee/Executive Steering Committee meetings;
3. Quarterly Reports;
4. Annual Work Plans;
5. Annual Progress Reports (APR)/Project Implementation Review (PIR)
6. Any other documents the evaluators feel necessary for conducting the evaluation.
7. A comprehensive list of key documents/outputs produced by the project

7.2 EXTERNAL:

1. Relevant reports and publications of carbon assessments
2. GEF guidelines on GHG emission reduction calculations;
3. Any other documents essential for the successful conduct of the above evaluation.

The terminal evaluation team will use the last item in the above list to demand copies of any other documents or project outputs, which it may find useful to complete its tasks as described in this TOR. It is presumed that the soft copies of the required documents shall be supplied within 2 working days from the date of request.

7.3 Required Project Identification and Financial Data

The terminal evaluation report will provide information on project identification, time frame, actual expenditures, and co-financing in the following format, which is modeled after the project identification form (PIF).

7. Evaluation report template and quality standards

The descriptions that follow as derived from the UNEG ‘Standards for Evaluation in the UN System’ and ‘Ethical Standards for Evaluations’ will be basically used, as much possible and relevant to the current TE, as the template for the TER. The evaluation report will be complete

and logically organized. It will be written clearly and understandable to the intended audience. The report will include the following:

Title and opening pages - provide the following basic information:
- Name of the evaluation intervention
- Timeframe of the evaluation and date of the report
- Countries of the evaluation intervention
- Names and organizations of evaluators
- Name of the organization commissioning the evaluation
- Acknowledgements

Table of contents - include boxes, figures, tables and annexes with page references.
List of acronyms and abbreviations

Executive summary - A stand-alone section of two to three pages for
- Briefly describe the intervention (the project(s), programme(s), policies or other interventions) that was evaluated.
- Explain the purpose and objectives of the evaluation, including the audience for the evaluation and the intended uses.
- Describe key aspect of the evaluation approach and methods.
- Summarize principle findings, conclusions, and recommendations.

Introduction - explain the purpose, intended audience, and structure of the report:
- Explain why the evaluation was conducted (the purpose), why the intervention is being evaluated at this point in time, and why it addressed the questions it did.
- Identify the primary audience or users of the evaluation, what they wanted to learn from the evaluation and why, and how they are expected to use the evaluation results.
- Identify the intervention (the project(s) programme(s), policies or other interventions) that was evaluated—see upcoming section on intervention.
- Acquaint the reader with the structure and contents of the report and how the information contained in the report will meet the purposes of the evaluation and satisfy the information needs of the report's intended users.

Description of the intervention - Provides the basis for report users to understand the logic and assess the merits of the evaluation methodology and understand the applicability of the evaluation results. The description will provide sufficient detail for the report user to derive meaning from the evaluation. The description will include the following:
- Describe what is being evaluated, who seeks to benefit, and the problem or issue it seeks to address.
- Explain the expected results map or results framework, implementation strategies, and the key assumptions underlying the strategy.
- Link the intervention to national priorities, UNDAF priorities, corporate multiyear funding frameworks or strategic plan goals, or other programme or country specific plans and goals.

- Identify the phase in the implementation of the intervention and any significant changes (e.g., plans, strategies, logical frameworks) that have occurred over time, and explain the implications of those changes for the evaluation.
- Identify and describe the key partners involved in the implementation and their roles.
- Describe the scale of the intervention, such as the number of components (e.g., phases of a project) and the size of the target population for each component.
- Indicate the total resources, including human resources and budgets.
- Describe the context of the social, political, economic and institutional factors, and the geographical landscape within which the intervention operates and explain the effects (challenges and opportunities) those factors present for its implementation and outcomes.
- Point out design weaknesses (e.g., intervention logic) or other implementation constraints (e.g., resource limitations).

Evaluation scope and objectives—The report will provide a clear explanation of the evaluation's scope, primary objectives and main questions.

- Evaluation scope - define the parameters of the evaluation, for example, the time period, the segments of the target population included, the geographic area included, and which components, outputs or outcomes were and were not assessed.
- Evaluation objectives - spell out the types of decisions evaluation users will make, the issues they will need to consider in making those decisions, and what the evaluation will need to achieve to contribute to those decisions.
- Evaluation criteria - define the evaluation criteria or performance standards used. The report will explain the rationale for selecting the particular criteria used in the evaluation.
- Evaluation questions - define the information that the evaluation will generate. The report will detail the main evaluation questions addressed by the evaluation and explain how the answers to these questions address the information needs of users.

Evaluation approach and methods—The evaluation report swill describe in detail the selected methodological approaches, methods and analysis; the rationale for their selection; and how, within the constraints of time and money, the approaches and methods employed yielded data that helped answer the evaluation questions and achieved the evaluation purposes. The description will help the report users judge the merits of the methods used in the evaluation and the credibility of the findings, conclusions and recommendations. The description on methodology will include discussion of each of the following:

- Data sources -The sources of information (documents reviewed and stakeholders), the rationale for their selection and how the information obtained addressed the evaluation questions.
- Data collection procedures and instruments—Methods or procedures used to collect data, including discussion of data collection instruments (e.g., interview protocols), their appropriateness for the data source and evidence of their reliability and validity.
- Performance standards -The standard or measure that will be used to evaluate performance relative to the evaluation questions (e.g., national or regional indicators, rating scales).
- Stakeholder engagement - Stakeholders' engagement in the evaluation and how the level of involvement contributed to the credibility of the evaluation and the results.
- Ethical considerations -The measures taken to protect the rights and confidentiality of informants as per UNEG 'Ethical Guidelines for Evaluators'.

- Background information on evaluators - The composition of the evaluation team, the background and skills of team members and the appropriateness of the technical skill mix, gender balance and geographical representation for the evaluation.
- Major limitations of the methodology -Major limitations of the methodology will be identified and openly discussed as to their implications for evaluation, as well as steps taken to mitigate those limitations.

Data analysis -The report will describe the procedures used to analyse the data collected to answer the evaluation questions. It will detail the various steps and stages of analysis that were carried out, including the steps to confirm the accuracy of data and the results. The report also will discuss the appropriateness of the analysis to the evaluation questions. Potential weaknesses in the data analysis and gaps or limitations of the data will be discussed, including their possible influence on the way findings may be interpreted and conclusions drawn.

Findings and conclusions—The report will present the evaluation findings based on the analysis and conclusions drawn from the findings.

- Findings—Will be presented as statements of fact that are based on analysis of the data. They will be structured around the evaluation criteria and questions so that report users can readily make the connection between what was asked and what was found. Variances between planned and actual results will be explained, as well as factors affecting the achievement of intended results. Assumptions or risks in the project or programme design that subsequently affected implementation will be discussed.
- Conclusions—Will be comprehensive and balanced, and highlight the strengths, weaknesses and outcomes of the intervention. They will be well substantiated by the evidence and logically connected to evaluation findings. They will respond to key evaluation questions and provide insights into the identification of and/or solutions to important problems or issues pertinent to the decision making of intended users.

Recommendations—The report will provide practical, feasible recommendations directed to the intended users of the report about what actions to take or decisions to make. The recommendations will be specifically supported by the evidence and linked to the findings and conclusions around key questions addressed by the evaluation. They will address sustainability of the initiative and comment on the adequacy of the project exit strategy, if applicable.

Lessons learned—As appropriate, the report will include discussion of lessons learned from the evaluation, that is, new knowledge gained from the particular circumstance (intervention, context outcomes, even about evaluation methods) that are applicable to a similar context. Lessons will be concise and based on specific evidence presented in the report.

Report annexes—Suggested annexes will include the following to provide the report user with supplemental background and methodological details that enhance the credibility of the report:

- ToR for the evaluation
- Additional methodology-related documentation, such as the evaluation matrix and data collection instruments (questionnaires, interview guides, observation protocols, etc.) as appropriate
- List of individuals or groups interviewed or consulted and sites visited
- List of supporting documents reviewed
- Project or programme results map or results framework

- Summary tables of findings, such as tables displaying progress towards outputs, targets, and goals relative to established indicators
- Short biographies of the evaluators and justification of team composition
- Code of conduct signed by evaluators

Annex VI. Code of Conduct Signed by Evaluators

Dr. Sukumar Devotta

United Nations Evaluation Group – Code of Conduct for Evaluation in the UN System

Evaluation Staff Agreement Form

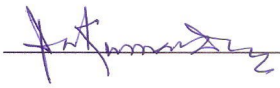
To be signed by all staff engaged full or part time in evaluation at the start of their contract.

Agreement to abide by the Code of Conduct for Evaluation in the UN System

Name of Staff Member: Dr. Sukumar Devotta

I confirm that I have received and understood, and will abide by the United Nations Evaluation Group Code of Conduct for Evaluation.

Signed at (place) on (date): Chennai, 22 January 2013

Signature: 

Mr. Randhir Singha

EVALUATION CONSULTANT CODE OF CONDUCT AGREEMENT FORM

Evaluators:

1. Must present information that is complete and fair in its assessment of strengths and weaknesses so that decisions or actions taken are well founded
2. Must disclose the full set of evaluation findings along with information on their limitations and have this accessible to all affected by the evaluation with expressed legal rights to receive results.
3. Should protect the anonymity and confidentiality of individual informants. They should provide maximum notice, minimize demands on time, and; respect people's right not to engage. Evaluators must respect people's right to provide information in confidence, and must ensure that sensitive information cannot be traced to its source. Evaluators are not expected to evaluate individuals, and must balance an evaluation of management functions with this general principle.
4. Sometimes uncover evidence of wrongdoing while conducting evaluations. Such cases must be reported discreetly to the appropriate investigative body. Evaluators should consult with other relevant oversight entities when there is any doubt about if and how issues should be reported.
5. Should be sensitive to beliefs, manners and customs and act with integrity and honesty in their relations with all stakeholders. In line with the UN Universal Declaration of Human Rights, evaluators must be sensitive to and address issues of discrimination and gender equality. They should avoid offending the dignity and self-respect of those persons with whom they come in contact in the course of the evaluation. Knowing that evaluation might negatively affect the interests of some stakeholders, evaluators should conduct the evaluation and communicate its purpose and results in a way that clearly respects the stakeholders' dignity and self-worth.
6. Are responsible for their performance and their product(s). They are responsible for the clear, accurate and fair written and/or oral presentation of study limitations, findings and recommendations.
7. Should reflect sound accounting procedures and be prudent in using the resources of the evaluation.

Evaluation Consultant Agreement Form[34]

Agreement to abide by the Code of Conduct for Evaluation in the UN System

Name of Consultant: Randhir Singha

Name of Consultancy Organization (where relevant): _____

I confirm that I have received and understood and will abide by the United Nations Code of Conduct for Evaluation.

Signed at (place)[35] Guwahati dated 15 April 2013

Signature: _____

[34] www.uneevaluation.org/unegcodeofconduct