

MID-TERM REVIEW REPORT OF THE GOI-GEF-UNDP PROJECT ENTITLED 'PREPARATION OF THIRD NATIONAL COMMUNICATION (TNC) AND OTHER NEW INFORMATION TO THE UNFCCC' (NATCOM PROJECT)

UNDP PIMS 4603 and GEF Project ID 84310

Implementing Agencies: Ministry of Environment, Forest and Climate Change, Government of India in collaboration with/through United Nations Development Programme (India)

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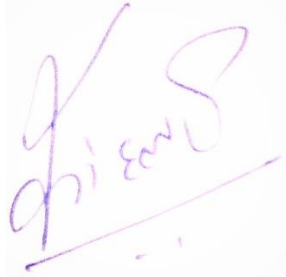
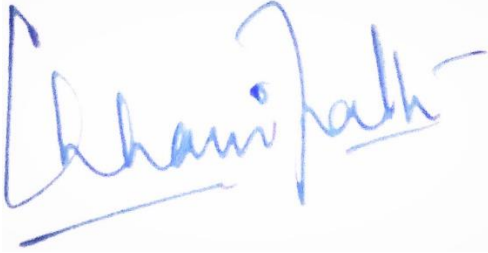



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The impressive efforts are reflected in the skilled approach adopted towards the project implementation. Hopefully, this review will give a fair assessment of the project's achievements and all parties will accept the candid observations with the same healthy spirit with which these are presented.

ACRONYMS AND ABBREVIATIONS

S. R. No.	Accr/Abb	FULL FORM
1.	AFLOU	Agriculture, Forest and Other Land Uses
2.	AHP	
3.	APR	Annual Project Review
4.	BTOR	Back to Office Report
5.	BUR	Biennial Update Report
6.	CBD	Convention on Biological Diversity
7.	CBDR	Common But Differentiated Responsibilities
8.	CCCTA	Comprehensive, Complete, Comparable, Transparent and Accurate
9.	CDM	CDM
10.	CMIP5	Coupled Model Intercomparison Project Phase 5
11.	CO	Country Office
12.	CoP	Conference of Parties
13.	CORDEX	Coordinated Regional Downscaling Experiment
14.	CPAP	Country Programme Action Plan
15.	CS	Country Specific
16.	CSO(s)	Civil Society Organisation(s)
17.	CTCN	Climate Technology Centre and Network
18.	DST	Department of Science and Technology
19.	EF	Emission Factors
20.	ERC	Evaluation Resource Center
21.	FSP	Full Size Project
22.	GCM	Global Climate Model
23.	GEF	Global Environment Facility
24.	GHG	Green House Gas
25.	GoI	Government of India
26.	GPG	Good Practice Guideline
27.	GWP	Global Warming Potential
28.	ICFRE	Indian Council of Forestry Research and Education
29.	IDRC	International Development Research Centre
30.	INC	Initial National Communication
31.	INCCA	Indian Network for Climate Change Assessment
32.	IPCC	Intergovernmental Panel on Climate Change
33.	IPPU	Industrial Processes and Product Use
34.	IVA	Impact, Vulnerability and Adaptation
35.	LULUCF	Land Use, Land Use Change and Forestry
36.	M&E	Monitoring and Evaluation
37.	MNRE	Ministry of New and Renewable Energy

S. R. No.	Accr/Abb	FULL FORM
38.	MoEF	Ministry of Environment and Forests
39.	MoEFCC	Ministry of Environment, Forest and Climate Change
40.	MoF	Ministry of Finance
41.	MoSPI	Ministry of Statistics and Programme Implementation
42.	MSME	Medium, Small and Micro Enterprises
43.	MSW	Municipal Solid Waste
44.	MTR	Mid-Term Review
45.	NAMA	Nationally Appropriate Mitigation Action
46.	NAPCC	National Action Plan for Climate Change
47.	NATCOM	National Communication
48.	NBSAP	National Biodiversity Strategy and Action Plan
49.	NC	National Communication
50.	NCV	Net Calorific Value
51.	NGO	Non-Governmental Organisation
52.	NIMS	National Inventory Management System
53.	NITI Aayog	National Institution for Transforming India
54.	NPD	National Project Director
55.	NSC	National Steering Committee
56.	PAT	Perform Achieve and Trade
57.	PCA	Principal Component Analysis
58.	PIR	Project Implementation Reports
59.	PMU	Project Management Unit
60.	PPR	Project Progress Reports
61.	ProDoc	Project Document duly signed by the Government, Executing Entity/Implementing Partner and UNDP.
62.	PSC	Project Steering Committee
63.	QA/QC	Quality Assurance/ Quality Control
64.	R&D	Research and Development
65.	RC	Respective Capabilities
66.	RCM	Regional Climate Model
67.	RCP	Representative Concentration Pathways
68.	RCU	Regional Coordination Unit
69.	REDD	Reducing Emissions from Deforestation and forest Degradation
70.	RSO	Research on Systematic Observations
71.	SAPCC	State Action Plan for Climate Change
72.	SBAA	Standard Basic Assistance Agreement
73.	SDG	Sustainable Development Goals
74.	SNC	Second National Communication
75.	SRES	Special Report on Emissions Scenarios
76.	SSP	Shared Socio-Economic Pathways

S. R. No.	Accr/Abb	FULL FORM
77.	STA	Senior Technical Advisor
78.	TAC	Technical Advisory Committee
79.	TAG	Technical Advisory Group
80.	TNA	Technology Needs Assessments
81.	TNC	Third National Communication
82.	TOR	Terms of Reference
83.	UNDAF	United Nations Development Action Framework
84.	UNDP	United Nations Development Programme
85.	UNFCCC	United Nations Framework Convention on Climate Change
86.	V&A	Vulnerability and Adaptation

EXECUTIVE SUMMARY

PROJECT INFORMATION TABLE

Project Title:	GoI-GEF-UNDP project entitled ' PREPARATION OF THIRD NATIONAL COMMUNICATION (TNC) AND OTHER NEW INFORMATION TO THE UNFCCC (NATCOM project).		
UNDP Project ID (PIMS #):	4603	PIF Approval Date:	29 February 2012
GEF Project ID (PMIS #):	84310	CEO Endorsement Date:	02 May 2013
ATLAS Business Unit, Award # Proj. ID:	Atlas ID: 70193 Project ID: 84310 Business Unit: IND10.	Project Document (ProDoc) Signature Date (date project began):	03 July 2013
Country(ies):	INDIA	Date project manager hired:	NPD manages and supervises the project
Region:	SOUTH ASIA	Inception Workshop date:	November 2013
Focal Area:	Climate Change (CCM-6)	Midterm Review completion date:	30 July 2019
GEF Focal Area Strategic Objective:	Outcome 6.1: Adequate resources allocated to support enabling activities under the Convention	Planned closing date:	30 December 2012
Trust Fund [indicate GEF TF, LDCF, SCCF, NPIF]:	GEFTF	If revised, proposed op. closing date:	GEF Funds received: 01 December 2013. Closing Date: 31 December 2020.
Executing Agency/ Implementing Partner:	Ministry of Environment, Forest and Climate Change (MoEFCC) with support from United Nations Development Programme (UNDP)		

Other execution partners:	Nil	
Project Financing	<i>at CEO endorsement (US\$)</i>	<i>at Midterm Review (US\$)*</i>
<i>1. GEF financing:</i>	9,010,604	4,564,937
<i>2. UNDP contribution:</i>	150,000	
<i>3. Government:</i>	26,090,000	15,371,683
<i>4. Other partners:</i>	NIL	
<i>5. Total co-financing [2 + 3+ 4]:</i>	26,240,000	
PROJECT TOTAL COSTS [1 + 5]	35,250,604	19,936,620

PROJECT DESCRIPTION

As per decisions 17/CP.8 and 2/CP.17, non-Annex 1 countries are to submit their national communications and biennially update it. Accordingly, the NATCOM project is designed to enable India to undertake activities for preparing its Third National Communication and other information namely Biennial Update Reports to the UNFCCC according to the guidelines provided by the Conference of Parties. The NATCOM project design has built upon the gaps, limitations, experience and lessons learnt from the Initial National Communication (INC) and the Second National Communication (SNC), as well as the recommendations from the final evaluation of INC and SNC. TNC is expected to broaden and consolidate the network of stakeholders such as policy makers, academia, industry, NGOs and the private sector to create a platform for policy interface in key climate change sectors. The activities of the TNC are envisaged to make policy relevant climate change assessments that enhance the country's capacity to incorporate climate change in its development processes. The project is envisaged to establish a sustainable inventory process for GHG inventory assessment and analysis. The project is to address other gaps identified such as capacity building needs, sector-specific data, developing and refining country specific emission/sequestration factors, and developing integrated vulnerability and adaptation frameworks for identified hotspots that are vulnerable to climate change.

PROJECT PROGRESS SUMMARY

The Panel of Experts felt that the Results Framework/Log-frame given in the ProDoc does not address the new and emerging issues and requirements of UNFCCC and India. Accordingly, the Expert Panel has suggested a revised Log-frame which has eight outcomes to be achieved through 20 Outputs and numerous activities. Five of the eight Outcomes are found to be 'highly satisfactory', two are 'satisfactory' and one is 'moderately satisfactory'. In terms of achievement of Outputs, fifteen of the twenty are adjudged as 'highly satisfactory', four are 'satisfactory' and one is 'moderately satisfactory'. Further, the Panel of Experts have also assessed the original log-frame and have found that out four of the seven outcomes are 'highly satisfactory and the remaining three are 'satisfactory'. Therefore, the overall project progress is adjudged as **'highly satisfactory'**.

MTR RATINGS & ACHIEVEMENT SUMMARY TABLE

Measure	MTR Rating	Achievement Description
Project Strategy	N/A	
Progress Towards Results		
Objective: To prepare the Third National Communication and other new information required to meet obligations under the UNFCCC.	HS.	Four Performance Indicators have been envisaged to assess the progress towards achievement of the objective of the project. The three of the four mid-term targets envisaged against each indicator has been achieved and adjudged as 'highly satisfactory' and the remaining one is adjudged as 'satisfactory' since the study is ongoing.
Outcome 1: Updated report on India's National Circumstances prepared.	HS.	The Outcome is to be achieved through three outputs and four activities. The Outcome has been envisaged to include a Chapter namely National Circumstances in NCs and BURs. One of the measurable outputs of the project is submission of BUR-1, BUR-2, BUR-3 and TNC to UNFCCC. Therefore, at mid-term, India should have submitted BUR 1 and BUR-2 to UNFCCC. This has been fully achieved and data

		collection and collating for BUR-3 and TNC has begun.
Outcome 2: Provide accurate GHG inventory through the use of higher tier methods for key sectors.	HS.	The Outcome is to be achieved through two outputs and five activities. The Outcome has been envisaged to include a Chapter namely GHG estimation in NCs and BURs. One of the measurable outputs of the project is submission of BUR-1, BUR-2, BUR-3 and TNC to UNFCCC. Therefore, at mid-term, India should have submitted BUR 1 and BUR-2 to UNFCCC. This has been fully achieved and studies for BUR-3 and TNC have been commissioned.
Outcome 3: Climate change projections, Impacts and Vulnerability Assessment and Adaptation Measures are reported.	HS.	The Outcome is to be achieved through five outputs and ten activities. The Outcome has been envisaged to include Climate change projections, Impacts and Vulnerability Assessment and Adaptation Measures in NCs and BURs. One of the measurable outputs of the project is submission of BUR-1, BUR-2, BUR-3 and TNC to UNFCCC. Therefore, at mid-term, India should have submitted BUR 1 and BUR-2 to UNFCCC. This has been fully achieved and studies for BUR-3 and TNC have been commissioned.
Outcome 4: Measures to mitigate climate change.	HS.	The Outcome is to be achieved through two outputs and six activities. The Outcome has been envisaged to include a Chapter on Measures to mitigate climate change in NCs and BURs. One of the measurable outputs of the project is submission of BUR-1, BUR-2, BUR-3 and TNC to UNFCCC. Therefore, at mid-term, India should have submitted BUR 1 and BUR-2 to UNFCCC. This has been fully achieved and studies for BUR-3 and TNC have been commissioned.
Outcome 5: Other information relevant for the preparation of the TNC.	MS.	The Outcome is to be achieved through two output and two activities. The Outcome has been envisaged to include a Chapter in TNC. While systematic or long-term observation are available along with technical capabilities on climate monitoring, systematic studies are inadequate. Further, long-term ecological studies are required to understand impacts of climate change on biodiversity and other sectors especially

		after accounting for direct anthropogenic effects.
Outcome 6: National Institution for Climate Change.	S.	The Outcome is to be achieved through three outputs and three activities. The information on various institutions working on various facets of CC has been reported and may be seen in BUR-1 and BUR-2. However, the envisaged national nodal institution for ensuring continued reporting to UNFCCC and providing inputs on CC in GoI policies has to be established.
Outcome 7: Other new information required under the aegis of the Convention	S.	<p>The Outcome is to be achieved through two outputs and three activities. India has declared NDCs. A roadmap for achieving four NDC goals is being prepared under the project for which the first national consultation workshop has already been held.</p> <p>India is required to submit a mid-century, long-term, low carbon development strategy to UNFCCC.</p> <p>Studies to prepare documents on both the sectors have already been commissioned.</p>
Outcome 8: Capacity building of stakeholders on climate change issues, mitigation and adaptation.	HS.	<p>The Outcome is to be assessed using two indicators, achievable through two outputs and six activities.</p> <p>Eleven publications for various stakeholders on CC related topics/ issues/ sectors have been brought out under the project.</p> <p>The project contributed towards the scientific and technical aspects through audio-visual and interactive exhibits displayed in the train named as Science Express Climate Action Special. The train travelled across India from 2015-17 and has had a footfall of more than 18 million people, mainly students.</p> <p>The information may be seen in BUR-1 and BUR-2. Copies of the publications are also available with PMU for verification.</p>
Project Implementation & Adaptive Management		

Management Arrangements	HS	The project design provides enough flexibility to MoEFCC and UNDP to adapt to changing social, economic and environmental changes. The Project Management structure has been streamlined and adapted from time to time ensuring progress towards project objective and outcomes. The best adaptive management practice is that the results framework was enriched for internal use by PMU and the progress towards achievement of objectives and outcomes ensured.
Work Planning	HS	Under the project, India is to submit three BURs and the third National Communication. The minimum time required for the outputs is six years. The GEFTF grants were received in December 2013. Accordingly, MoEFCC is to submit the three BURs and TNC by December 2019. India has furnished BUR-1 in January 2016 and BUR-2 in 2018. Most studies for BUR-3 and TNC have been commissioned and are in final stages of completing. If India submits BUR-3 by December 2019 and TNC by June 2020 then the major outputs would be met.
Finance and Co-Finance	S	<p>The total project cost is estimated at US\$ 35.250 million of which GEF grant is US\$9,010,604/- and the Government of India (in-kind and grant) co-finance is US\$26,090,000/- and UNDP contribution is US\$150,000/-. The project was probably designed in 2012-13, when the average currency exchange rate was ₹53/- for a US\$. Over the period 2013 to 2019 the average currency exchange rate has increased from ₹53/- for a US dollar to ₹70/- for a US dollar. Accordingly, the increase in the total budget of the project has been significant i.e. by almost 32%. It is observed that during the period 2013-2018, the total GEF grant spent stands at US\$ 4,564,937/-, which is about 51% of the total grants.</p> <p>The expenditure incurred on preparation of BUR-1 is estimated to be about US\$846,000/-. Most of the studies commissioned on various outcomes overlap</p>

		<p>with reporting requirements under TNC and BURs. The Chapter on National Circumstances for BUR-2 was drafted by the PMU after compiling and collating data from concerned Departments/Ministries of GoI. Similarly, the PMU also compiled, collated and verified the GHG inventory data for Chapter 2 of both BUR-1 and BUR-2. The PMU also drafted the other Chapters of BUR-1 and 2 after receiving data from PIs and concerned Departments/Ministries. Since late 2016, the PMU focused on BUR-2, BUR-3 and TNC and started commissioning studies for the same. Therefore, it is difficult to gauge the exact expenditure incurred on preparation of BUR 2. Further, it was appropriately decided by UNDP and MoEFCC to charge the PMU costs to other budgets heads as the PMU was not only tasked with management of the project but also of drafting the BURs.</p> <p>The Expert Panel has recommended a revised log-frame, hence the outcome-wise budget would need to be modified, appropriately. However, based on the learnings from the project, the Expert Panel feels that maintaining outcome-wise expenditure statement may be tedious and not worthwhile.</p>
Monitoring and Evaluation Arrangements	HS	<p>The NCs undergo rigorous review by the relevant Departments/Ministries of GoI concerned with the information furnished in NCs including BURs. The scrutiny by Departments / Ministries is followed by review from Prime Minister's Climate Change Advisory Council. Finally, the Union Cabinet of India approves the NCs. Further, as per the rules of UNFCCC, BURs are subjected to an international process known as International Consultation and Analysis (ICA). All BURs are subjected to ICA process. BUR-1 of India has successfully completed the ICA process on 8 June 2016. BUR-2 is undergoing a review by a Team of Technical Experts constituted by UNFCCC, the last meeting of which was held on 28</p>

		<p>May 2019. Further, the GHG emissions in terms of CH₄ reported in the BUR-2 were verified by an external agency using air sorites and a consortium of CSO's have also calculated emissions from certain sectors which match the emissions reported in BUR-2.</p>
Stakeholder Engagement	HS	<p>There are no direct stakeholders other than the Government of India which needs to comply with its commitments to the UNFCCC. However, there are numerous indirect stakeholders such as citizens, policymakers at various levels, the scientific community, industry, and all those who could be affected by climate change and actions to mitigate and adapt to climate change. As far as engagement of GoI is concerned, the BURs undergo rigorous review and scrutiny of the hierarchy of GoI. Further, as per the rules of UNFCCC, BURs are subjected to an international process known as International Consultation and Analysis (ICA). Accordingly, engagement of international stakeholders also gets ensured. To ensure engagement of indirect stakeholders such as the citizens, the policymakers at central, state, district, block and village levels, the scientific community, industry, and all those who could be affected by climate change, the project has brought out eleven publications, helped develop materials for audio-video interactive exhibits for a Science Express.</p>
Reporting	S	<p>Internal reporting in the project is established as per the standard practice and norms of the GoI. The PMU reports to the NPD, who in turn reports to the Additional Secretary, Secretary and Minister in charge of MoEFCC. The minutes of consultative meetings and workshops and attendance sheets reveal that most of the meetings are chaired at the level of Additional Secretary and Secretary, MoEFCC. Accordingly, the whole hierarchy within the MoEFCC is kept aware of the project activities and progress. The adaptive management was rendered possible due to the existence of a vibrant</p>

		<p>communication system and practice. The PIRs for 2014 to 2018 have been reported by PMU and UNDP in a timely manner. During the period 2014-2018, five PIRs have been submitted to GEF. A scrutiny of the information provided in the PIRs highlights a fair description of the activities carried out during the reporting period.</p>
Communication	HS	<p>More than sixteen institutions were involved in preparation of the BURs and the internal communication is well established and duly practiced. Further, 54 studies have been commissioned for other chapters of TNC. The studies commissioned under the project are reviewed in consultative events/meetings for facilitating cross-learning and getting suggestions for improvements. The internal communications in the project has helped India climb the tier ladders for GHG inventory for most key sectors. Within the Project Implementation structure, the internal communication process of the GoI is followed which ensures that the whole hierarchy is kept informed of the project activities, progress and outputs. With release of eleven publications, especially a book titled 'Parampara' the project showcased the sustainable lifestyle practices of India and led to 'sustainable lifestyle' being introduced in the Paris Agreement. Parampara was given to all Members of Parliament and Chief Minister and Chief Secretary of every State. Similarly, a copy of a publication titled 'Good Green Deeds' was distributed to every public and school library in Delhi and a few other cities. Further, to engage with international stakeholders, the project has ensured that the eleven publications brought out under the project have been released at either COP to UNFCCC or at the World Environment Day held in India in 2018.</p>
Sustainability		
Financial sustainability	Unlikely	BUR-1, BUR-2, BUR-3 and TNC is to be submitted by India under the project at a total cost of US\$ 36 million, of which GEF

		<p>contribution is pegged at US\$ 9 million and GoI at US\$ 27 million. With increasing reporting requirements, including those arising from the Paris Agreement, the amount of finance required for meeting all obligations to UNFCCC is expected to only increase commensurately. GEF has committed to providing US\$ 500,000 for NCs and US\$ 325,000 for BURs, rest is to be met through the STAR allocations of the country. India's STAR allocation under climate change focal area has been reduced by almost 50% and assuming that the current GEF finances will be required for meeting future reporting requirements, about 20% of the country's STAR allocation under climate change focal area may have to be diverted for national reporting. Given that 3/4th of the project is already being co-financed by India, it seems 'Unlikely' that the country will be able to divert such a large sum from climate change action towards meeting reporting requirements of UNFCCC.</p>
Socio-economic sustainability	Unlikely	<p>The project implementation especially the involvement of GoI hierarchy as well as direct and indirect financial support to the institutions involved in the preparation of the NCs demonstrates that India is committed to meet all its obligations made to the UNFCCC. The socio-economic benefits derived from the project go beyond reporting to UNFCCC as the NCs and the findings of the studies provide inputs into policies of GoI. Therefore, it is essential that adequate GEF funding continues to support meeting the reporting requirements of UNFCCC. In case, the GEF allocations are reduced or discontinued for unforeseen reasons, India may be unable to derive the current socio-economic benefits from the project.</p>
Institutional framework and governance sustainability	Likely	<p>The project has built the capacity of scientists and experts by exposing and training them in GHG inventory, measurement, vulnerability and adaptation, QA/QC, uncertainty estimation and other reporting parameters. The institutions have</p>

		<p>been strengthened in terms of trained human resource and the latest infrastructure. Further, the number of institutions and scientists/experts involved in Climate Change related reporting to UNFCCC has increased during the project period. The NPD of NATCOM project is the focal point for IPCC, APN and other Climate Change related scientific and technical fora. This decision helps in capacity building of experts and institutions. Capacity building of Programme Officers is ensured by offering performance linked incentives. The NCs and all other reporting to UNFCCC are done only after review by all concerned/relevant departments/ministries of GoI and the approval of the Union Cabinet of India. So, the project outcomes and outputs, stakeholder engagement and other institutional framework and governance mechanisms are monitored at the highest level in the country.</p>
Environmental sustainability	Likely	<p>Climate Change is a global problem, inviting collective endeavour of all countries based on principles of equity, CBDR and RC. United States of America, once an ardent supporter of Paris Agreement played a role in its coming into force. However, the United States intends to withdraw from the Paris Agreement. The President of Brazil, during his presidential campaign, stated that he planned to keep Brazil in the Paris Climate Agreement provided several conditions were met with. These conditions may require alterations in the international accord which probably are difficult to comply with. Though, such geopolitical situations may have indirect effects on environmental sustainability in terms of impacting the collective ability of international community to combat climate change, India is not contemplating on backing out of the commitments made under the Paris Agreement and UNFCCC.</p>

CONCISE SUMMARY OF CONCLUSIONS

- 1. The NATCOM project was developed to fulfil the reporting requirements of UNFCCC and as such the project design has provided enough flexibility to the implementing agency to adapt the strategy to meet the reporting requirements.*
- 2. There are many instances that exhibit highly satisfactory project implementation and adaptive management by the PMU. One such significant instance is that the outcomes and outputs given in the ProDoc have been included into the log-frame to ensure that the project stays on track.*
- 3. The project activity and outputs undergo rigorous Monitoring and Evaluation comprising scrutiny by scientific/technical experts, all relevant departments/ministries of GoI, Prime Minister's Council on Climate Change and the Union Cabinet of India.*
- 4. The capacity of indirect stakeholders, especially Principal Investigators of studies commissioned under NATCOM project and the PMU staff has been adequately built up. The institutions collaborating with the PMU in the project have been strengthened in terms of trained human resource and infrastructure. Stakeholder engagement has been ensured through 26 meetings, workshops and training programmes organised under the project.*
- 5. Communication under the project has been ensured by providing inputs on various public awareness materials and bringing out a number of publications. One significant achievement is the inputs provided for a train titled Science Express Climate Action Special that reached out to 18 million people.*
- 6. The Project Log-frame does not address new and emerging climate change issues and commitments by the country. Accordingly, the MTR Panel of Experts have proposed a revised log-frame comprising eight Outcomes to be achieved through 21 Outputs and numerous activities has been proposed. Five of the eight Outcomes are found to be 'highly satisfactory', two are 'satisfactory' and one is 'moderately satisfactory'. Therefore, the overall project progress is adjudged as '**highly satisfactory**'. Recommendation: MoEFCC, UNDP and GEF may like to adopt the revised log-frame suggested by the Expert Panel.*

7. The concerned GoI departments/ministries are participating in the project but to ensure smoother flow of data and easy access by institutions contributing to NCs, there is a need for institutionalising GHG inventorisation and other reporting requirements. Recommendation: MoEFCC, UNDP and GEF may consider making some departments/ministries/institutions of GoI as responsible parties in the extant NATCOM project and / or in future GEF funded NATCOM projects.
8. The overall progress towards results of the Project is adjudged as 'Highly Satisfactory' and the project would be able to deliver on most of the envisaged targets.

RECOMMENDATION SUMMARY TABLE

Rec #	Recommendation	Entity Responsible
A	Outcome 5: Other information relevant for the preparation of the TNC.	
A.1	Output 5.1: Comprehensive description of systematic observations and research on climate change	
	Key recommendation: <i>The studies for Comprehensive description of systematic observations and research on climate change be commissioned on an urgent basis.</i>	PMU and MoEFCC
A.2	Output 5.2: Long-term Ecological Studies to understand climate change impacts on biodiversity and other sectors.	
	Key recommendation: Long-term Ecological studies to understand impacts of climate change on biodiversity and other sectors is commissioned at the earliest.	PMU and MoEFCC
B	Outcome 6: National Institution for Climate Change.	
	Output 6.1: Strategy for a sustainable national communication process. Output 6.2: Strengthened and streamlined National institutional structure for long term National GHG inventory and the estimation of GHG emissions. Understandably, GoI is setting up a National Institute for Climate Change Studies and Actions (NICCSA) under CCAP of MoEFCC with an objective to support all scientific, technical and analytical studies relating to climate change policy and implementing strategies. The institute has an outlay of ₹250 million for five years. Further, Institutional Arrangement has also been strengthened by inducting new institutions in the process of preparing NATCOM and	

	BUR. New institutions introduced include EESL, IORA, CEEW, BOBP IGO, BNHS, SDMRI, FRLHT TDU, INTACH.	
B.1	Key recommendation: Establishment of the Institution is a national requirement and immediate efforts need to be taken to build consensus of concerned departments/ ministries on the issue.	PMU and MoEFCC
C	Outcome 8: Capacity building of stakeholders on climate change issues, mitigation and adaptation.	
	Output 8.1: Dissemination of information on climate change issues, mitigation and adaptation for public awareness.	
C.1	<i>There is a need to circulate the NCs more widely and getting the executive summary translated in scheduled languages.</i>	PMU
C.2	<i>The preparation of books on CC impacts on sectors such as agriculture, disaster risk management, coastal and marine areas and on Paris Agreement may be completed by June 2020.</i>	
C.3	<i>Collect, collate and compile all the publications brought out by PIs/Institutions under the project and make them available to other experts/institutions/general public.</i>	
C.4	<i>Bring out a publication on Private Sector contribution to CC adaptation and mitigation may be brought out.</i>	
C.5	<i>Developing a web-portal on which all publications under the project and free of cost audio-video media are made available. The portal may also provide CC related national and international news, social media posts and events.</i>	
D	Project Implementation & Adaptive Management has been found to be 'highly satisfactory'.	
	MoEFCC and UNDP have taken some good and informed decisions like housing the PMU within MoEFCC. MoEFCC and UNDP have also ensured capacity building of the PMU staff to such an extent that collation and compilation of information from various sources and preparation of NCs are being undertaken in house. However, the PMU is working on project basis. Accordingly, it is crucial that a permanent PMU is institutionalised within MoEFCC for meeting future UNFCCC reporting requirements.	
D.1	Key Recommendation: a) <i>A permanent PMU needs to be institutionalised within MoEFCC.</i> b) <i>High priority may be accorded to the establishment of a national institution on CC and the PMU may be housed within the same.</i>	MoEFCC

E	The Project is yet to bring out BUR-3 and TNC, which are time consuming processes. The time available for bringing out the documents is about 18 months, during which the project is scheduled to be closed and undergo a Terminal Evaluation.	
E.1	Key Recommendation: <i>Bring out BUR-3 with 2016 GHG inventory by December 2019 and TNC with 2017/18 inventory by June 2020.</i>	PMU
F	The project was designed in 2012-13 when the average currency exchange rate was ₹53/- for a US\$. Over the period 2013 to 2019 the average currency exchange rate has increased from ₹53/- to ₹70/- for a US dollar i.e. about 32%. During the period 2013-2018, the total GEF grant spent stands at US\$ 4,564,937/- which is about 51% of the total grants. The project has certain committed expenditure for preparation of TNC. The remaining amount would lapse upon closure of the GEF project.	
F.1	Key Recommendation: <i>Expedite commissioning of studies for gap areas and strengthening the ongoing studies so that remaining funds are allocated by end of December 2019. PMU may also consider publications, organizing workshops/ programmes for brainstorming on new and emerging CC topics and for public awareness.</i>	PMU
G	The Co-finance documented by the PMU (estimated using the average exchange rate of ₹53/- for a US\$) is approximately US\$15 million which is based on data provided by Principal Investigators and specifically contributed by MoEFCC in terms of resource and infrastructure to the project. The co-finance is about 59% of the total committed by Government of India. However, Climate Change studies require historical data, projections, modellings and collection and collation of data, which are undertaken mostly by many other GoI departments/ministries. The co-finance by such relevant GoI departments/ministries/institutions is yet to be documented.	
G.1	Key Recommendation: Commission a study to compile, collate and document the co-finance from various sources.	PMU
SUSTAINABILITY		
H	Financial Sustainability India is to furnish BUR-1, BUR-2, BUR-3 and TNC at a total cost of US\$ 36 million, of which GEF contribution is pegged at US\$ 9 million and GoI at US\$ 27 million. It is estimated that about US\$ 20 million (GEF+GoI financing) have been spent in the preparation of BUR-1, BUR-2 and for initial studies of TNC and BUR-3. With an increase in reporting requirements, including those arising from	

	<p>the Paris Agreement, the amount of finance required for meeting all obligations to UNFCCC is expected to only increase proportionately. GEF has committed to providing US\$ 500,000 for NCs and US\$ 325,000 for BURs, rest is to be met through the STAR allocations of the country. India's STAR allocation under climate change focal area has reduced by almost 50%. Assuming that the current GEF finances will be required for meeting future reporting requirements, a substantial amount of the country's STAR allocation under climate change focal area may have to be diverted for national reporting. It is evident that India would require substantial funding to continue meeting the increasing reporting requirements of UNFCCC. The GEF allocation for a large and diverse country like India is insufficient and 'one size fits all' may not be the correct approach.</p>	
H.1	<p>Key recommendation:</p> <p>a) <i>Adequate and continued GEF financing would be required for meeting future reporting requirements of the country.</i></p> <p>b) <i>National deliberations are required to prepare a roadmap for meeting the financial needs of future reporting requirements.</i></p>	MoEFCC
I	<p>Socio-Economic Sustainability:</p> <p>The project implementation clearly demonstrates that India is committed to meet all its obligations made to the UNFCCC. The country is providing direct as well as indirect financial support to the institutions involved in the preparation of the NCs and for CC actions. The socio-economic benefits derived from the project go beyond reporting to UNFCCC as the findings of the studies commissioned under the project and the NCs prepared thereafter provide inputs into policies of GoI. Therefore, it is imperative that adequate GEF funding continues to support meeting the reporting requirements of UNFCCC. In the event, the GEF allocations are reduced or discontinued for unforeseen reasons, India may be unable to derive the current socio-economic benefits from the project.</p>	
I.1	<p>Key recommendation:</p> <p>a) <i>The continued GEF financing is required to derive the socio-economic benefits from the reports prepared for meeting UNFCCC obligations.</i></p> <p>b) <i>MoEFCC needs to develop a strategy to continue collecting, compiling and collating the data from various sources so that the relevance of the reports in CC mitigation, adaptation and Disaster Risk Management continue beyond the project period.</i></p>	MoEFCC

1 INTRODUCTION

1.1 PURPOSE OF THE MTR:

Mid-Term Review (MTR) is an integral part of the United Nations Development Programme (UNDP) - Global Environment Facility (GEF) project cycle management. The MTR is primarily a monitoring tool that identifies challenges and outlines corrective actions to ensure that a project is on track to achieve maximum results by its completion. The objective of the MTR is to assist GEF, UNDP, Government of India (GoI), Project Managers and other stakeholders to assess the effectiveness and efficiency of project activities in relation to the stated objective. The MTR presents an opportunity for stakeholders to discuss and critically assess the administrative and technical strategies, and the gaps, issues, challenges and constraints. Further, the MTR process is an important learning experience for all participants as it provides all stakeholders with an opportunity to step back from the implementation efforts to reflect upon and discuss the efficacy of project activity to date. This report will ideally assist the project implementation experts to: (1) assess and consider project success at achieving anticipated outcomes given current benchmarks and planned activities; (2) consider possible improvements/approaches to increase the likelihood of success; and, (3) ultimately, enhance both effectiveness (project's demonstrated ability to produce the desired outcomes) and efficiency (project's demonstrated ability to produce the highest value result for the lowest cost). Both the assessment process and the resulting report are the outputs of the MTR. The process and report may be used by Managers and stakeholders to (a) strengthen the adaptive management and monitoring function of the project; (b) ensure accountability for the achievement of the GEF objective, (c) enhance organisational and development learning; and (d) enable informed decision making.

GEF projects usually address policy issues along with having demonstrable and replicable field implementation components/models. Further, most GEF projects have direct stakeholders and beneficiaries especially local inhabitants. Unlike other GEF projects, GEF-GoI-UNDP project entitled 'Preparation of Third National Communication (TNC) and Other New

Information to the UNFCCC' (NATCOM project) mainly aims at policies at the national level and fulfilling commitments made by India at the international level. Accordingly, the direct beneficiary of the NATCOM project is Government of India as it addresses policy level issues/problems which have an indirect influence on the stakeholders nationally and internationally. Understandably, Ministry of Environment, Forest and Climate Change (MoEFCC) and UNDP felt that MTR by one or two international experts might not do justice as the project is quite complex and multi-sectoral and deals with state and national level policies. Further, as per the decisions of the Conference of Parties to the UNFCCC, developing and emerging countries such as India, do not need to undergo international scrutiny of their commitments to the UNFCCC. Therefore, it was decided with the approval of GEF, to conduct the MTR of the NATCOM project through a panel of national experts who have adequate experience in different sectors related to Climate Change. Accordingly, the aim of the MTR is to assess progress towards the achievement of the envisaged results/logical framework (Log-frame) as specified in the Project Document. The MTR will assess early signs of project success or failure and identify the necessary changes to be made in order to set the project on track to achieve its intended results especially with reference to socio-economic and environmental changes that have taken place since project design. Further, the MTR will also review the project's strategy and risks to sustainability.

1.2 KEY ISSUES ADDRESSED

The key issues that have been addressed by the MTR are:

1. *Is the project progressing with due "Relevance", "Effectiveness", and "Efficiency"?*

Relevance: Were the project's outcomes consistent with the focal areas/operational programme strategies and country priorities?

Effectiveness: Were the actual project outcomes commensurate with the original or modified project objectives? If the original or modified expected results were merely the outputs/inputs, then were there any real outcomes of the project and, if there were, whether these are commensurate with realistic expectations from such projects.

Efficiency: Was the project timely as well as cost-effective? Wherever possible, the costs incurred, and the time taken to achieve the outcomes with that for similar projects has been compared.

2. *Is this project "on track" in achieving its objectives?*
3. *What actions, if any, are required to be considered for increasing the likelihood of success?*
4. *Will the project outcomes and objectives be sustained after the project period?*

Sustainability: The GEF Monitoring and Review Policy specifies that the MTR will assess, at the minimum, the "likelihood of sustainability of outcomes at project termination and provide a rating for this". Sustainability is understood as the likelihood of continued benefits after the GEF project ends. Given the uncertainties involved, it may be difficult to have a realistic a priori assessment of the sustainability of outcomes. Therefore, the assessment of the sustainability of outcomes will give special attention to the analysis of the risks that are likely to affect the persistence of project outcomes.

1.3 KEY DELIVERABLES

The Key Deliverables of the MTR is this final MTR Report, which has been prepared after submission of Inception Report on 10 April 2019, presentation on initial findings on 16 July 2019, submission of Draft Report on 22 July 2019 and submission of Final Report upon getting Management's response and comments on 30 July 2019.

1.4 SCOPE & METHODOLOGY

The Guidance for Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects (UNDP, 2014) and GEF's "Monitoring and Review Policies and Procedures (2010)" have been followed for conducting the MTR. Further, the review has been guided by comprehensive terms of reference (ToRs) developed by MoEFCC and UNDP (India). The TORs define the scope and framework for the review's final report (**Annexure –I**).

The review commenced with a comprehensive desk review of all pertinent project documents provided by UNDP and MoEFCC to understand the

project and identify preliminary focus topics/priorities. The documents reviewed were:

- i. GEF's "Monitoring and Review Policies and Procedures (2010)".*
- ii. UNDP's "Guidance for conducting Midterm Reviews of UNDP-supported, GEF-financed projects" (2014).*
- iii. Project Document.*
- iv. Project Implementation Review submitted to GEF.*
- v. Annual Work Plans (2013-2018).*
- vi. Financial Statements (Combined Delivery Reports) of the Project from 2013 to 2018.*
- vii. Achievements vis-à-vis Project Results Framework/ Log-Frame prepared by PMU.*
- viii. Co-finance document prepared by the Project Management Unit (PMU).*
- ix. Technical Reports namely Biennial Update Report 1 & 2 submitted to UNFCCC.*

Two of the MTR Experts identified by MoEFCC and UNDP namely Dr Ashok Bhatnagar and Dr T. S. Nayar have conducted the Terminal Evaluation of a GEF project in the past and are conversant with the process. Further, MoEFCC and UNDP also engaged a consultant namely Shantanu Goel, who has earlier served as a project monitoring officer on a GEF project and is conversant with the review process and requirements. The consultant assisted the MTR expert group in the entire exercise and was present for meetings and discussions. It was ascertained by the MTR panel of experts that Shantanu Goel has no conflict of interest with NATCOM project and has also signed the 'Code of Conduct Agreement Form' at **Annexure – II**.

A briefing meeting was held on 05 April 2019 at UNDP (India) office in New Delhi where the PMU of the project gave detailed background and achievements of the project. The PMU apprised the MTR experts on the procedures, guidelines and expectation from the MTR. The need for setting the criteria of the review based on relevance, effectiveness, efficiency, sustainability and impacts of the project was stressed upon during the briefing. Additional documents and details of implementation mechanism were provided. The 'review mission' was discussed and finalized by the

experts and help of PMU was sought in terms of arranging field visits and scheduling meetings with the stakeholders

As stated earlier, the NATCOM project is unlike other GEF projects, and mainly addresses policy issues. Accordingly, the Expert Panel understood the requirements of the project and conducted round table meetings with Principal Investigators of various studies and key stakeholders. The approach to round table meetings was standardised in terms of maintaining discussions on topics/outcomes of studies/results, gaps, co-finance, suggestions on improvement of project management processes and gender focus, if any. This approach made certain all stakeholders were given equitable opportunities to express their thoughts, revealed answers required to satisfy key review needs and allowed adequate latitude to catalyze vibrant discussions and candid responses. The articulation of contrary and innovative opinions was encouraged. In addition to roundtable meetings, discussions were held with PMU staff, NPD, senior officers of MoEFCC (implementing agency) and UNDP/India (executing agency) regarding progress, management, budget, and project design/implementation issues. UNDP/MoEFCC/PMU staff did not participate in any meetings and their role was limited to arranging meetings with PIs and stakeholders as deemed appropriate by the MTR Expert Panel. Shantanu Goel, however, was available at meetings and proved useful, allowing for immediate resolution of questions pertaining to project administration or processes. The Panel of Experts visited the following stakeholders and institutions (detailed itinerary at **Annexure – III**):

DATES	PARTICULARS
05/04	Briefing meeting with Project Management Unit Visit to IARI to review two studies commissioned under GHG inventory for the agriculture sector and IVA.
06/04	Visit CII to discuss study commissioned on GHG inventory of IPPU sector. CII also presented the pilot IPPU sector GHG inventory Management System that they are developing voluntarily and with their own funding.
23-24/04	Visit FSI, FRI, ICFRE, IIP and WII to discuss the studies commissioned under IVA, mitigation, and GHG inventory for LULUCF sector.
17/06	Meeting to finalise MTR Report structure and discuss initial findings. Meeting Delhi based stakeholder namely IMD.
18/06	Meeting with CEEW
15-16/07	Meeting to discuss first draft of the MTR Report
20-21/07	Meeting to finalise to draft of the MTR report

The Group has relied on published and unpublished literature and documents to review the project. The Group reviewed and measured project performance based on the quantitative and qualitative indicators. The MTR considered issues related to management and substantive/technical implementation, including project delivery and finances. Particular attention was given to the relevant strategic approaches taken towards the achievement of project objective.

The MTR Expert Panel sieved through the enormous literature and data available with MoEFCC, UNDP, stakeholders, Project Investigators (PIs) and internet to draft the Final Report. All findings of the MTR have been substantiated and backed by verifiable sources/methods.

1.5 Evaluative Questions

To understand the project and to review whether the project is on track to achieving the envisaged objective, the Expert Panel used the following background and evaluative questions:

1.5.1 International Background and Context

UNFCCC objective is to achieve stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. The stabilisation is to be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.

Towards the objective, UNFCCC under Article 4 expects all Parties to take into account their Common but Differentiated Responsibilities (CBDR) and Respective Capabilities (RC) in terms of national and regional development priorities, objectives and circumstances to develop, periodically update and communicate their NCs comprising the following elements of information:

- 1) national inventories of anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, using comparable methodologies as per UNFCCC and IPCC guidelines.
- 2) National and where appropriate regional programmes containing measures to mitigate climate change by addressing anthropogenic emissions by sources and removals by sinks of all greenhouse gases, and measures to facilitate adequate adaptation to climate change;

- 3) transfer of technologies, practices and processes that control, reduce or prevent anthropogenic emissions of greenhouse gases in all relevant sectors including the energy, transport, industry, agriculture, forestry and waste management sectors;
- 4) conserve and enhance sinks and reservoirs of all greenhouse gases, including biomass, forests and oceans as well as other terrestrial, coastal and marine ecosystems;
- 5) develop and elaborate appropriate and integrated plans for coastal zone management, water resources and agriculture, and for the protection and rehabilitation of areas, affected by drought and desertification, as well as floods;
- 6) take climate change considerations into account, to the extent feasible, in their relevant social, economic and environmental policies and actions, and employ appropriate methods to mitigate or adapt to climate change;
- 7) promote and cooperate in scientific, technological, technical, socio-economic and other research, systematic observation and development of data archives related to the climate system and intended to further the understanding and to reduce or eliminate the remaining uncertainties regarding the causes, effects, magnitude and timing of climate change and the economic and social consequences of various response strategies; and
- 8) promote and cooperate in education, training and public awareness related to climate change and encourage the widest participation in this process, including that of non-governmental organizations.
- 9) Communicate to the Conference of the Parties information related to implementation, in accordance with Article 12.

1.5.2 India's Commitments to UNFCCC

India submitted its Initial National Communication to UNFCCC with 1994 GHG inventory on 22 Jun 2004 and Second National Communication (SNC) with 2000 GHG inventory on 4 May 2012. In January 2010, India communicated its voluntary domestic mitigation actions to UNFCCC namely to reduce the emissions intensity of its GOP by 20-25% by 2020 in comparison to the 2005 level. In 2012, India committed to publishing Biennial Update Reports with GHG Inventory for 2010, 2012, and 2014, and Third National Communication through the extant project. Further, in October 2015, India voluntarily committed its intentions to address Climate Change through her Intended Nationally Determined Contribution (INDC) submitted to the UNFCCC. These were later submitted as India's first NDC under Article 4, paragraph 2 of the Paris Agreement on Climate Change.

Further, the Paris Agreement on Climate Change was negotiated and adopted on 12 December 2015 at the Twenty-first session on the Conference of Parties to the UNFCCC. India became a signatory to the Agreement on 22 April 2016 and ratified the same on 02 October 2016. The Agreement came into force on 04 November 2016. Consequently, in accordance with Article 4, paragraph 19, of the Paris Agreement, all Parties must formulate and communicate long-term low greenhouse gas emission development strategies, taking into account their common but differentiated responsibilities and respective capabilities, in the light of different national circumstances. Accordingly, the reporting requirements have significantly increased.

EVALUATIVE QUESTION:

- 1. Are India's national development priorities, objectives and circumstances aligned with the international (UNFCCC) objective?*
- 2. Does the project help the country meet the commitments including new and additional made to UNFCCC?*
- 3. Does the project track the progress of the country towards achievement of the commitments made to UNFCCC?*
- 4. Does the project create awareness and build up the capacity of stakeholders and institutions to continue meeting reporting requirements of UNFCCC?*

1.5.3 India's National Policies and Priorities

In 2008, India's national priorities were outlined in the National Action Plan on Climate Change (NAPCC). Under NAPCC, GoI has already begun implementation of eight missions which are the National Solar Mission, National Energy Efficiency Mission, National Mission on Sustainable Habitat, National Water Mission, National Mission for Sustaining the Himalayan Ecosystem, National Mission for Sustainable Agriculture and Greening India Mission. To prioritise and address regional issues especially those related to mitigation, adaptation and disaster risk management within the country, states have started implementation of their respective State Action Plan on Climate Change (SAPCC). A National Adaptation Fund for Climate Change (NAFCC) was set up in 2015-16 with an aim to support adaptation and mitigation activities which alleviate the adverse effects of climate change. The projects related to adaptation in sectors such as agriculture, animal husbandry, water, forestry and fisheries are eligible for funding under NAFCC. An initial allocation of ₹3,500 million (US\$ 55.6 million) has been made of which the approved cost of projects in 2018 stood at ₹6.74 billion. The projects prioritise the need of building climate resilience in identified

areas under the State Action Plans on Climate Change (SAPCC) and the relevant Missions under India's National Action Plan on Climate Change (NAPCC). GoI has also approved establishment of a national institute for climate change studies and action which is envisaged to be the nodal agency for CC in India. The institution is to be established under the Climate Change Action Programme (CCAP) of MoEFCC with an outlay of ₹250 million. The objective of NICCSA is to support all scientific, technical and analytical studies relating to climate change policy and implementing strategies. GoI has also established several institutions which provide data and inputs for various facets of CC such as GHG inventory preparation, mitigation and adaptation actions, and CC projections at different levels. Some of these include:

- 1) NICRA under MoAFW
- 2) CCCR at the IITM, Pune under MoES
- 3) RCC at IMD, Pune in conjunction with WMO
- 5) NIOT, MoES.
- 6) PPAC, MoPNG.
- 7) FSI and ISRO.
- 8) Inter-University Consortium on Cryosphere and CC under the DST.

EVALUATIVE QUESTION:

1. *Are India's national development priorities, objectives and circumstances addressed in the project design?*
2. *Do the project outputs provide inputs and inform national and state policies to meet the development priorities and objectives in the backdrop of CC?*
3. *Does the project create public awareness and build up the capacity of stakeholders and institutions to address the issues of CC?*

1.5.4 Contribution of project towards meeting the International objectives and National Commitments and development priorities.

The objective of the NATCOM Project is to prepare the Third National Communication and other new information required to meet obligations under the UNFCCC. To achieve this objective, the project Outcomes, Outputs and activities have been aligned with the information/Chapters required to be furnished to UNFCCC through the NCs and updates thereto.

EVALUATIVE QUESTION:

1. *Does the project design and strategy address the international and national objectives and development priorities of India? To what extent is there country ownership, and does it use the best route towards expected results?*

2. *Does the Project Implementation and Governance structure provide enough flexibility for adaptive management?*
3. *Has the project been implemented efficiently, cost-effectively, and been able to adapt to any changing conditions thus far? To what extent are project-level monitoring and evaluation systems, reporting, and project communications supporting the project's implementation?*
4. *Are there any financial, institutional, socio-economic, and/or environmental risks to sustaining long-term project results?*

1.6 STRUCTURE OF THE MTR REPORT

The structure of the MTR report strictly follows the advice and guidance given in the following documents by GEF and UNDP:

- i. *Guidance for Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects (UNDP, 2014)*
- ii. *GEF's "Monitoring and Review Policies and Procedures (2010)"*
- iii. *Comprehensive terms of reference (ToRs) developed by MoEFCC and UNDP (India).*

The TORs define the scope and framework for the review's final report. The Review process is independent of UNDP, MoEFCC and other partners/stakeholders. The duly filled 'Code of Conduct Agreement Forms' are at **Annexure – II**.

2 PROJECT DESCRIPTION AND BACKGROUND CONTEXT

As per the REQUEST FOR CEO ENDORSEMENT form submitted by GEF CEO to the Council Members for endorsement prior to final Agency approval (Letter to Council Members) the objective of the project is “to prepare and submit India’s Third National Communication (TNC) to the UNFCCC and other new information required to meet obligations under the UNFCCC, which is on the biennial update reporting”. Further, the project objective is expected to be achieved with the fulfillment of the outcomes, which are in line with the GEF’s climate change mitigation strategic objective (SO-6) under GEF-5 i.e. “Enabling Activities: Support enabling activities and capacity building under the Convention”. The United Nations Development Action Framework (UNDAF), UNDP Strategy Plan for Environment and Development Primary Outcome as given in the ProDoc are given below:

UNDAF OUTCOME(S): Government, industry and other relevant stakeholders actively promote more environmentally sustainable development and resilience of communities is enhanced in the face of challenges of climate change, disaster risk and natural resource depletion.

UNDP Strategy Plan Environment and Sustainable Development Primary Outcome: Strengthened national capacities to mainstream environment and energy concerns into national development plans.

India’s national priorities are outlined in the National Action Plan on Climate Change (NAPCC) which was notified in 2008. Under NAPCC, the Government of India has already begun implementation of eight missions which are the National Solar Mission, National Energy Efficiency Mission, National Mission on Sustainable Habitat, National Water Mission, National Mission for Sustaining the Himalayan Ecosystem, National Mission for Sustainable Agriculture and Greening India Mission. To prioritise and address regional issues especially those related to mitigation, adaptation and disaster risk management within the country, states have started implementation of their respective State Action Plan on Climate Change (SAPCC). Accordingly, the Outcomes and Outputs of the project would feed into policy making at the national and state levels.

2.1 BRIEF DESCRIPTION

The brief description of the project as given in the Pro-Doc is as follows:

The NATCOM project is designed to enable India to undertake activities for preparing its Third National Communication and other information to the UNFCCC according to the guidelines provided by the Conference of Parties (COP) for non-Annex 1 countries (17/CP.8 and 2/CP.17). The design builds upon the gaps, limitations, experience and lessons learnt from the Initial National Communication (INC) and the Second National Communication (SNC), as well as the recommendations from the final evaluation of INC and SNC. TNC is expected to broaden and consolidate the network of stakeholders, including the researchers, industry, NGOs and the private sector to create a platform for policy interface in key climate change sectors. The activities of the TNC are envisaged to make policy relevant climate change assessments that enhance the country's capacity to incorporate climate change in its development processes. The development policies of India will therefore be in line with the GEF's climate change mitigation focal area objective (CCM-6) under "GEF-5: Enabling Activities: Support enabling activities and capacity building under the Convention". It is envisaged that a sustainable inventory process for GHG inventory assessment and analysis will be established under the NATCOM project. The project will also address other gaps identified in the INC and SNC, particularly on capacity building needs, sector-specific data, developing and refining country specific emission/sequestration factors, and developing integrated vulnerability and adaptation frameworks for identified hotspots that are vulnerable to climate change.

2.2 PROBLEMS THAT THE PROJECT SOUGHT TO ADDRESS

The Government of India is committed to meet the obligations under UNFCCC and in this regard the preparation of TNC and other new information (mainly BURs) is consistent with fulfilling its obligations. India has also announced a plan for reducing the energy intensity of GDP. Further, India has been making efforts in developing a solid scientific understanding of climate change by recognising the importance of climate change as evidenced by the adoption of the National Action Plan on Climate Change (NAPCC) in 2008. Accordingly, the activities leading to the preparation of TNC, in particular, the data, model outputs, and mitigation-

adaptation strategies would also contribute to strengthening the implementation of the NAPCC. Thus, the proposed TNC project from India is fully consistent with the national plans and priorities. Also, the proposed project is consistent with the aims and objectives as well as the provisions of UNFCCC. Many of the State Governments are also committed to addressing the impacts of climate change and have prepared their State Action Plans on Climate Change (SAPCC) mitigation, disaster risk management, impacts, vulnerability, and adaptation components. However, at the national level, there are still many scientific, technical and institutional limitations which need to be addressed. As stated in the Prodoc, these are as follows:

- (i) adoption of tier-II and tier-III methods for enhancing the quality of GHG inventory, including disaggregated state/regional level to be aggregated at the national level;*
- (ii) development of region-specific emission factors for different sectors and reducing activity data uncertainty in key sources;*
- (iii) adoption of multiple Global Climate Models (GCMs) and Regional Climate Models (RCMs) for impact assessment and downscaling of climate change projections for disaggregated sub-regional level, and cropping systems scales;*
- (iv) adoption of impact assessment models at disaggregated levels such as disaggregated sub-regions, different cropping systems, watershed levels, different forest types and species level assessment;*
- (v) carrying out impact assessment for short term periods such as up to 2030;*
- (vi) data limitations for inventory and impact assessment models;*
- (vii) absence of models to suit Indian forest types, cropping systems and mountainous regions;*
- (viii) absence of information, data, maps for preparation of vulnerability profiles to enable mainstreaming of adaptation in developmental programmes;*
- (ix) estimation of climate risk related economic damages and costs;*
- (x) climate impact assessment on infrastructure;*
- (xi) integrating climate change adaptation actions with national, state and sub-regional level planning processes;*
- (xii) integrated impact assessment duly integrating sectoral impacts over specific sub-regions, and,*

(xiii) involvement of stakeholders at decentralized levels, creation of education, awareness and building capacities to enable adaptation decision making at decentralized levels.

2.3 BARRIER ANALYSIS

The barrier analysis given in the Prodoc clearly states "Based on the experiences from the preparation of the two previous National Communications (NCs), no major risks are anticipated." However, some of the potential minor risks identified in the ProDoc are as follows:

- (a) **Access to multiple climate change models:** Multiple downscaled GCMs at finer grid scales are to be adopted to assess the impacts at micro levels during the preparation of TNC. There could be delays in accessing the models and model-outputs, which can be mitigated by forming expert teams involving multiple institutions in India to develop downscaling methods using GCM outputs available at the IPCC data centre.*
- (b) **Lack of technical capacity:** The risk of lack of technical capacity is minimal since there are many institutions in India which can conduct field studies and modeling required for the TNC preparation. India has also set up a National Climate Change Research Centre as well as several scientific centers to promote research on climate change. The Government of India has also initiated the process of INCCA, which would complement and augment the TNC process, as well as other new information required under the aegis of the Convention as it emerges.*
- (c) **Coordination with stakeholders at National and State levels:** India is a large country with 29 states and 7 Union territories and thus, coordination could be a challenge. However, with the preparation of the State Climate Change Action Plans and establishment of the state level climate change coordinating committees, the coordination may be facilitated to a certain degree. Finally, the Prime Minister's Climate Change Advisory Council would enable overcoming any coordination barriers.*
- (d) **Non-finalization of new reporting guidelines:** There is a potential risk that clarity and actual guidelines for the additional reporting requirements (not available at the moment) may not be agreed to in the upcoming COPs. Therefore, in the light of this development, there is a need to undertake a mid-term review for assessing the nature of the new guidelines and its incorporation thereof.*

(e) **Non-availability of finance:** *The nature and quantum of tasks is contingent upon the timely and adequate availability of finance. These attributes of financial arrangement would be a significant barrier in achieving the desired outcomes/objectives of the various elements.*

2.4 PROJECT STRATEGY

The Project Strategy given in the Pro-Doc is reproduced below:

“The enabling activity aims at assisting the Government of India to carry out all the necessary activities to prepare the Third National Communication (TNC) to comply with its commitments to the UNFCCC in agreement with the Conventions' Articles 4.1 and 12.1. The project comprises of seven components and the main components are:

- i. India's National Circumstances*
- ii. National GHG Inventory*
- iii. Impacts and vulnerability assessment and adaptation measures*
- iv. Measures to mitigate climate change*
- v. Other information relevant for the preparation of TNC*
- vi. Third National Communication report preparation*
- vii. Other new information required under the aegis of the Convention.*

The TNC project advances the findings of the First and Second National Communication project outputs and builds on the technical and institutional capacity that exists in India. The TNC will be based on the latest scientific knowledge, modelling and methods. The following strategies will be adopted for the development of TNC.

- a) Expand and strengthen the wide institutional network established during the INC and SNC from different parts of India, to enable their participation and contribution to the preparation of TNC*
- b) Conduct periodic stakeholder consultations to ensure broader participation of scientific institutions, industrial organizations, civil society, government departments and so on*
- c) Adopt the best methods and models for climate projections, impact and vulnerability assessments, GHG inventory and Biennial Update Reports (BURs)*

- d) Promote the participation of state governments in the preparation of TNC as well as in addressing climate change, since so far, the National Communication process was largely a national level exercise*
- e) Assist decision-makers at the national and state level in the development of policies and measures to address climate change."*

2.5 PROJECT IMPLEMENTATION ARRANGEMENTS

As per the Letter to Council Members, the then MoEF (now MoEFCC) is to act as the Executing Agency to coordinate and implement project activities. MoEFCC is the nodal ministry for the issue of climate change in India and holds the responsibility for preparing the National Communications to UNFCCC. It houses the designated national authority of the Clean Development Mechanism (CDM) in India. The Ministry also hosts the GEF operational focal point responsible for all the GEF supported projects in the country. On behalf of the Government of India, MoEFCC invited UNDP to act as GEF Implementing Agency for the development of the TNC project. UNDP is to assist MoEFCC in implementing the activities set forth on behalf of GEF. Accordingly, the Executing Agency as on date is MoEFCC, and the Implementing Agency is MoEFCC in collaboration with /through UNDP.

Given the size and complexity of the project, MoEFCC was to appoint a National Project Director (NPD) duly supported by a Project Management Unit (PMU). The NPD supported by PMU and UNDP is to be responsible for implementation of the work programme and coordination of the various activities. Partnerships between key partners and institutions were to be facilitated and new partnerships encouraged for TNC, especially in areas not sufficiently addressed by the SNC. Preparation of the Third National Communication and the Biennial Update Reports require a comprehensive institutional, technical and administrative arrangement, in addition to stakeholders' consultation/ participation in the various tasks and activities. To ensure adequate attention and participation, elaborate implementation arrangements have been devised. A National Steering Committee (NSC) under the chairmanship of Secretary (MoEFCC) supervises the preparation and implementation of the work programme of the National Communication and the Biennial Update Reports. The NSC members are from administrative government Departments/Ministries, which are concerned with the various elements of information in the two reports. Technical consultations are held on multi-disciplinary aspects of the information

relating to GHG inventories, impacts, vulnerability and adaptation, climate scenarios, sea level rise etc. Considering the wide range of requirements in the preparation of earlier communications, a single committee was not practical. Accordingly, several wide-ranging consultations were envisaged for TNC, NAMAs, BURs and for other elements. In order to benefit from multifaceted views on various issues, the following exclusive committees were envisaged, which has members from the government, academia and civil society:

- a) Expert Committee on Nationally Appropriate Mitigation Actions (EC – NAMAs)
- b) Expert Advisory Committee on Biennial Update Report (EAC – BUR).

2.6 SIGNIFICANT SOCIO-ECONOMIC AND ENVIRONMENTAL CHANGES

There have been some significant socio-economic and environmental changes and other major external contributing factors since the beginning of project implementation i.e. 2013. Major changes and external factors are as follows:

- a) *Climate Change has been acknowledged as a major national issue. According an adequate emphasis to the issue, MoEF has now become MoEFCC with a dedicated budget for Climate Change related activities. In addition, the Government of India has taken many initiatives to address its commitments to Climate Change concerns. Some of these include:*
 - i. *Promotion of research on adaptation and mitigation covering livestock, crops, fisheries, health and natural resource management with dedicated budgets under schemes/programmes of various other Departments/Ministries.*
 - ii. *Establishment of National Innovations on Climate Resilient Agriculture (NICRA) under the Ministry of Agriculture and Farmers' Welfare to enhance resilience of Indian agriculture to climate change and address climate vulnerability through strategic research and technology demonstration.*
 - iii. *Establishment of Centre for Climate Change Research (CCCR) at the Indian Institute of Tropical Meteorology (IITM) Pune under the Ministry of Earth Sciences to better understand the science of climate change over the tropics and enable improved assessments of the regional climate responses to global climate change.*

- iv. *Strengthening of meteorological observatory systems of India Meteorological Department (IMD), Ministry of Earth Sciences for improving climate predictions.*
 - v. *Establishment of Regional Climate Centre at IMD, Pune in conjunction with World Meteorological Organisation with a focus on generating climate products for South Asia.*
 - vi. *Improvement of oceanic observations at the Bay of Bengal and Arabian Sea by Ministry of Earth Sciences to enhance and strengthen climate predictions.*
 - vii. *Data for Impacts, Vulnerability and Adaptation studies along with GHG inventory from Agriculture and Dairy through National Innovations on Climate Resilient Agriculture (NICRA) of Ministry of Agriculture and Farmers' Welfare.*
 - viii. *GHG inventory data from Petroleum Planning and Analysis Cell, Ministry of Petroleum & Natural Gas.*
 - ix. *GHG inventory data on Land Use, Land Use Change and Forestry (LULUCF) sector from Forest Survey of India (FSI) and Indian Space Research Organisation (ISRO). The institutional mechanism for Climate Change has, therefore, been enhanced manifold.*
 - x. *Establishment of Inter-University Consortium on Cryosphere and Climate Change under the Department of Science and Technology to investigate Cryosphere-Societal interactions.*
- b) *In October 2015, India voluntarily committed its intentions to address Climate Change through her Intended Nationally Determined Contribution (INDC) submitted to the UNFCCC. These were later submitted as India's first NDC under Article 4, paragraph 2 of the Paris Agreement on Climate Change. One of the NDC goals is to reduce the emissions intensity of its Gross Domestic Product (GDP) by 33 to 35 percent by 2030, from 2005 level. Towards this NDC goal, India's proactive and sustained actions have resulted in a reduction in emission intensity of India's GDP by 21% from 2005-2014. Understandably, this result has been achieved through various schemes/programmes of the GoI.*
- c) *Further, the Paris Agreement on Climate Change was negotiated and adopted on 12 December 2015 at the Twenty-first session of the Conference of Parties to the UNFCCC. India became a signatory to the Agreement on 22 April 2016 and ratified the same on 02 October 2016. The Agreement came into force on 04 November 2016. Consequently, the reporting requirements have significantly increased.*

- d) At COP 24 held at Katowice a detailed set of modalities, procedures and guidelines (MPGs) on the enhanced transparency framework (ETF) under the Paris Agreement was adopted by all Parties. Parties under the Paris Agreement are required to submit their first biennial transparency report (BTR1) and national inventory report, if submitted as a stand-alone report, in accordance with the MPGs, at the latest by 31 December 2024. Accordingly, strengthening of institutions and building-up the capacity of academia will be essential.
- e) The Intergovernmental Panel on Climate Change (IPCC) released an update to its 2006 guideline titled "The 2019 Refinement to the 2006 IPCC Guidelines on National Greenhouse Gas Inventories (2019 Refinement)". The new guidelines have improved the methodology used by governments to estimate their greenhouse gas emissions and removals, thereby increasing transparency and better reporting based on the latest science. The 2019 Refinement provide supplementary methodologies to estimate sources that produce emissions of greenhouse gases and sinks that absorb these gases that were not included in the 2006 IPCC Guidelines. It provides significantly different and updated values from 2006 IPCC Guidelines for some emission factors used to link the emission of a greenhouse gas for a particular source to the amount of activity causing the emission (<https://unfccc.int/news/ipcc-updates-methodology-for-greenhouse-gas-inventories>). Therefore, the capacity of the academia needs to be built-up and institutions be strengthened in terms of trained human resource and the latest infrastructure, so that the 2019 Guidelines may be used for most key and new sectors.
- f) Currently, the Parties to UNFCCC report the seven direct greenhouse gases namely, carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), the two families of halogenated substances, i.e. hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs), sulphur hexafluoride (SF₆) and nitrogen trifluoride (NF₃) making up the "Kyoto basket". However, Parties are encouraged to voluntarily submit emissions reports for the four indirect greenhouse gases: SO₂, NO_x, NMVOCs and CO. The reporting of these gases will require extra financing, capacity building of experts, and identification and strengthening of institutions.
- g) Extreme weather events, land-use change and developmental projects beyond the national boundaries of India could have major impacts on the country. Therefore, it is essential to establish regional platforms comprising South Asian countries to collectively monitor and share

climate information so that the same may be reflected in national policies and reported to UNFCCC and other international fora for negotiating adaptation and mitigation strategies.

- h) United States of America, an ardent supporter of Paris Agreement to start with, later back tracked from the Agreement. Further, the President of Brazil, during his presidential campaign, stated that he planned to keep Brazil in the Paris Climate Agreement provided several conditions i.e. allowances that would likely require alterations in the international accord which probably cannot be met (<https://news.mongabay.com/2019/01/commentary-will-president-bolsonaro-withdraw-brazil-from-the-paris-agreement/>). Therefore, such unforeseen geopolitical developments may affect climate change negotiations and reporting requirements.*
- i) In 2015, more than 190 world leaders committed to 17 Sustainable Development Goals (SDGs) to help us all end extreme poverty, fight inequality & injustice, and fix climate change. SDG 13 calls upon all countries to take urgent action to combat climate change and its impacts. Towards the SDGs, the Union Cabinet chaired by the Prime Minister approved the constitution of a High-Level Steering Committee for periodically reviewing and refining the National Indicator Framework (NIF) for monitoring the progress towards achievement of SDGs and its associated targets. This would ensure that Climate Change actions, especially related to mitigation and adaptation at regional/state levels, are institutionalised.*
- j) GEF in its report to the Twenty-fourth session of CoP to the UNFCCC stated that it has set-aside resources for National Communications to the convention. GEF stated that each country can access up to US\$ 500,000 for NCs and US\$ 352,000 for BURs which is separate from the System for Transparent Allocation of Resources (STAR) allocations. For any additional resources required, the member countries need to access their respective STAR allocations under the climate change focal area. For a vast developing country like India, US\$ 500,000 for NC and US\$ 352,000 for BUR is not adequate to meet its national reporting requirements under the UNFCCC.*
- k) Under GEF-7, India's STAR allocation towards climate change focal area has reduced by almost 50%, i.e., from US\$ 87.87 million (in GEF-6 cycle) to US\$ 47.24 million (in GEF-7 cycle). As a result, a substantial portion of country's STAR allocation under climate change focal area will be needed for national reporting to meet the additional requirements*

under UNFCCC Enhanced Transparency Framework (ETF) arising from the Paris Agreement, thus, leaving meager resources for climate action.

The Expert Panel would also like to highlight some achievements of India for reducing GHG emissions at the national level and addressing climate change issues not covered directly under the MTR Report:

- a) With the joint efforts of India and France, International Solar Alliance (ISA) was launched in 2015 at Paris which became the first treaty-based inter-governmental organisation located in India. ISA has been established to bring the world together for harnessing the untapped potential of solar energy for universal energy access at affordable rates.*
- b) India's commitment to increase energy from renewable sources especially solar power has been surpassed.*
- c) Further, India is partnering with 22 countries and the European Union in the 'Mission Innovation' on clean-energy and is a co-lead in smart grid and off-grid.*
- d) India has taken quite a few noteworthy actions towards reducing the GHG emissions such as Ujjwala, promotion and adoption of energy saving lights and devices, enhancing production and use of green energy (solar, wind and biofuels), promotion of energy efficient and green energy-based automobiles and public transport.*
- e) Climate Change aspects have been brought into focus in educational curricula at all levels.*

2.7 KEY PARTNERS AND STAKEHOLDERS.

The Government of India is the direct stakeholder as it has to comply with its commitments to the UNFCCC. However, there are numerous indirect stakeholders such as citizens and policymakers at various levels, the scientific community, industry, and all those who could be affected by climate change. Various components of the project would address concerns of the key indirect stakeholders to diverse level and extents. Efforts have been made in INC, SNC and TNC to involve a large number of stakeholders, and the existing networks are a testimony of fruitful efforts. It was envisaged that there would be continuous involvement of research institutions and academia, institutions/departments of central and state governments, civil society organisations and experts/individuals.

3 FINDINGS

3.1 PROJECT STRATEGY

3.1.1 PROJECT DESIGN

The overall design of the project enabled India to undertake activities required to cater to the national reporting requirements of UNFCCC by preparing its Third National Communication and other communication namely BURs according to the guidelines provided by the Conference of Parties (COP) for non-Annex 1 countries (17/CP.8 and 2/CP.17). The project builds upon the Initial and the Second National Communication to UNFCCC by identifying the gaps encountered during the preparation and submission to UNFCCC (Page 8 of the ProDoc). The Salient features of the NATCOM project, when compared with the previous NCs, are given in the ProDoc (Page 8).

The elements of project design in terms of global context and significance, baseline analysis, identification of key stakeholders, institutional arrangements, identification of issues that the project needs to address and the barriers to the same are sound. In order to achieve its objective, the project design has been so developed that it aligns with each chapter/information required to be furnished by non-Annex-I parties to the UNFCCC. It is observed that the Outcomes and Outputs described from Page 11 to 35 of the ProDoc are not reflected in the log-frame. Further, the reporting requirements to UNFCCC has undergone considerable changes and, as a result, the burden of reporting on non-Annex-I parties has increased manifold. Consequently, the project design had to be adapted accordingly by MoEFCC. Further, the original ProDoc design states that GHG inventories would be furnished for the years 2010, 2012 and 2014 and trend analysis from 2000 to 2012. The outdated GHG inventory requirement has also been adapted and MoEFCC has provided the latest inventory and trend analysis in BUR-1 and BUR-2. Accordingly, the MTR recommends that though the project design has enabled and been adapted by MoEFCC and UNDP to achieve the objective of the project, the log-frame may need to be revised to reflect and monitor all the activities being undertaken so as to achieve the additional reporting requirements of

UNFCCC. The changes required in the Log-frame are given in the following section i.e. 'Progress-Towards-Results'.

Given the socio-economic and environmental changes (Pages 10 to 13 of this report) and based on experiences of INC and SNC, the project design provided MoEFCC and UNDP enough flexibility to adapt to the enhanced reporting requirements.

3.1.2 Results Framework/Log-frame

The Results Framework/Log-frame as per the ProDoc is given at **Annexure – IV** of this report. It is observed that the log-frame gives only objective and outcome level indicators. However, it is felt that by taking into account the Outcomes and Outputs given in the ProDoc (Page 11-35), additional value could be added to the log-frame. The log-frame usually structures the main elements in a project and highlights the logical linkages between them to achieve a larger goal/objective. Accordingly, the PMU used the original log-frame and assigned Outputs as given in the ProDoc against each Outcome. They then used the indicators of the Outcome to monitor the progress against each Output and devised activities accordingly. This adaptive management by the PMU has been found to be commendable because it ensured that the project remained on track and could achieve the envisaged outcomes and objectives. However, as stated in the earlier sub-section, the reporting requirements and socio-economic and environmental changes necessitate revision of the log-frame. The Expert Panel has suggested an updated log-frame as given in the following section on 'Progress-Towards-Results'. In case the current log-frame is continued to be used, the Expert Panel has suggested some required adjustments taking into account that MoEFCC has already furnished BUR-1 with 2010 GHG inventory, BUR-2 with 2014 GHG inventory and trend analysis from 2000-2014. The current log-frame with adjustments is given at **Annexure – IV**.

3.2 PROGRESS TOWARDS RESULTS

India has submitted two BURs to the UNFCCC under the project. BUR-1 with 2010 GHG inventory was submitted on 22 January 2016, while BUR-2 with 2014 GHG inventory was submitted on 31 December 2018. Further, the Expert Panel has recommended a new log-frame and the progress against each outcome, output, activity and their respective indicators are given in the table below. The log-frame was shared with the PMU to get inputs and progress against each outcome, output and activity. Further, the inputs provided by PMU were verified with records maintained by the project. The progress towards the original Log-frame is at **Annexure – IV**.

PROJECT STRATEGY	PERFORMANCE INDICATOR	MID-TERM TARGET (EXPECTED RESULTS)	MIDTERM LEVEL & ASSESSMENT	END of PROJECT TARGET	RISKS AND ASSUMPTIONS	ACHIEVEMENT RATING & JUSTIFICATION FOR RATING
Objective of Project: To prepare the Third National Communication and other new information required to meet obligations under the UNFCCC.	Periodic information namely BUR-1, BUR-2, BUR-3 and TNC to UNFCCC in compliance with reporting obligations thereunder are furnished.	BUR-1 and BUR-2 are submitted to UNFCCC.	First Biennial Update Report with 2010 GHG inventory was submitted to UNFCCC on 22 January 2016. Second Biennial Update Report with 2014 GHG inventory submitted to UNFCCC on 31 December 2018.	Bur-3 and TNC to be submitted by December 2020.		HS. Both the BURs have been submitted to UNFCCC.
	New information required under the aegis of the Convention is submitted.	Studies towards preparation of new information required by UNFCCC are commissioned.	India has declared NDCs. A roadmap for achieving four NDC goals is being prepared under the project for which the first national consultation workshop has already been held. India is required to submit a mid-century, long-term, low carbon development strategy to UNFCCC. Studies to prepare documents on both the sectors have already been commissioned.	The new information is submitted to UNFCCC.		S. The studies have been commissioned.
	Capacity of key stakeholders and institutions are	The capacity of key stakeholders	ICA of India's BUR-1 completed successfully in May 2017. Technical	BUR-3 successfully completes ICA		HS.

	equipped to provide information mandated under UNFCCC as per prescribed guidelines.	and institutions is built-up to meet UNFCCC reporting requirements as per prescribed guidelines.	Analysis report and FSV record are available on UNFCCC website. The BUR was internationally acclaimed. The Technical Analysis of BUR-2 is underway.	process of UNFCCC.		The information may be seen on UNFCCC website.
	Increased public awareness on Climate Change issues, mitigation and adaptation measures.	Preparation of advocacy materials and dissemination of information on CC for general public is ensured.	Eleven publications for various stakeholders on CC related topics/ issues/ sectors have been brought out under the project. The project contributed towards the scientific and technical aspects through audio-visual and interactive exhibits displayed in the train named as Science Express Climate Action Special. The train travelled across India from 2015-17 and has had a footfall of more than 18 million people, mainly students.	New advocacy materials are prepared and increased awareness on CC issues for various stakeholders is ensured.		HS. The information may be seen in BUR-1 and BUR-2. Copies of the publications are also available with PMU for verification.
Outcome 1: Updated report on India's National Circumstances prepared.	Updated Information on the prevailing conditions and situations is provided.	Successfully submit BUR-1; BUR-2.	First Biennial Update Report was submitted to UNFCCC on 22 January 2016. Second Biennial Update Report submitted to UNFCCC on 31 December 2018. The reports contain updated information on National Circumstances.	Successfully submit BUR-3 and TNC.	The BURs and TNC are approved by the GoI.	HS. The reports are available on the Ministry and UNFCCC websites.

Output 1.1: India's development priorities, policies and programmes at national and state level.	Updated Information on the prevailing conditions and situations at the national and state levels regarding development priorities and objectives that serve as the basis for addressing issues relating to climate change is provided.	Information on national and state level development policies, and programmes is provided in BUR-1 and BUR-2.	Information on national and state level development policies and programmes is provided in the chapter on other information in BUR-1 and BUR-2.	Information is provided in TNC in Chapter on National Circumstances.	Information is provided in a timely manner by national and state Departments/Ministries. Information provided by studies commissioned under the project give inputs on State development priorities.	HS. The information may be seen in BUR-1 and BUR-2.
Collect, collate and compile information on India's development priorities, policies and programmes at national level.	Information is provided in Chapter 1 of TNC	Information is updated in BUR-1 and BUR-2	Information on India's development priorities, policies and programmes at national level has been provided in India's first and second BURs in Chapters 1, 3 and 6. A comprehensive, but non-exhaustive, reporting of national level policies related to CC has been done in BUR-1 and BUR-2.	Information is provided in Chapter 1 of TNC	Information is provided in a timely manner by national and Departments/Ministries.	HS. The information may be seen in BUR-1 and BUR-2.
Collect, collate and compile information on policies and programmes at state level.	Information is provided in Chapter 1 of TNC	Information is updated in BUR-1 and BUR-2	Each State has prepared their respective State Action Plans for Climate Change adaptation and mitigation. Information on SAPCCs has been presented in Chapter 3 of BURs1 & 2. Information on policies and programmes at state level has been provided in BUR-1 and BUR-2 in Chapter 6.	Information is provided in Chapter 1 of TNC	Information is provided in a timely manner by national and state Departments/Ministries. Information provided by studies commissioned under the project gives inputs on State development priorities.	HS. The information may be seen in BUR-1 and BUR-2.
Output 1.2: Geography, climate, economy and the climate sensitive sectors and communities are duly reported in NCs.	The data regarding socio-economic, weather patterns, natural resources are reported and updated information provided in	Information is provided in BUR-1 and BUR-2	Updated data/ information on state of socio-economic, weather patterns, natural resources are collected, collated from various Departments / Ministries and is presented in Chapter	Information is provided in TNC in Chapter on National Circumstances.	Information is provided in a timely manner by concerned Departments/Ministries.	HS. The information may be seen in BUR-1 and BUR-2.

	Chapter on National Circumstances.		on National Circumstances in BUR-1 and BUR-2.			
Collect, collate and compile information on geography, climate, economy and the climate sensitive sectors and communities.	The data regarding socio-economic, weather patterns and natural resources are reported to UNFCCC periodically.	Information is provided in BUR-1 and BUR-2	A study on India's National Circumstances was completed by IRADe for BUR-1. Information was used for BUR-1 submitted to UNFCCC in January 2016. Further the information was updated with the help of several national institutions/ Departments and Ministries and presented in BUR-2.	Information is provided in TNC in Chapter on National Circumstances.	Information is provided in a timely manner by concerned Departments/Ministries.	HS. The information may be seen in BUR-1 and BUR-2.
Output 1.3: Existing institutional arrangements relevant to the periodic reporting of information are provided and updated in NCs.	Reporting of information on institutional arrangements is provided in the national communications.	Information is provided in BUR-1 and BUR-2.	Information on institutional arrangements is provided in the BUR-1 and BUR-2 as an independent head before chapter 1.	Information is provided in BUR-3 and TNC.	There are no risks and/or assumptions.	HS. The information may be seen in BUR-1 and BUR-2.
Collect, collate and compile information on institutional arrangements.	Reporting of information on institutional arrangements is provided in NCs.	Reporting of information on institutional arrangements is provided in BUR-1 and BUR-2.	Information on institutional arrangements is provided in the BUR-1 and BUR-2 as an independent head before chapter 1.	Reporting of information on institutional arrangements is provided in BUR-3 and TNC.	The information is collected, collated and made available by concerned Departments/Ministries of the Central and State Governments.	HS. The information may be seen in BUR-1 and BUR-2.
Outcome 2: Provide accurate GHG inventory with the use of higher tier methods for key sectors.	GHG inventory through use of higher tier methods for most key sectors is duly reported to UNFCCC.	BUR-1 with 2010 and BUR-2 with 2014	National GHG inventory for all five IPCC categories has been prepared and published for the year 2010 in BUR-1 and 2014 in BUR-2. Trend analysis over 2000-2014 also completed and presented in BUR-2.	BUR-3 with 2016 and TNC with 2017/18.	There are no risks and/or assumptions.	HS. The information may be seen in BUR-1 and BUR-2.

Output 2.1: Information of GHG inventory.	Information is provided and updated in NCs.	BUR-1 with 2010 and BUR-2 with 2014	National GHG inventory for all five sectors has been prepared and published for the year 2010 in BUR-1 and BUR-2014 in BUR-2. Trend analysis over 2000-2014 also completed and presented in BUR-2.	BUR-3 with 2016 and TNC with 2017/18.	There are no risks and/or assumptions.	HS. The information may be seen in BUR-1 and BUR-2.
Document inventory of GHG emissions for (a) Energy (b) Transport (c) Industry (d) Agricultural (e) Land-Use Change and Forestry, and (f) Waste sectors.	Information is provided and updated in NCs.	BUR-1 with 2010 and BUR-2 with 2014	Full GHG Inventories for the years 2010 and 2014 published in BUR-1 and BUR-2 respectively. Both documents are available on MoEFCC website. BUR-1 circulated to stakeholders including central and state governments and research institutions.	BUR-3 with 2016 and TNC with 2017/18.	The information regarding GHG inventories for 2010 to 2018 is provided by institutions in a timely manner. If information for 2018 is not received in time, then GHG inventory up to 2017 will be reported.	HS. The information may be seen in BUR-1 and BUR-2. Office copies of covering letters for distribution of BUR-1 are available on record.
National Activity Data (AD) and establishing Emission Factors (EF) database and information for key source categories.	Information on emission factor and activity data for key sectors are developed and updated.	Information on emission factor and activity data for key sectors are provided in BUR-1 and BUR-2.	Chapter on National GHG inventory presented in BUR-1 and BUR-2 gives information on EF and AD for key sources. E.g. In BUR-2 Tables 2.3, 2.4, 2.5, 2.10, 2.11 give EFs and Fig 2.10, 2.17 & Tables 2.6, 2.9, 2.10, 2.12 2.13 and 2.15 give AD.	Emission factor and activity data will be made available in the Chapter on GHG inventory in NCs.	Studies commissioned for developing emission factors for key sectors are received in a timely manner.	HS. The information may be seen in BUR-1 and BUR-2.
Output 2.2: Increased accuracy of GHG inventory with the use of tier-II and tier-III methodologies for most key sectors.	Provide accurate GHG inventory with the use of higher tier methods for most key sectors to UNFCCC.	Emission factors developed till preparation of BUR-1 and BUR-2 to be used for GHG inventory reporting.	The new and refined national emission factors are under various stages of development. Activity data are collected by expert institutions and revised from time to time based on any new disaggregated data that are made available. A few Sector Specific emission factors have been developed and used for	Emission factors developed till preparation of BUR-3 and TNC to be used for GHG inventory reporting.	The studies commissioned under the project may not be able to develop emission factors due to non-availability or non-accessibility of requisite data as given on Page 247 of SNC.	HS. The information may be seen in BUR-1 and BUR-2.

			estimations in BUR-1 and BUR-2			
Develop and implement tier II & III methodologies, emission factors and models for inventory of GHG emissions in some sectors, including the adoption of the 2006 IPCC inventory guidelines where relevant.	Emission factors for most key sectors are developed for TNC and IPCC 2006 guidelines are adopted as may be feasible.	Emission factors developed till preparation of BUR-1 and BUR-2 and IPCC 2006 guidelines are used for GHG inventory reporting as may be feasible.	GHG inventory is being prepared in line with IPCC guidelines and principles. These methodologies are well documented. In BUR – 2, two sub-sectors within energy namely Energy Industries and Manufacturing Industries and Construction, some sources have attempted Tier -3 for estimation of CO ₂ , and to some extent for fugitive CH ₄ emissions from solid fuels. Under IPPU, Tier -2 methodologies have been applied for some sources in Chemicals and Metal Production for CO ₂ and N ₂ O. Further, Country specific emission factors are being developed and refined for riding the tier ladder. Sector-specific new emission factors have been developed and used for estimations in BUR-1 and BUR-2.	Emission factors developed till preparation of BUR-3 and TNC and IPCC 2006 guidelines used for GHG inventory reporting as may be feasible.	The studies commissioned under the project may not be able to develop emission factors due to non-availability or non-accessibility of requisite data as given on Page 247 of SNC.	HS. The information may be seen in BUR-1 and BUR-2.
Adopt methodological approaches for uncertainty estimation as per the IPCC Good Practice Guidance and other appropriate methodologies.	Uncertainty assessment as per IPCC guidelines is duly carried out.	Uncertainty estimates are reported in BUR-1 and/or BUR-2.	IPCC GPG and 2006 IPCC guidelines on uncertainty analysis have been applied for quantification of uncertainty in BUR-2.	Uncertainty estimates reporting in BUR-3 and TNC.	The uncertainty estimates may not be available for some activity data.	HS. The information may be seen in BUR-2.

Establish Quality Assurance and Quality Control Procedures.	QA/QC procedures are established.	Study to prepare QA/QC procedure is commissioned.	A study on QA/QC procedures for inventory is being conducted at IIMA.	Standard Operating Procedure for QA/QC is prepared and tested.	The institution does not deliver the SOP in time.	S. The study awarded to IIMA is mentioned in the list provided by the PMU and proposal and other information would be available on record.
Outcome 3: Climate change projections, Impacts and Vulnerability Assessment and Adaptation Measures are reported.	Improved climate change projections, Impacts and Vulnerability Assessment and Adaptation Measures with the use of advanced and updated multiple Global Climate Models (GCM) / Regional Climate Models (RCMs).	Studies to assess Impact and Vulnerability and adaptation measures are duly commissioned.	Fifty-four studies have been commissioned to project future climate, assess impacts of CC on key sectors including vulnerability assessment and adaptation mapping. Further, three books of impacts of CC on sectors namely biodiversity, water resources, and coastal and marine ecosystems have already been released. Efforts are being made to prepare books on CC impacts on other sectors namely agriculture, disaster management, and coastal and marine areas.	Climate change projections, Impacts and Vulnerability Assessment and Adaptation Measures should be reported in TNC.	The study reports are not received in a timely manner. Long-term data on various natural processes, ecosystems and climatic parameters may not be available in the form required by various models. Large deviation in climate observations and model outputs may make reporting difficult and lead to confusions.	HS. The information on the two books published are reported in BUR-2, and draft manuscript of some of the publications are on record. The draft manuscripts are undergoing peer-review.

Output 3.1: Improved climate change projections with the use of advanced and updated Regional Climate Change models.	Regional Climate Model ensembles such as CORDEX and CIMIP5 are used for climate change projections.	Studies for climate change projections are commissioned.	Studies to provide inputs for TNC have been commissioned and are in advance stages of report finalisation.	Regional climate change projections are reported in TNC.	The study reports are not received in a timely manner. Long-term data on climatic parameters may not be available in the form required by various models. Large deviation in climate observations and model outputs may make reporting difficult and lead to confusion.	HS. The studies awarded are mentioned in the list provided by the PMU and proposal and other information are available on record.
Develop and apply advanced models to profile climate variability at sub-regional level (such as state and district)	Historical climate change data compiled for state level and Regional Climate Models are used for projections.	Studies are commissioned	A study on Historical Climate Trends and Climate Change Projections at District Level for States in India has been commissioned under the project and is being conducted at IISc, Bengaluru and MoES.	Climate change projections are reported in TNC using RCMs.	The study reports are not received in a timely manner. Long-term data on climatic parameters may not be available in the form required by various models. Large deviation in climate observations and model outputs may make reporting difficult and lead to confusions.	
Develop climate variability maps at district level for India.	Climate variability maps at district level for some States are prepared.					
Output 3.2: Availability and clearer understanding of climate and socio-economic scenarios for India.	RCPs for climate scenarios and SSPs for socio-economic scenarios in Indian context are adopted.	Study on climate and socio-economic scenarios is commissioned.	Studies have been commissioned to project future climate scenarios and socio-economic scenarios consistent with IPCC.	RCPs and SSPs based projections are reported in TNC.	The study report is received in a timely manner.	HS. The studies awarded are mentioned in the list provided by the PMU and proposal and other information are available on record.
Document climate scenarios (short-, medium-, and long-term) based on Multiple GCM/RCMs and climate change parameters at RCM grid level.	RCP scenarios 4.5 and 8.5 are used for projections.	Study on climate change projections using latest model ensembles is commissioned.	The commissioned study is being conducted at IITM, Pune. The projections will be available for national as well as regional level.	RCPs and SSPs based projections are reported in TNC.	The study reports are received in a timely manner.	
Document socio-economic scenarios (short, medium and long-term) based on reliable assumptions.	SSPs of IPCC will be used for projections.	Study on climate and socio-economic scenarios is commissioned.	Study on climate change projections using latest model ensembles has been commissioned and is being conducted at IEG, New Delhi.			

<p>Output 3.3: Improved understanding of projected climate change impacts for all relevant sectors and regions.</p>	<p>Quantitative impacts of climate change using latest models for different sectors such as water resource, agriculture, forest ecosystems, health and coastal zones are used for projections in NCs.</p>	<p>Studies are commissioned.</p>	<p>There are 40 studies launched to give impact projections using latest models in key sectors such as Himalayas and glaciers, water resources, agriculture, forest and biodiversity, wildlife, food and livelihood, human health, coastal areas and infrastructure. Draft reports of these studies have been received. A mid-term workshop was conducted in February 2019 to suggest mid-course corrections. The studies are in concluding phase.</p>	<p>Impacts of climate change using latest models for different sectors are reported in TNC.</p>	<p>The study reports are received in a timely manner.</p>	<p>HS. The studies awarded are mentioned in the list provided by the PMU and proposal and other information are available on record.</p>
<p>Document projections and results of impact assessments of climate change (based on multiple GCMs) for different sectors in India.</p>	<p>Quantitative impacts of climate change using latest models for different sectors such as water resource, agriculture, forest ecosystems, health and coastal zones are used for projections in NCs.</p>	<p>Studies are commissioned.</p>	<p>Studies on impact assessment also improve the models for better projections in different sectors. Three books have been published.</p>	<p>Impacts of climate change using latest models for different sectors are reported in TNC.</p>	<p>The study reports are received in a timely manner</p>	<p>HS. The studies awarded are mentioned in the list provided by the PMU and proposal and other information would be available on record. The books are reported on Page 228 of BUR-2.</p>

Output 3.4: Improved understanding of, and appropriate actions planned for addressing, vulnerability to climate change at different sectors and regions.	Vulnerability assessments for different sectors such as water resource, agriculture, forest ecosystems, health and coastal zones.	Studies are commissioned.	Studies to assess vulnerability for different sectors including water resources, agriculture, forests, health and coastal zones have been commissioned and are in advance stages of finalisation.	Vulnerability for different sectors be reported in TNC.	The study reports are received in a timely manner.	S. The studies awarded are mentioned in the list provided by the PMU and proposal and other information would be available on record.
Develop multiple impact assessment models for adoption, including integrated assessment models.	Strengthen Indian models, adopt new models and improvise existing assessment models.	Studies are commissioned.	Vulnerability assessment models are being developed as a part of studies commissioned to IIT Bombay and IRADe, New Delhi.	Models be strengthened, adopted and improvised.	The study reports are received in a timely manner.	
Develop vulnerability assessment reports for various sectors.	Vulnerability Assessment reports for key sectors are provided in NC.	Studies are commissioned.	Studies on assessment of vulnerability of key sectors have been commissioned and are under advance stages of finalization. Sectoral vulnerability profiles are being developed for all the sectors of study.	Vulnerability for different sectors be reported in TNC.	The study reports are received in a timely manner.	
Output 3.5: Increased understanding of Adaptation framework, measures and possible projects	Adaptation matrix for coping with climate impacts for different sectors and different regions are reported in TNC.	Studies are commissioned.	Adaptation Matrix will be prepared as a part of studies commissioned. These studies are in different thematic areas. Studies are being conducted in 13 key areas.	Adaptation framework, measures and possible projects be reported in TNC	The study reports are received in a timely manner.	S. The studies awarded are mentioned in the list provided by the PMU and proposal and other information would be available on record.
Develop vulnerability profiles based on vulnerability indices for different sectors covering parameters such as natural ecosystem, biodiversity, cropping systems and watershed level.	Climate change vulnerability profiles developed at national & state level for different sectors.	Studies are commissioned.	Vulnerability profiles are being developed as a part of studies launched for different sectors. Majority of these studies are for national level while some are for state level assessments and a few are case studies.	Vulnerability profiles, adaptation framework and adaptation matrix for different sectors	The study reports are received in a timely manner.	

Adaptation framework describing measures being implemented and proposed.	Adaptation framework and policies developed.		The adaptation framework is being developed as a part of sectoral studies commissioned for national, state and local levels.	be reported in TNC.		
Prepare adaptation action plans, including strategies for implementation and project profiles for key adaptation options.	Adaptation matrix for coping with climate impacts for different sectors and different regions is reported in TNC.		Adaptation matrix will be based on the studies commissioned to assess economic cost of impacts and adaptation options. The studies have been entrusted to IRADe, IIM Ahmedabad, TERI, IIT Delhi, IIT Bombay, CEEW and Jadavpur University which are in advance stages.			
Outcome 4: Measures to mitigate climate change.	Increased understanding of GHG mitigation policies and measures at national and state levels.	GHG mitigation policies and measures at national and state levels reported in BUR-1 and BUR-2.	Four studies have been commissioned to assess mitigation potential and progress of existing policies and measures. Status of NAPCC mission have been reported in detail in BUR-1 and BUR-2 Further, SAPCC for each state has been prepared.	GHG mitigation policies and measures at national and state levels including understanding of gaps and constraints pertaining to financial, technical and capacity needs to address climate change be reported in BUR-3 and TNC.	The study reports are received in a timely manner.	HS. The studies awarded are mentioned in the list provided by the PMU and proposal and other information would be available on record. The information regarding NAPCC missions may be seen in BUR-1 and BUR-2.

	Understanding of gaps and constraints pertaining to financial, technical and capacity needs to address climate change.	Understanding of gaps and constraints pertaining to financial, technical and capacity needs to address climate change are reported in BUR-1 and BUR-2.		Understanding of gaps and constraints pertaining to financial, technical and capacity needs to address climate change be reported in BUR-3 and TNC.	The study reports are received in a timely manner.	
Output 4.1: Increased understanding of GHG mitigation policies and measures at national and state levels.	Increased understanding of GHG mitigation policies and measures at national and state levels.	GHG mitigation policies and measures at national and state levels are reported in BUR-1 and BUR-2.	National Climate Change Mitigation policies have been documented as a part of BUR-1 and BUR-2.	GHG mitigation policies and measures at national and state levels be reported in BUR-3 and TNC.	The study reports are received in a timely manner.	HS. The information may be seen in BUR-1 and BUR-2.
Document national climate change mitigation policies	Inventory of national climate change policies to be updated and reported.	GHG mitigation policies and measures at national and state levels are reported in BUR-1 and BUR-2.	Mitigation Actions including their effects, both in qualitative and quantitative terms, were reported in BUR-1 and BUR-2. In the latter, mitigation benefits were quantified in terms of emissions reduced/expected to be reduced. Underlying data / assumption/ methodology were also recorded and reported in BUR-1 and BUR-2. All major sectors of economy were covered in mitigation assessment. While BUR-1 revealed that India had reduced its emission intensity of GDP by 12% between 2005 and 2010, and	GHG mitigation policies and measures at national and state levels be reported in BUR-3 and TNC.	The study reports are received in a timely manner.	

			as per BUR-2 it stands at 21% between 2005 and 2014.			
Mitigation potential for sectors such as energy and forestry.	Mitigation potential quantified for sectors such as Energy and forestry.	Studies are commissioned.	Studies have been commissioned to quantify mitigation potential in key sectors including energy and forestry.	Mitigation potential for different sectors be reported in BUR-3 and TNC.	The study reports are received in a timely manner.	S. The studies awarded are mentioned in the list provided by the PMU. The proposal and other information are available on record.
National climate change action plan and state level action plans	Updated information on NAPCC and SAPCC to be reported to UNFCCC.	NAPCC and SAPCC are reported in BUR-1 and BUR-2.	In 2008, GoI constituted Prime Minister's Council on Climate Change which notified the National Action Plan on Climate Change covering eight sectors. Further, GoI is contemplating on increasing the number of sectors under NAPCC. The Council monitors the status of the environment, natural resources and energy use. Various ministries, departments and institutions are constantly generating such data as per their respective mandates. This information has been collated and compiled in the chapter on national circumstances in BUR-1 and BUR-2.	NAPCC and SAPCC be reported in BUR-3 and TNC.	Updated information is not available.	HS. The information may be seen in BUR-1 and BUR-2.
Output 4.2: Increased understanding of gaps and constraints pertaining to financial, technical and capacity	Gaps and constraints pertaining to financial, technical and capacity needs to address climate change reported in NCs.	Gaps and constraints pertaining to financial, technical and capacity needs	Constraints, gaps and related technical, financial and capacity needs have been reported in BUR-1 and BUR-2.	Gaps and constraints pertaining to financial, technical and capacity needs	The study reports are received in a timely manner.	HS. The information may be seen in BUR-1 and BUR-2.

needs to address climate change		to address climate change are reported in BUR-1 and BUR-2.		to address climate change be reported in BUR-3 and TNC.		
Report on the gap analysis and constraints pertaining to (a) access to technologies and technology transfer arrangements, (b) financial assistance needed for technology transfer and capacity development, and (c) investment requirements for mitigation measures based on the national and state climate change action plans	Constraints, gaps and related technical, financial and capacity needs are reported in NCs.	Gaps and constraints pertaining to financial, technical and capacity needs to address climate change and technology need assessments are reported in BUR-1 and BUR-2.	Gaps and constraints pertaining to financial, technical and capacity needs to address climate change and technology need assessments have been reported in BUR-1 and BUR-2.	Gaps and constraints pertaining to financial, technical and capacity needs to address climate change and technology need assessments be reported in BUR-3 and TNC.	The study reports are received in a timely manner.	
Document and update of the financial resources and technical support received from national and international resources for activities related to climate change.	Updated information on the financial resources and technical support received from national and international resources for activities related to climate change are reported in NCs.	Information on the financial resources and technical support received from national and international resources for activities related to climate change is reported in BUR-1 and BUR-2.	Two studies have been launched to study Finance, Technology & Capacity needs under the purview of NDC goals 7 and 8.	Information on the financial resources and technical support received from national and international resources for activities related to climate change be reported in BUR-3 and TNC.		HS. The information may be seen in BUR-1 and BUR-2. The studies awarded are mentioned in the list provided by the PMU and proposal and other information would be available on record.

Undertake technology needs assessment (TNA) for different sectors.	Detailed information of key mitigation-adaptation technology needs; availability of these technologies in the country; national R&D programmes; implementation and monitoring of activities; technology transfer needs; and financial support needed along with limitations are reported in NCs.	The information is reported in BUR-1 and BUR-2.	A study has been launched to carry out TNA at the national level. Ten Sectors are being covered in the study. Preliminary outcomes of the study have already been reported in BUR-2.	The information be reported in in BUR-3 and TNC.		HS. The information may be seen in BUR-1 and BUR-2. The study awarded is mentioned in the list provided by the PMU. The proposal and other information would be available on record.
Outcome 5: Other information relevant for the preparation of the TNC.	Comprehensive description of climate change research, strategies for sustainable National Communication process and communicating climate change are reported in the NCs.	Studies are commissioned.	While systematic or long-term observation are available along with technical capabilities on climate monitoring, systematic studies are inadequate.	Other information relevant for achieving the objective of the Convention in the NCs.	The study reports are received in a timely manner.	MS. Systematic long-term observations are available along with technical capabilities on climate monitoring. A study to strengthen the same using modern technological tools like dedicated satellites needs to be commissioned on priority.
Output 5.1: Comprehensive description of systematic observations and research on climate change	The status of and need for research on systematic observations (RSO), and technical and financial limitations are reported in the TNC.	Studies are commissioned.		Status of and need for research on systematic observations, and technical and financial limitations be reported in the TNC.		
Document the status of and need for research on systematic observations, and technical and financial limitations.	The status of and need for research on systematic observations, and technical and	Studies are commissioned		The status of and need for research on systematic observations,		

	financial limitations are reported in the TNC.			and technical and financial limitations be reported in the TNC.		
Output 5.2: Long-term Ecological Studies to understand climate change impacts on biodiversity and other sectors.	Commission and support long-term ecological studies to document climate change impacts on various biomes and ecosystems.	Shortlisting studies to document CC impacts on ecological processes within eight biomes.	In 2015, India has launched a Long-Term Ecological Observatory Programme. A science plan for the programme was released at CoP-21 to the UNFCCC. Four components are envisaged under the programme which are commissioning of studies, establishment of field stations in eight biomes of the country, installation of Automated Weather Stations at each location within each biome and setting up a Coordination Unit for the Programme. The Ministry has already received proposals under the four components.	The LTEO programme studies begin.	MoEFCC receives suitable projects and approvals to commission the studies in a timely manner.	S. MoEFCC has already launched the LTEO programmes and received first set of proposals under each component.
Commission and support long-term ecological studies to document climate change impacts on various biomes and ecosystems to provide inputs on mitigation and adaptation policies for biodiversity and related sectors.	The studies for long-term ecological observations are commissioned and institutions strengthened.					
Outcome 6: National Institution for Climate Change.	National Institution for meeting reporting requirements and monitoring progress towards commitments made to UNFCCC and providing inputs to national priorities related to Climate Change is established.	Process of establishment of the institution has begun.	NICCSA is envisaged to be the nodal agency for CC in India. The establishment of the institution under Climate Change Action Programme (CCAP) of MoEFCC with an outlay of ₹250 million is already approved. The objective of NICCSA is to support all scientific, technical and analytical studies relating to climate	The establishment plan of the National Institution along with financial and human resource sustainability is to be put-up for consideration of GoI.	Consensus building between various departments/ministries of GoI for establishment of the institutional structure may delay the process.	S. The information on various institutions working on various facets of CC has been reported and may be seen in BUR-1 and BUR-2. However, the envisaged national nodal institution for

			change policy and implementing strategies. GoI has also established several institutions which provide data and inputs for various facets of CC such as GHG inventory preparation, mitigation and adaptation actions, and CC projections at different levels. Some of these include: 1) NICRA under MoAFW 2) CCCR at the IITM, Pune under MoES 3) RCC at IMD, Pune in conjunction with WMO 5) NIOT, MoES. 6) PPAC, MoPNG. 7) FSI and ISRO. 8) Inter-University Consortium on Cryosphere and CC under the DST.			ensuring continued reporting to UNFCCC and providing inputs on CC in GoI policies be established.
Output 6.1: Strategy for a sustainable national communication process	Institutional arrangements for sustained National Communication process is established.	Process of developing a strategy for sustainable institutional arrangements for National Communication has begun.		Strategy for sustainable institutional arrangements for National Communication be submitted to GoI for consideration.	The strategy is ready in time and there is consensus among various related departments/ministries on the strategy.	S. The information regarding NICCSA is available on the internet and MoEFCC records. Information regarding strengthening of existing institutional arrangements may be seen in BUR-1 and BUR-2.
Report on the planned activities to establish a long-term strategy for National Communication preparation along with financial, institutional limitations, adaptation and mitigation measures to overcome the limitations.	Establish institutional arrangements for sustained National Communication process	Process of developing a strategy for sustainable institutional arrangements for National Communication has begun.	Institutional Arrangement for NCs was also strengthened by inducting new institutions in the process of preparing NATCOM and BURs. Examples of new institutions introduced include EESL, IORA, CEEW, BOBP IGO, BNHS, SDMRI, FRLHT-TDU and INTACH. The institutional arrangements have been appropriately covered under the BUR-1 and BUR-2 as independent section.	Strategy for sustainable institutional arrangements for National Communication be submitted to GoI for consideration.	The strategy is ready in time and there is consensus of various related departments/ministries on the strategy.	

<p>Output 6.2: Strengthened and streamlined national institutional structure for long-term national GHG inventory and the estimation of GHG emissions.</p>	<p>GHG inventory estimation is institutionalised in a permanent institutional set-up.</p>	<p>The process of strengthening national institutional structure for GHG inventory has begun.</p>	<p>One new institution has been added in the GHG inventory network for TNC. The institutional arrangements given in SNC have been built upon and strengthened by exposing the PIs to IPCC processes and help India to climb the tier ladders. Further, the GHG inventory has been evaluated using new and emerging technologies such as remote sensing and aerial observations. Also, data collected, collated and compiled by civil society confirming the GHG inventory prepared under the project have been reported in BUR-2.</p>	<p>National institutional structure for GHG inventory be established.</p>	<p>Consensus building among concerned departments/ministries of GoI for establishment of the institutional structure may delay the process.</p>
<p>Establish National Inventory Management System (NIMS) through sectoral institutions and network of supporting research institutions.</p>	<p>GHG inventory estimation is institutionalised in concerned Government departments / ministries or as a permanent institutional set-up.</p>	<p>Establishment of national inventory management system begins.</p>	<p>NICCSA is envisaged to be the nodal agency for CC in India. The Cabinet has already approved the establishment of the institution. NIMS is one of the components under NICCSA. A platform to collect data from industries especially Medium Small and Micro Enterprises is being developed by CII for IPPU sector. A pilot platform has already been launched and is active.</p>	<p>Components of National Inventory Management System be identified and established.</p>	<p>Consensus building among concerned departments/ministries of GoI for establishment of the NIMS may delay the process.</p>

Output 6.3: Designed activities for enhancing participation of the relevant stakeholders in the preparation of the National Communication.	Stakeholder consultation and communicating Climate Change to different stakeholders.	Process of developing a strategy for sustainable institutional arrangements for National Communication has begun.	Various inter-ministerial consultations were conducted to collect and compile the national actions relevant to reducing CC impacts. The same was reported in BUR-1 and further strengthened and revised for BUR-2 with the quantification, wherever possible.	Strategy for sustainable institutional arrangements for National Communication be submitted to GoI for consideration.	The strategy is ready in time and with consensus of various related departments/ministries.	HS. The information may be seen in BUR-1 and BUR-2.
Organise consultations for enhancing participation of the relevant stakeholders in the preparation of the National Communication.	Consultations for enhancing participation of the relevant stakeholders in the preparation of the National Communication are held.	Consultations for enhancing participation of the relevant stakeholders in the preparation of BUR-1 and BUR-2 are reported in the same.	About 26 review meetings, workshops and training programmes were organised to ensure participation of various stakeholders.	Consultations for enhancing participation of the relevant stakeholders in the preparation of BUR-3 and TNC be reported in the same.	There are no risks and/or assumptions.	
Outcome 7: Other new information required under the aegis of the Convention	Enhanced understanding of domestic mitigation actions, its need and the level/nature of support required, greenhouse gas emissions inventory and other related information.	Studies are commissioned.	India has declared NDCs. A roadmap for achieving four NDC goals is being prepared under the project for which the first national consultation workshop has already been held.	Reports on other new information under the aegis of the Convention be submitted to the GoI.	The study reports are received in a timely manner.	S. The studies awarded are mentioned in the list provided by the PMU. The proposal and other information are available on record.
Output 7.1: New and other information not related to NCs under the aegis of the convention UNFCCC.	Reports on other new information under the aegis of the Convention are prepared.	Studies are commissioned.	India is required to submit a mid-century, long-term, low carbon development strategy to UNFCCC.	Reports on other new information under the aegis of the Convention be submitted to the GoI.	The study reports are received in a timely manner.	

Development of mid-century long-term low GHG development strategy.	Mid-century long-term low GHG development strategy is prepared.	Studies are commissioned.	Two studies have been launched to study GHG Emission scenarios under India's mid-century long-term low carbon strategy on CC. These will help in mitigation and adaptation planning at national and state levels.	Mid-century long-term low GHG development strategy be submitted to UNFCCC.	The study reports are received in a timely manner.	
Road map towards achieving select NDC goals of India communicated to UNFCCC.	Reports on road map towards achieving select NDC goals of India is prepared.		Two studies launched on preparing the NDC implementation roadmap on goals 3 and 5. These studies will feed into national and state level mitigation planning.	Reports on road map towards achieving select NDC goals of India be submitted to the GoI.		S. The studies awarded are mentioned in the list provided by the PMU. The proposal and other information are available on record.
Output 7.2: Information on domestic MRV arrangements.	Information on domestic MRV arrangements is compiled and reported to UNFCCC.	Information on domestic MRV arrangements is compiled and reported in BUR-1 and BUR-2.	Domestic MRV arrangements have been reported in BUR-1 and BUR-2.	Information on domestic MRV arrangements be compiled and reported in BUR-3.	The data are compiled in a timely manner.	HS. The information may be seen in BUR-1 and BUR-2.
Reports on existing domestic MRV arrangements and future plan.	Information on domestic MRV arrangements is compiled and reported to UNFCCC.	Information on domestic MRV arrangements is compiled and reported in BUR-1 and BUR-2.	Four institutions (EESL, TERI, IISc and IIMA) were engaged to provide information on MRV during preparation of BUR-1. A chapter on domestic MRV arrangements was given in BUR-1 based on the output of these studies. A new study has been commissioned with CEEW to assess the status of domestic	Information on domestic MRV arrangements be compiled and reported in BUR-3.	The data are compiled in a timely manner.	

			MRV arrangement and suggest a structure for future. Based on output of this study and information received from key stakeholders, status of domestic MRV arrangements were reported in BUR-2.			
Outcome 8: Capacity building of stakeholders on climate change issues, mitigation and adaptation measures.	Increased public awareness on Climate Change issues, mitigation and adaptation measures.	Preparation of advocacy materials and dissemination of information on CC for general public.	<p>Eleven publications for various stakeholders on CC related topics/ issues/ sectors have been brought out under the project.</p> <p>The project contributed towards the scientific and technical aspects through audio-visual and interactive exhibits displayed in the train named as Science Express Climate Action Special. The train travelled across India from 2015-17 and has had a footfall of more than 18 million people, mainly students.</p>	Publication and dissemination of information on CC for general public is enhanced and ensured.	There are no risks and/or assumptions.	HS. The information may be seen in BUR-1 and BUR-2. Copies of the publications are also available with PMU for verification.
	Capacity of experts built up and institutions established/strengthened to prepare Climate Change related reports as per the guidelines of UNFCCC and IPCC.	Successfully completed ICA process of BUR-1 and BUR-2	<p>ICA of India's BUR-1 completed successfully in May 2017. Technical Analysis report and FSV record are available on UNFCCC website. The BUR was internationally acclaimed.</p> <p>Technical Analysis of BUR-2 is underway.</p>	Successfully complete ICA process of BUR-3.	The ICA process by UNFCCC for BUR-3 may not be completed during project period.	HS. The information may be seen on UNFCCC website.

Output 8.1: Dissemination of information on climate change issues, mitigation and adaptation for public awareness.	Disseminate information on climate change issues, mitigation and adaptation for public awareness through social media, internet, training/meetings/workshops/publications.	Publication and dissemination of information on CC for various stakeholders.	<p>Eleven publications for various stakeholders on CC related topics/ issues/ sectors have been brought out under the project.</p> <p>The project contributed towards the scientific and technical aspects through audio-visual and interactive exhibits displayed in the train named as Science Express Climate Action Special. The train travelled across India from 2015-17 and has had a footfall of more than 18 million people, mainly students.</p>	Publication and dissemination of information on CC for stakeholders.	There are no risks and/or assumptions.	<p>HS. The information may be seen in BUR-1 and BUR-2 and are given in Annexure - VI. Copies of the publications are available on the Ministry's website and hard copies available with PMU.</p>
Develop awareness material on issues related to CC.	Public awareness materials such as books, research papers/articles, manuals, brochures, exhibits, audio-video media and websites are prepared.	On an average about two awareness materials are developed every year.				
Publish and disseminate books, reports, scientific peer-reviewed papers, brochures, manuals etc.	Disseminate information related to climate change issues on various sectors/topics to public using tools and materials developed under the project.	Over 18 million stakeholders were made aware of CC issues-reasons, impacts, possible mitigation and adaptation measures through various initiatives and means.				
Output 8.2: Capacity of key stakeholders is built up and institutions strengthened.	Key stakeholders and institutions are equipped to provide information mandated under UNFCCC.	Successfully completed ICA process of BUR-1 and BUR-2	<p>ICA of India's BUR-1 completed successfully in May 2017. Technical Analysis report and FSV record are available on UNFCCC website. The BUR was internationally acclaimed.</p> <p>The Technical Analysis of BUR-2 is underway.</p>	Successful completion of ICA process of BUR-3.	The ICA process by UNFCCC for BUR-3 may not be completed during project period.	<p>HS. The information may be seen on UNFCCC website.</p>

Providing inputs on negotiation briefs to GoI officials for multilateral and bilateral cooperation agreements, protocols, meetings and conventions.	Inputs provided by PMU staff and experts associated with NATCOM are made available to negotiation team of GoI.	Inputs provided by PMU staff and experts associated with NATCOM have been provided to negotiation teams of GoI as and when required.	PMU Staff and NATCOM experts from institutions engaged provide regular inputs on agenda items of UNFCCC COP, its subsidiary bodies, CMP and CMA. Inputs are also given on IPCC agenda and draft reports for government review. Inputs are also provided to negotiation teams on CC issues highlighted under other conventions, as and when required.	PMU staff and experts associated with NATCOM provide inputs to negotiation team of GoI.	There are no risks and/or assumptions.	HS. The information is available on records of MoEFCC.
Capacity of PMU staff built up through methods such as training programmes, short courses and publications.	The PMU staff is equipped to collect, compile and collate information made available through studies, departments and ministries, and draft the NCs mandated under UNFCCC.	BUR-1 and BUR-2 are as per the guidelines and requirements of UNFCCC. These have successfully completed ICA process of UNFCCC.	ICA of India's BUR-1 completed successfully in May 2017. Technical Analysis report and FSV record are available on UNFCCC website. The BUR was internationally acclaimed. The Technical Analysis of BUR-2 is underway.	BUR-3 should successfully complete ICA process.	The ICA process for BUR-3 by UNFCCC may not be completed during project period.	HS. ICA of India's BUR-1 completed successfully in May 2017. Technical Analysis report and FSV record are available on UNFCCC website.
Conduct and participate in workshops, meetings, training programmes for various stakeholders on issues related to Climate Change.	Participation of relevant stakeholders in workshops, meetings, training programmes is enhanced and ensured.	Participation of concerned Departments and Ministries is ensured and enhanced.	About Twenty-six workshops, meetings and training programmes have been organised to review, cross-learn, refine and finalise BUR-1 and BUR-2 and other new Information to UNFCCC.	Participation of concerned Departments and Ministries is ensured and enhanced.	There are no risks and/or assumptions.	HS. The information may be seen in BUR-1 and BUR-2.

Capacity building of selective stakeholders and PMU staff through participation in national and International meetings/workshops/ negotiations.	Principal Investigators of studies and PMU staff participate in meetings/workshops/ negotiations.	National and international level workshops, meetings and training programmes are organised, and participation of experts/staff is ensured.	<p>PMU staff has been provided opportunities of international training and exposure. Overseas training on GHG Inventory course was attended by PMU staff in countries such as South Korea, Armenia and Thailand.</p> <p>Meetings and workshops organised within India are also attended by PMU staff.</p> <p>In addition, experts from network institutions are given an opportunity to participate in UNFCCC, IPCC, APN, WGIA and bilateral events related to national reporting.</p>	National and international level workshops, meetings and training programmes are organised, and participation of experts/staff be ensured.		HS. The information is available on records of MoEFCC.
Capacity building of human resource and strengthening of institutions.	Institutional capacity building is done through engaging new staff and/or training of existing staff and strengthening of infrastructure.	Number of new staff engaged and/or capacity of existing staff is enhanced and infrastructure created in institutions.	<p>Staff strength of PMU is 8 which has been built over last 5 years. Also, the Project Management Unit is housed in MoEFCC and capacity building of Programme Officers is ensured by performance linked incentives.</p> <p>Capacity of network institutions is strengthened by providing opportunities of national and international exposure to their NATCOM project staff.</p>	Number of new staff engaged and/or capacity of existing staff is enhanced and infrastructure created in institutions.		S. Quantitative information needs to be provided.

Notes: **Indicator Assessment Key**

Green= Achieved	Yellow= On target to be achieved	Red= Not on target to be achieved
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Progress Towards Results Rating Scale

Highly Satisfactory (HS)	The objective/outcome is expected to achieve or exceed all its end-of-project targets, without major shortcomings. The progress towards the objective/outcome can be presented as “good practice”.
Satisfactory (S)	The objective/outcome is expected to achieve most of its end-of-project targets, with only minor shortcomings.
Moderately Satisfactory (MS)	The objective/outcome is expected to achieve most of its end-of-project targets but with significant shortcomings.
Moderately Unsatisfactory (MU)	The objective/outcome is expected to achieve its end-of-project targets with major shortcomings.
Unsatisfactory (U)	The objective/outcome is expected not to achieve most of its end-of-project targets.
Highly Unsatisfactory (HU)	The objective/outcome has failed to achieve its midterm targets and is not expected to achieve any of its end-of-project targets.

3.3 PROJECT IMPLEMENTATION AND ADAPTIVE MANAGEMENT

3.3.1 Management Arrangements

As stated in the earlier Chapter (Page Nos -16-17), some of the implementation arrangements have been kept unchanged. For example, MoEFCC being the nodal ministry for the issue of CC in India, continues to hold the responsibility for preparing the National Communications to UNFCCC. UNDP is the GEF implementing agency and is assisting in project implementation activities. Accordingly, the executing and the implementing agency is MoEFCC in collaboration with/through UNDP. The project is implemented and constantly supervised by a National Project Director (NPD), who is a Joint Secretary level officer. The NPD reports and seeks approvals of the Additional Secretary, Secretary and Minister-in-charge of MoEFCC, as and when required. Accordingly, the whole hierarchy within the MoEFCC is aware of every project activity undertaken by the NPD, Project Management Unit (PMU) and UNDP. The NPD is assisted by PMU and UNDP in the implementation of the work programme and coordination of the various activities. The PMU currently comprises six Programme Officers and two support staff. Preparation of the Third National Communication and the Biennial Update Reports require a comprehensive institutional, technical and administrative arrangement. Accordingly, the National Steering Committee (NSC) constituted under the chairmanship of Secretary, MoEFCC continues to supervise the preparation and implementation of the work programme of the National Communication and the Biennial Update Reports. MoEFCC also ensures that the administrative government Departments/Ministries, which are concerned with the various elements of information in the two reports are represented at the NSC meetings. The MTR Panel of Experts opine that though the concerned GoI Departments/Ministries are participating in the project, it may be a good idea to make relevant Departments/Ministries such as Ministry of Earth Sciences or its India Meteorological Department, Ministry of Statistics and Plan Implementation, Ministry of Power, Ministry of Renewable Energy, and the NITI Aayog (formerly Planning Commission) as responsible parties in future GEF funded NATCOM projects. Doing so will ensure easier access to

data, institutionalizing of GHG inventorisation and other reporting requirements, and most importantly immediate policy actions.

3.3.2 Adaptive Management

Depending upon the emerging necessities of project management while its implementation, several adaptive management practices were used for increased efficiency by the PMU. Some cases are illustrated below:

1. *As observed earlier, the log-frame gives only objective and outcome level indicators and does not conform to the Outcomes and Outputs given in the ProDoc. The PMU used the original log-frame and assigned Outputs as given in the ProDoc against each Outcome. They then used the indicators of the Outcome to monitor the progress against each Output and devised activities accordingly. This adaptive management by the PMU is commendable because it ensured the project is on track and will achieve the envisaged outcomes and objectives.*
2. *Although, the GoI was to provide GHG inventory for 2010, 2012 and 2014, GHG inventory for 2010 was furnished in BUR-1, GHG inventory for 2014 in BUR-2 and GoI is working towards providing GHG inventory for 2017/2018 in BUR-3 and TNC.*
3. *Considering the wide range of requirements in the preparation of earlier national communications (INC and SNC), frequent stakeholders' consultations on multi-disciplinary aspects of the information relating to GHG inventories, impacts, vulnerability and adaptation, climate scenarios, sea level rise etc. are required to ensure Quality Assurance and Quality Control. Accordingly, several wide-ranging consultations were envisaged for TNC, NAMAs, BURs and for other elements and constitution of a single committee was considered impractical. In order to benefit from multifaceted views on various issues, the following committees having members from the government, academia and civil society were envisaged:*
 - a) *Expert Committee on Nationally Appropriate Mitigation Actions (EC – NAMAs)*
 - b) *Expert Advisory Committee on Biennial Update Report (EAC – BUR).*

BUR-1 mentions that there were three Committees constituted by MoEFCC to help ensure technical and scientific accuracy of information presented in the report. These were:

- a) *Expert Advisory Committee on Biennial Update Report (EAC-BUR)*
- b) *Expert Committee on Nationally Appropriate Mitigation Actions (EC-NAMAs)*
- c) *Advisory Committee on International Consultant and Analysis (AC-ICA).*

However, an assessment of Institutional Arrangements in BUR-2 reveals that the three committees constituted for BUR-1 have been merged, understandably, due to the overlapping issues, experts and constraints of time. The task of the three committees was performed by one committee namely 'Technical Advisory Committee for India's Third National Communication and Biennial Update Reports to the United Nations Framework Convention on Climate Change'. The merging of the committees may be a good decision by MoEFCC as it addresses the issues and is cost-effective for the project and stakeholders.

4. *Further, MoEFCC assigned various activities and studies for the preparation of BUR-1 to 17 expert institutions through a facilitating agency which also housed the Project Management Unit. However, only sixteen expert institutions were involved in the preparation of BUR – 2. The Ministry drafted the Chapter on National Circumstances on its own with inputs received from various GoI Departments/Ministries without any dedicated study launched on the same.*
5. *During discussions with PIs of studies, it was learnt that there was some delay in release of funds in 2017-18. A Facilitating Agency (InsPIRE Network for Environment) performed the role of Project Management Unit and was engaged by MoEFCC to help implement INC, SNC and the extant NATCOM (TNC) projects. In order to attain higher efficiency in terms of cost and time saving and speedier fund release, MoEFCC in consultation with UNDP institutionalised the Project Management Unit (PMU) in MoEFCC and UNDP.*
6. *It is observed that MoEFCC has shown commendable gender focus by commissioning a specific study to University of Delhi entitled "Mapping the vulnerability of women in India to climate change at the sub-national scale".*

*It is the considered opinion of the Expert Panel that the **Management Arrangements and Adaptive Management by MoEFCC supported by UNDP is 'highly satisfactory'.***

3.3.3 Work Planning

The Project Document was duly signed by the Government on 27 June 2013, Executing Entity/Implementing Partner on 21 June 2013 and UNDP on 03 July 2013. It is mentioned on Page 102 of BUR-1 that as per UNFCCC decision 2/CP.17, financial support from the Global Environment Facility towards preparation of BUR were received by India only in December 2013 and therefore, the first BUR with 2010 inventory was to be submitted by December 2015. So, the project practically started from December 2013.

As per UNFCCC guidelines, India was then required to submit BUR-2 within two years of submission of BUR-1 i.e. January 2016. As per the ProDoc, the former was to contain GHG inventory for the year 2012. BUR-2 was submitted on 31 December 2018 with 2014 GHG inventory.

Further, BUR-3 and TNC are to be submitted by India by December 2020. It is worth noting that GoI is making efforts on furnishing 2017/18 GHG inventory in the BUR-3 and TNC. Accordingly, about seventy-five studies have already been commissioned for preparation of the BUR and TNC. The report of the studies is due by 31 December 2019. If, for some unforeseen reasons, the studies seek extension, India may have to provide inventory for 2016/17 in BUR-3 and TNC but should be able to submit its BUR-3 and TNC in a timely manner.

It is worth mentioning that the project period was envisaged to be five years i.e. from 2013 to 2018. However, as per UNFCCC decisions and resolutions, non-Annex-I Parties are to provide their NCs every two years. The project design envisaged submission of three BURs and TNC. Accordingly, the project period should have been minimum six years if India decides to submit TNC and BUR-3 together and eight years if the two are submitted separately. As mentioned earlier, the project funds were received late and the project has had to seek extension up to December 2020.

It is the considered conclusion of the Expert Panel that the **work planning of the project is on track and 'highly satisfactory'**.

3.3.4 Finance and co-finance

As per the ProDoc, the total GEF grant stands at US\$ 9,010,604/- and the Government of India (in-kind and grant) co-finance should be approximately US\$ 26,090,000/- and UNDP contribution would be US\$ 150,000/-. The total cost of the project, therefore, has been estimated at US\$ 35,250,604/-. It is essential to note that the project was probably designed in 2012-13 (Page 72-76 of the ProDoc), when the average currency exchange rate was ₹53/- for a US\$. Over the period 2013 to 2019 the average currency exchange rate has increased from ₹53/- for a US\$ to ₹70/- for a US dollar. Accordingly, the increase in the total budget of the project has been significant i.e. by almost 32%. It is observed that during the period 2013-2018, the total GEF grant spent stands at US\$ 4,564,937/-, which is about 51% of the total grants.

Total GEF grants and Year-wise expenditure incurred as per the Combined Delivery Report

YEAR	PRODOC BUDGET	ANNUAL WORK PLAN	ACTUAL SPENT	SPENT / AWP (%)	EXCHANGE RATE ₹ for US\$
2013	26,14,000	3,00,000	1,65,326	55	59
2014	24,39,000	9,96,078	7,11,220	71	64
2015	18,26,000	5,85,375	2,09,866	36	67
2016	12,79,000	16,47,700	10,05,220	61	65
2017	8,52,604	14,78,641	9,00,996	61	68
2018	-----	14,31,822	15,72,309	110	70
Total	90,10,604	64,39,616	45,64,937		

The above table indicates that most studies for BUR-1 would have been commissioned in 2014 when the exchange rate was ₹64 to a US\$. Hence, it is safe to assume that the increase in currency exchange rate has led to a reduction in the overall expenditure in US\$ terms. Further, in line with UNFCCC guidelines, GoI has taken a conscious decision to voluntarily furnish BURs-2 and 3, and TNC with 2014 and 2016-18 GHG inventory. Accordingly, it is observed that nearly 76% of the GEF grants has been spent in 2016, 2017 and 2018, which would have gone towards preparation of BUR-2 and collecting data for BUR-3 and TNC.

Year- and activity-wise expenditure incurred as per the Combined Delivery Report

Outcome	ProDoc Budget	CDR 2013	CDR 2014	CDR 2015	CDR 2016	CDR 2017	CDR 2018	TOTAL SPENT	BALANCE
1	430936			5647	22498	101886	406674	536705	-105769
2	1479360			5274	233901	470	-151	239494	1239866
3	1935195			10484	487425	762628	1195498	2456035	-520840
4	1144045							0	1144045
5	666818		25954	47729	-31314			42369	624449
6	403720				6336	-6364	85	57	403663
7	2500000	151406	599988	43928	50493	13003		858818	1641182
PMU	450530	13920	85278	96804	235881	29373	-29797	431459	19071
TOTAL	9010604	165326	711220	209866	1005220	900996	1572309	4564937	4445667

It is imperative to note that a lot of studies commissioned on various outcomes overlap with reporting requirements under TNC and BURs. However, since BUR-1 was submitted in January 2016, it would be safe to assume that all expenditure incurred till a few months after the submission would be on account of BUR-1. Further, the PMU has clarified that all expenditure incurred till 2016 under Outcome 7 given in the table above was on account of BUR-1 which stands at US\$845,815/-. It is significant to note that the Chapter on National Circumstances in BUR-2 was drafted by the PMU after compiling and collating data from concerned Departments/Ministries of GoI. Similarly, the PMU also compiled, collated and verified the GHG inventory data for Chapter 2 of both BUR-1 and BUR-2. The PMU also drafted the other Chapters of BUR- 1 and 2 after receiving data from PIs and concerned Departments/Ministries. Since late 2016, the PMU focused on BUR-2, BUR-3 and TNC and started commissioning studies for the same. Therefore, it is difficult to gauge the exact expenditure incurred on preparation of BUR 2. Further, it was appropriately decided by UNDP and MoEFCC to charge the PMU costs to other budgets heads as the PMU was not only tasked with management of the project but also of drafting the BURs.

It is worth mentioning that the Expert Panel has recommended a revised log-frame, hence the outcome-wise budget would need to be modified, appropriately. However, based on the learnings from the project, the Expert Panel feels that maintaining outcome-wise expenditure statement may be tedious and not worthwhile.

The co-finance documented by the PMU, based on the data provided by a few PIs (33 out of 75) and calculation of MoEFCC (resource and infrastructure) stands at US\$ 15.4 million and US\$ 11.6 million with average currency exchange rate of ₹53/- and ₹70/- for a US\$, respectively. The documented co-finance is about 59% of the total committed by Government of India. The co-finance leveraged by PIs of various studies were made available by PMU for verification by the Expert Panel (**Annexure-V**). As per the ProDoc (Page 37), the Government of India is also providing direct financial as well as indirect support to the institutions involved in the preparation of the TNC. A few examples of co-finance leveraged from GoI for BUR-1 and BUR-2 are as follows:

- 1. Socio-economic data from Ministry of Statistics and Plan Implementation for National Circumstances.*
- 2. Weather data provided by India Meteorological Department, Ministry of Earth Sciences for National Circumstances.*
- 3. Data for Impacts, Vulnerability and Adaptation studies along with GHG inventory from Agriculture and Dairy through National Innovations on Climate Resilient Agriculture (NICRA) of Ministry of Agriculture and Farmers' Welfare.*
- 4. GHG inventory data from Petroleum Planning and Analysis Cell, Ministry of Petroleum & Natural Gas.*
- 5. GHG inventory data on Land Use, Land Use Change and Forestry sector from Forest Survey of India and Indian Space Research Organisation.*

Accordingly, considering that about 50% of the total GEF Grants have been spent and co-finance of about 59% has been leveraged from GoI for BUR-1 and BUR-2, the remaining grants and co-finance commitments will be met.

It is therefore the considered assessment of the Expert Panel that **financial management and co-finance leveraging has been 'satisfactory'**.

3.3.5 Monitoring and Evaluation Arrangements.

As per the ProDoc, the Monitoring and Evaluation (M&E) plan, responsible agency and the timelines are as follows:

Type of M&E activity	Responsible Parties	Time Frame	Achievements
Inception Workshop and Report	PMU	Within first two months of project start up	As per PIR 2014 (Page 16), the inception workshop was held in November 2013 and was delayed by a few weeks. But given the fact that GEF funding was received in December 2013 (Page 102 of BUR-1) the delay in holding the inception workshop is justified.
Development of M&E system	Project team, MoEF	At the beginning of project implementation	The M&E system is given in the ProDoc. A National Steering Committee and Expert Advisory Committees were to be constituted and notified. This was duly done. Further, the progress of studies commissioned were also reviewed through meetings called specifically for the purpose (List of events, consultation and meetings BUR-1 and BUR-2).
Measurement of Means of Verification of project Results	NPD/NPA will oversee the hiring of specific studies and institutions, and delegate responsibilities to relevant team members	Start, mid and end of project (during evaluation cycle) and annually when required.	By June 2014, twenty-six studies had been commissioned following due procurement processes of MoEFCC. Further, the progress of studies commissioned were also reviewed through meetings,

			called specifically for the purpose.
ARR/PIR	<ul style="list-style-type: none"> • <i>Project manager and team</i> • <i>UNDP CO</i> • <i>UNDP RTA</i> • <i>UNDP EEG</i> 	Annually	PIRs from 2014 to 2018 have been shared with MTR Expert Panel. It has been observed from the PIRs that UNDP RTA regularly reviews and provides his/her comments on the PIR.
Periodic status/ progress reports	Project manager and team	Quarterly	As per the PIRs, Quarterly Progress Reports were being submitted by PMU.
Mid-term Evaluation	<ul style="list-style-type: none"> • <i>Project management team</i> • <i>UNDP CO and RCU</i> • <i>External Consultants (i.e. evaluation team)</i> 	At the mid-point of project implementation.	As per PIR 2014, 2015 and 2016, the MTR was to take place in 2016. However, given that the funding from GEF was received late leading to delay in submission of BUR-1 and BUR-2. Considering BUR-3 and TNC are yet to be submitted, the delay may be condoned.

It is vital to note that the BURs also undergo rigorous scrutiny of the relevant Departments/Ministries of Government of India concerned with the information furnished in the BURs and National Communications. The scrutiny by Departments / Ministries is followed by review from Prime Minister's Climate Change Advisory Council. Finally, the Union Cabinet of India approves the NCs. Further, as per the rules of UNFCCC, BURs are subjected to an international process known as International Consultation and Analysis (ICA). It is a process that includes international scrutiny of BUR in a manner that is non-intrusive, non-punitive and respectful of national sovereignty. All BURs are subjected to ICA process. BUR-1 of India has successfully completed the ICA process on 8 June 2016. BUR-2 is undergoing a review by a Team of Technical Experts constituted by UNFCCC, the last meeting of which was held on 28 May 2019.

Indirect Monitoring

1. As per the BUR-2 (Page 57), “a paper published in Nature Communications investigated India’s methane emissions using a top-down approach and concluded that the magnitude of India’s methane emissions was consistent with that reported in First BUR” Accordingly, scientific monitoring by an agency external to the project has also confirmed the reliability of results and works being carried out under the project.
2. As per BUR-2 (Page 204), in 2015, a few Civil Society Organisations (CSOs) have collaborated to establish the ‘GHG Platform India’ to provide an independent estimation and analysis of India’s GHG emissions across key sectors, namely Agriculture Forestry and Other Land Use (AFOLU), Energy, Industry and Waste. Accordingly, the GHG emissions reported by India are also monitored and watched by independent CSOs.

In the light of above, it is the considered opinion of the Expert Panel that **the M&E of the project is ‘highly satisfactory’.**

3.3.6 Stakeholder engagement

It is noted from Page 9 of the ProDoc that there are no direct stakeholders other than the Government of India which complies with its commitments to the UNFCCC. However, the ProDoc mentions that there are numerous indirect stakeholders such as citizens, policymakers at various levels, the scientific community, industry, and all those who could be affected by climate change and actions to mitigate and adapt to climate change. As far as the GoI is concerned, the BURs undergo rigorous review and scrutiny of the various Departments/Ministries of Government of India, Prime Minister’s Climate Change Advisory Council and the Union Cabinet. Accordingly, the engagement of the GoI is ensured. Further, as per the rules of UNFCCC, BURs are subjected to an international process known as International Consultation and Analysis (ICA). Accordingly, engagement of international stakeholders also gets ensured. To ensure engagement of indirect stakeholders such as the Indian people, the policymakers at central, state, district, block and village levels, the scientific community, industry, and all those who could be affected by climate change, to ensure stakeholder involvement and enhance public awareness the Project Management has undertaken the following:

1. *As per BUR-1 (Page 176), fourteen consultative events/meetings were held for the preparation of the BUR. Similarly, as per BUR-2 (Page 227), thirteen consultative events/meetings were held for the preparation of the BUR.*
2. *As per BUR-1 (Pages 173-175), seventeen institutions were involved in preparation of the BUR and comments/Inputs were received from ten experts. As per BUR-2 (Pages 223-226), sixteen institutions were involved in preparation of the BUR and comments/Inputs were received from 57 experts.*
3. *The NPD and PMU staff frequently participated in meetings, consultations and workshops organized by Civil Society Organisations, Academic Institutions and Universities.*
4. *Special efforts were made for enhancing public awareness. So far 11 publications on Climate Change have been brought out under the project by MoEFCC (**Annexure-VI**).*
5. *In a meeting with the PIs of a study awarded to Confederation of Indian Industries (CII) it was shared with Expert Panel that MoEFCC facilitated discussions between the Ministry of Steel and CII to trouble shoot some problems the latter was facing with regards to essential data.*

It is the considered finding of the Expert Panel that **Stakeholder Engagement in the project is 'highly satisfactory'**.

3.3.7 Reporting

Internal reporting in the Project Management Team is well established and as per the standard practice and norms of the GoI. The PMU reports to the NPD, who in turn reports to the Additional Secretary, Secretary and Minister in charge of MoEFCC. The minutes of consultative meetings and workshops and attendance sheets reveal that most of the meetings are chaired at the level of Additional Secretary and Secretary, MoEFCC. Accordingly, the whole hierarchy within the MoEFCC is kept aware of the project activities and the progress.

A list of adaptive changes and follow-up actions has been given under the section Project Design and Adaptive Management. All these adaptive management could be possible because of good communication within the PMU as well as competent authorities. The Expert Panel noted that the

aforesaid adaptive management was rendered possible due to the existence of a vibrant communication system and practice.

As mentioned earlier, under the sub-section on M&E, the PIRs for 2014 to 2018 have been reported by PMU and UNDP in a timely manner. During the period 2014-2018, five PIRs have been submitted to GEF. A scrutiny of the information provided in the PIRs highlights a fair description of the activities carried out during the reporting period.

It is a considered opinion of the Expert Panel that **Reporting within the Project Management Unit and Implementing/Executing Agency and to GEF is 'satisfactory'**.

3.3.8 Communication

More than sixteen institutions were involved in preparation of the BURs and the internal communication is well established and duly practiced. The studies commissioned under the project are reviewed in consultative events/meetings for facilitating cross-learning and getting suggestions for improvements. The internal communications in the project has helped India climb the tier ladders for GHG inventory for most key sectors. Further, 54 studies have been commissioned for other chapters of TNC. Regular meetings and interactions are held between the institutions and the Ministry to ensure exchange of ideas and bettering the results. As stated in the sub-section on Stakeholder Engagement, relevant Departments / Ministries of GoI are kept well informed of the project results. Further, the BURs are submitted to the UNFCCC and are available on the Ministry and Convention's website. Within the Project Implementation Structure, the internal communication process of the Ministry is followed which ensures that the whole hierarchy is kept informed of the project activities, progress and outputs.

External communication with all stakeholders has been commendable, with release of eleven publications. The project brought out a book titled 'Parampara' showcased the sustainable lifestyle practices of India. It was released by the Prime Minister of India at COP21 to UNFCCC in 2015. It is noteworthy that sustainable lifestyle has also been introduced in the Paris Agreement. Parampara was given to all Members of Parliament and Chief Minister and Chief Secretary of every State. Similarly, a copy of a

publication titled 'Good Green Deeds' was distributed to every public and school library in Delhi and a few other cities. Further, to engage with international stakeholders, the project has ensured that the eleven publications brought out under the project have been released at either COP to UNFCCC or at the World Environment Day held in India in 2018.

To ensure engagement of indirect stakeholders, Project Management has undertaken the following:

- Interaction with PIs also revealed that PMU staff is readily available and always willing to help secure data, liaising between CSOs and Government Departments/Ministries/Institutions.
- MoEFCC has appropriately made the NPD of NATCOM project the focal point for IPCC, APN and other CC related scientific and technical fora. This decision helps in capacity building of experts and communication of CC issues discussed at international level within the country.
- Understandably, the PMU frequently participate in meetings, consultations and workshops organized by Civil Society Organisations, Academic Institutions and Universities.

In the light of the findings, the Expert Panel rates communication under the project to be '**highly satisfactory**'.

The Expert Panel finds the overall Project Implementation and Adaptive Management by MoEFCC especially the NPD, PMU and UNDP as commendable and rates the same as 'Highly Satisfactory'.

3.4 SUSTAINABILITY

With regards to sustainability of the project, the project was conceived as per the Decision 17/CP.8 of UNFCCC. The sustainability and replicability of the project are well described on Pages 36 and 37 of the ProDoc. In Brief, the Government of India is working towards meeting all its commitments made to the UNFCCC and is providing direct financial as well as indirect support to the institutions involved in the preparation of the TNC. Most research institutions involved with CC issues have already established technical teams for GHG inventory preparation as well as impact and vulnerability assessments. Some of these initiatives are supported by co-financing arrangements. For example, the Forest Survey of India, a Government agency, has established carbon stock estimation in forest

sector on a periodic basis. Thus, these institutions may sustain the NCs preparation process.

The methods, models, tools and data generated during the NC preparation process will be useful to Government departments, industry and other stakeholder institutions to implement the climate change missions and mitigation-adaptation programmes and projects. Thus, other sectors may also benefit from the NC process which can further help sustain the process. Similarly, the technical capacity built for the preparation of NC process is being deployed by the state governments in preparing the state climate change action plans.

3.4.1 Financial sustainability

Under the NATCOM project, it was envisaged that India would furnish BUR-1, BUR-2, BUR-3 and TNC at a total cost of US\$ 36 million, of which GEF contribution is pegged at US\$ 9 million. Out of the GEF grants, about US\$ 846,000/- were spent in the preparation of BUR-1 and US\$ 3.7 million in the preparation of BUR-2 and for initial studies of TNC and BUR-3. The project has already received a large amount of co-finance from the Government of India, Civil Society and Private Sector. Preliminary estimation indicates that India has contributed more than US\$ 15 million for the preparation of BUR-1 and BUR-2. However, it may be an underestimate as all indirect sources of co-finance especially from GoI departments/ministries have not been taken into account. With the use of 2019 IPCC guidelines, voluntary reporting of indirect gases, increase in reporting requirements, including those arising from the Paris Agreement, the amount of finance required for meeting all obligations to UNFCCC is expected to only increase equivalently.

India's STAR allocation under climate change focal area has reduced by almost 50%, i.e., from US\$ 87.87 million (in GEF-6 cycle) to US\$ 47.24 million (in GEF-7 cycle). Considering this fact, and assuming that the current GEF finances will be required for meeting future reporting requirements, about one-fifth of the country's STAR allocation under climate change focal area may have to be diverted for national reporting. Thus, meager resources will be left for climate action.

Between 2015 and 2030, investments needed for strengthening climate resilience and disaster management actions in agriculture, forestry, fisheries infrastructure, water resources, and ecosystems would need around US\$ 206 billion (at 2014-15 prices). Further, estimates by NITI Aayog indicate that mitigation activities for moderate low carbon development would cost around US\$ 834 billion until 2030 (at 2011 prices). The budget of MoEFCC, over the last few years, has had to be diverted towards meeting human and developmental needs. Accordingly, as stated earlier, under financial risks to sustainability, continued reporting to UNFCCC i.e. beyond project period, would require dedicated budget from GEF and GoI.

Further, India is vulnerable to climate change impacts and natural disasters. GoI would require investing large sums in climate change adaptation and mitigation. Accordingly, ***financial sustainability risks*** are ***'likely' to impede project activities after the project ends.***

3.4.2 Socio-economic sustainability

GoI is fully engaged in meeting all the commitments made to the UNFCCC and is providing direct as well as indirect financial support to the institutions involved in the preparation of the TNC. Further, the country has also been building up the capacity of not only the academia but also the institutions to continue the reporting requirements of UNFCCC. The socio-economic benefits derived from the project go beyond reporting to UNFCCC as the findings of the studies commissioned under the project and the NCs submitted to UNFCCC provide inputs into policies of GoI. For example, preparation of GHG inventory has led to many initiatives of GoI. These include meeting electrification of villages through promotion of energy efficient lights and devices at large scale and promotion of production of energy through renewable resources. It may be appreciated that the socio-economic sustainability may be adversely affected if the project is discontinued. Accordingly, the Expert Panel is of the opinion that ***total socio-economic sustainability is 'unlikely' in the event of project getting discontinued.***

3.4.3 Institutional framework and governance sustainability

As mentioned earlier, India has been building up the capacity of both scientists and institutions to continue to meet the reporting requirements of UNFCCC. The project has built the capacity of scientists and experts by exposing and training them in GHG inventory, measurement, vulnerability and adaptation, QA/QC, uncertainty estimation and other reporting parameters. The institutions have been strengthened in terms of trained human resource and the latest infrastructure. Further, the number of institutions and scientists/experts involved in Climate Change related reporting to UNFCCC has increased during the project period. As mentioned earlier under 'Communications', MoEFCC has appropriately made the NPD of NATCOM project the focal point for IPCC, APN and other Climate Change related scientific and technical fora. This decision helps in capacity building of experts and institutions. PMU is housed in MoEFCC and capacity building of Programme Officers is ensured by offering performance linked incentives. The Ministry has already approved the establishment of a National Institute on Climate Change Studies and Actions (NICCSA). The latter is envisaged to be the nodal agency for providing inputs on Climate Change. The NCs and all other reporting to UNFCCC are done only after review by all concerned/relevant departments/ministries of the Government of India and the approval of the Union Cabinet of India. So, the project outcomes and outputs, stakeholder engagement and other institutional framework and governance mechanisms are monitored at the highest level in the country. Considering the various initiatives taken by GoI (Page 13 and 14), it is safe to conclude that the ***sustainability of institutional framework and governance beyond the project period are 'likely'***.

3.4.4 Environmental sustainability

Climate Change is a global problem, inviting collective endeavour, which cannot be resolved by the action of any individual country or just a few countries. Instead, it requires collective effort of all countries based on principles of equity, Common but Differentiated Responsibilities (CBDR) and Respective Capabilities (RC). As stated earlier, United States of America, once an ardent supporter of Paris Agreement played a role in its

coming into force. However, on 04 August 2017, the delegation of the United States submitted a formal notification to United Nations Secretary-General expressing the country's intention to withdraw from the Paris Agreement on climate change as soon as it is eligible to do so (<https://onlinelibrary.wiley.com/doi/full/10.1002/ghg.1736>). Further, President of Brazil, during his presidential campaign, stated that he planned to keep Brazil in the Paris Climate Agreement provided several conditions were met with. These conditions may require alterations in the international accord which probably are difficult to comply with (<https://news.mongabay.com/2019/01/commentary-will-president-bolsonaro-withdraw-brazil-from-the-paris-agreement/>). Such geopolitical situations may have indirect effects to environmental sustainability in terms of impacting the collective ability of international community to combat climate change. India is doing more than its fair share of mitigation by any standard of equity and is currently acknowledged world-wide to be one of the few countries that is on track to meeting its Paris commitments. India is not contemplating on backing out of the commitments made under the Paris Agreement and UNFCCC. Therefore, the considered view of the Expert Panel is that the ***environmental sustainability to project activities continuing beyond the project period is 'likely'***.

4 CONCLUSION AND RECOMMENDATIONS

The NATCOM project has involved about 50 institutions and more than 100 scientists for conducting primary and secondary research, collating and compiling data on topics such as GHG emissions, mitigation and adaptation strategies, technical, financial and capacity needs, climate projects and modelling, and national and state policies and actions. The studies have been commissioned in sectors such as forests, biodiversity, water resources, agriculture, dairy, solid wastes and sewage, coastal and marine ecosystems, human health and livelihood.

The conclusions and recommendations based on the findings of the Panel of Experts are given below:

- 1. UNFCCC objective is to achieve stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system and allow enough time frame for ecosystems to adapt naturally to climate change. To meet this objective, the Convention urges all Parties to provide information on their GHG emissions, mitigation and adaptation strategies and finance, technology and capacity building needs through National Communications. The NATCOM project was developed to fulfil the reporting requirements of UNFCCC. The project design has provided enough flexibility to the implementing agency namely MoEFCC through/in collaboration with UNDP to adapt the strategy to meet the UNFCCC reporting requirements.*
- 2. The project implementation and adaptive management exhibited by NPD and PMU is found to be commendable. The outcomes and outputs given in the ProDoc have been included into the log-frame to ensure that the project stays on track in achieving the envisaged targets.*
- 3. MoEFCC has developed internationally acclaimed BURs due its rigorous Monitoring and Evaluation framework comprising scrutiny by scientific/technical experts, all relevant departments/ministries of GoI, Prime Minister's Council on Climate Change and the Union Cabinet of India. Some of the GHG data provided in BUR-2 have been indirectly monitored by a consortium of Civil Society Organisations, and airplane sorties.*

4. *Stakeholder engagement and communication under the project are highly appreciable and noteworthy. The project provided inputs for the audio-visuals and interactive exhibits for a train titled as Science Express Climate Action Special which travelled pan India with a footfall of 18 million people. The project has brought out many publications which have been showcased at various national and international events. The indirect stakeholders, especially Principal Investigators of studies commissioned under NATCOM project and the PMU staff, have benefitted from capacity building support provided by the project. The institutions directly participating in the project have been strengthened in terms of trained human resource and infrastructure. The NPD and PMU have ensured participation of various stakeholders in more than 26 meetings, workshops and training programmes organised under the project.*

5. *The Results Framework/Log-frame*

a. *The Project Strategy, especially the Log-frame, does not address new and emerging climate change issues and commitments by the country. Accordingly, the MTR Panel of Experts felt that the existing log-frame needs to be revised. Thus, a revised log-frame comprising eight Outcomes to be achieved through 20 Outputs and numerous activities has been proposed.*

b. *Five of the eight Outcomes are found to be 'highly satisfactory', two are 'satisfactory' and one is 'moderately satisfactory'. Therefore, the overall project progress is adjudged as '**highly satisfactory**'.*

Recommendation: MoEFCC, UNDP and GEF may like to adopt the revised log-frame suggested by the Expert Panel.

6. *The concerned GoI departments/ministries are participating in the project and cooperating with MoEFCC in fulfilling commitments made to UNFCCC. However, to ensure smoother flow of data and easy access by institutions contributing to NCs, there is a need for institutionalising GHG inventorisation and other reporting requirements. Further, the results made available through NCs need to be immediately translated into policy actions, requiring consensus between various departments/ministries of GoI.*

Recommendation: MoEFCC, UNDP and GEF may consider making some departments/ministries/institutions of GoI such as MoES, Department of Space, MoAFW, MoSPI, Ministry of Power, MNRE, and NITI Aayog

as responsible parties in the extant NATCOM project and / or in future GEF funded NATCOM projects. This would help in consensus building on policy issues, immediate translation of NC results into policy actions and institutionalising of the NC processes.

7. *The overall progress towards results of the Project is adjudged as 'Highly Satisfactory' and the project would be able to deliver on most of the envisaged targets. The lacunae under some Outcomes and Outputs along with recommendations requiring immediate attention are given below:*

Recommendations

- a. Output 5.1: Studies for comprehensive description of systematic observations and research on climate change be commissioned on an urgent basis.
- b. Output 5.2: Long-term Ecological studies to understand impacts of climate change on biodiversity and other sectors is commissioned at the earliest.
- c. Outputs 6.1 and 6.2: Understandably, GoI is setting up a National Institute for Climate Change Studies and Actions (NICCSA) under CCAP of MoEFCC with an objective to support all scientific, technical and analytical studies relating to climate change policy and implementing strategies. The institute has an outlay of ₹250 million for five years.

Further, Institutional Arrangement has also been strengthened by inducting new institutions in the process of preparing NATCOM and BUR. New institutions introduced include EESL, IORA, CEEW, BOBP IGO, BNHS, SDMRI, FRLHT TDU, and INTACH.

In the light of above, establishment of the Institution is a national requirement and PMU and MoEFCC may take immediate efforts to build consensus of concerned departments/ ministries on the issue.

8. *Based on the analysis of the Log-frame, some **additional recommendations** are:*

- a. Output 2.1: BUR-1 was distributed to many stakeholders, namely central and state government departments/ ministries, research institutions and others. The NCs are appreciable documents which have a bearing on stakeholders such as citizens, policy makers at

all levels, academia and private sector. It is the opinion of the Expert Panel that there is a need to circulate the NCs more widely and getting the executive summary translated in scheduled languages.

- b. Outcome 3: The preparation of books on CC impacts on sectors such as agriculture, disaster risk management, coastal and marine areas and on Paris Agreement may be completed by June 2020.
- c. Output 8.1: PMU may also collect, collate and compile all the publications brought out by PIs/Institutions under the project and make them available to other experts/institutions/general public. Further, a publication on Private Sector contribution to CC adaptation and mitigation may be brought out. PMU may consider developing a web-portal on which all publications under the project and free of cost audio-video media are made available. The portal may also provide CC related national and international news, social media posts and events.

9. *The Project Implementation and adaptive management is 'highly satisfactory'. MoEFCC and UNDP have taken some good and informed decisions like housing the PMU within MoEFCC. MoEFCC and UNDP have also ensured capacity building of the PMU staff to such an extent that collation and compilation of information from various sources and preparation of NCs are being undertaken in house. However, the PMU is working on project basis. Accordingly, it is crucial that a permanent PMU is institutionalised within MoEFCC for meeting future UNFCCC reporting requirements.*

Recommendation:

- a) A permanent PMU needs to be institutionalised within MoEFCC.
- b) High priority may be accorded to the establishment of a national institution on CC and the PMU may be housed within the same.

10. *The Project is yet to bring out BUR-3 and TNC, which are time consuming processes. The time available for bringing out the documents is about 18 months, during which the project is scheduled to be closed and undergo a Terminal Evaluation.*

Recommendation: PMU may bring out BUR-3 with 2016 GHG inventory by December 2019 and TNC by June 2020.

11. The project was designed in 2012-13 when the average currency exchange rate was ₹53/- for a US\$. Over the period 2013 to 2019 the average currency exchange rate has increased from ₹53/- to ₹70/- for a US dollar i.e. about 32%. During the period 2013-2018, the total GEF grant spent stands at US\$ 4,564,937/- which is about 51% of the total grants. The project has certain committed expenditure for preparation of TNC. The remaining amount would lapse upon closure of the GEF project.

Recommendation: PMU may expedite commissioning of studies for gap areas and strengthening the ongoing studies so that remaining funds are allocated by end of December 2019. PMU may also consider publications, organizing workshops/programmes for brainstorming on new and emerging CC topics and for public awareness.

12. The Co-finance documented by the PMU (estimated using the average exchange rate of ₹53/- and ₹70/- for a US\$) is approximately US\$15.4 and 11.6 million respectively which is based on data provided by Principal Investigators and specifically contributed by MoEFCC in terms of resource and infrastructure to the project. The co-finance is about 59% of the total committed by Government of India. However, Climate Change studies require historical data, projections, modellings and collection and collation of data, which are undertaken mostly by many other GoI departments/ministries. The co-finance by such relevant GoI departments/ministries/institutions is yet to be documented.

Recommendation: PMU may commission a study to compile, collate and document the co-finance from various sources.

13. India is to furnish BUR-1, BUR-2, BUR-3 and TNC at a total cost of US\$ 36 million, of which GEF contribution is pegged at US\$ 9 million and GoI at US\$ 27 million. It is estimated that about US\$ 20 million (GEF+GoI financing) have been spent in the preparation of BUR-1, BUR-2 and for initial studies of TNC and BUR-3. With the use of 2019 IPCC guidelines, voluntary reporting of indirect gases, increase in reporting requirements, including those arising from the Paris Agreement, the amount of finance required for meeting all obligations to UNFCCC is expected to only increase reciprocally. GEF has committed to providing US\$ 500,000 for NCs and US\$ 325,000 for BURs, rest is to be met through the STAR allocations of the country. India's STAR allocation under climate change focal area has reduced

by almost 50%. Assuming that the current GEF finances will be required for meeting future reporting requirements, a substantial amount of the country's STAR allocation under climate change focal area may have to be diverted for national reporting. Thus, meager resources will be left for climate action.

Considering the above facts, it is evident that India would require substantial funding to continue meeting the increasing reporting requirements of UNFCCC. The GEF allocation for a large and diverse country like India is insufficient and 'one size fits all' may not be the correct approach. India is vulnerable to climate change and may not be able to meet the remaining cost of reporting to UNFCCC.

Recommendation:

- a) Adequate and continued GEF financing would be required for meeting future reporting requirements of the country.
- b) National deliberations are required to prepare a roadmap for meeting the financial needs of future reporting requirements.

14. The project implementation clearly demonstrates that India is committed to meet all its obligations made to the UNFCCC. The country is providing direct as well as indirect financial support to the institutions involved in the preparation of the NCs and for CC actions. The country has been building up the capacity of both the academia and its institutions to not only meet reporting requirements of UNFCCC but also to develop CC action strategies at national, state and local levels across various sectors. The socio-economic benefits derived from the project go beyond reporting to UNFCCC as the findings of the studies commissioned under the project and the NCs prepared thereafter provide inputs into policies of GoI.

In the light of the above, it is imperative that adequate GEF funding continues to support meeting the reporting requirements of UNFCCC. However, if the GEF allocations are reduced or discontinued for unforeseen reasons, India may be unable to derive the current socio-economic benefits from the project.

Recommendation:

- a) The continued GEF financing is required to derive the socio-economic benefits from the reports prepared for meeting UNFCCC obligations.
- b) MoEFCC needs to develop a strategy to continue collecting, compiling and collating the data from various sources so that

the relevance of the reports in CC mitigation, adaptation and Disaster Risk Management continue beyond the project period.

REFERENCES AND NOTES

The MTR Panel of Experts have relied on the documents and information given below while drafting the report. Not all references have been quoted in the report because of heavy reliance and use. Further, certain sections and sub-section of the Mid-Term Review Report may have been reproduced verbatim from the documents given below. The reproduction has been acknowledged but any omission is due to oversight and regrettable.

1. *Annual Work Plans (2013 to 2018).*
2. *Biennial Update Reports 1 and 2 (BUR-1 and BUR-2).*
3. *Co-finance document prepared by the Project Management Unit, NATCOM.*
4. *Documents submitted for meeting reporting requirements of UNFCCC.*
5. *Financial Statements (Combined Delivery Reports) of the Project (2013-2018).*
6. *GEF's "Monitoring and Review Policies and Procedures (2010)".*
7. *Letter of GEF CEO along with 'REQUEST FOR CEO ENDORSEMENT' to the Council Members for endorsement of the NATCOM project. (Letter to Council Members).*
8. *Project Document duly signed by the Government, Executing Entity/Implementing Partner and UNDP (ProDoc).*
9. *Project Implementation Review (PIR) submitted to GEF (2014 to 2017).*
10. *Publications prepared under the project.*
11. *Technical Reports of studies commissioned under the project.*
12. *UNDP's "Guidance for conducting Midterm Reviews of UNDP-supported, GEF-financed projects" (2014).*

4.1 TERMS OF REFERENCE FOR TNC MID TERM REVIEW

1. INTRODUCTION

This is the Terms of Reference (ToR) for the UNDP-GEF Midterm Review (MTR) of the full sized project titled Preparation of Third National Communication (TNC) and other new information to the UNFCCC (PIMS 4603 and Project ID 84310) implemented through the UNDP_MoEFCC, which is to be undertaken in 2018. The project started on the July 2013 and is in its fifth year of implementation. In line with the UNDP-GEF Guidance on MTRs, this MTR process was initiated before the submission of the fourth Project Implementation Report (PIR). This ToR sets out the expectations for this MTR. The MTR process must follow the guidance outlined in the document Guidance For Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects.

2. PROJECT BACKGROUND INFORMATION

The project is in line with India's commitments to the United Nations Framework Convention on Climate Change (UNFCCC). It aims to enable India undertake activities to prepare its Third National Communication to the UNFCCC according to the guidelines provided by the Conference of Parties (COP) for non-Annex 1 countries (17/CP.8). Based on the experience and lessons learned from the Initial National Communication (INC) and the Second National Communication (SNC), as well as the recommendations from the final evaluation of INC and SNC, the TNC will broaden and consolidate the network of stakeholders, including the researchers, industry, NGOs and the private sector to create a platform for policy interface in key climate change sectors. The activities of the TNC are envisaged to make climate change assessments more policy relevant and enhance India's capacity to incorporate climate change in its development processes which is in line with the GEF's climate change mitigation focal area objective (CCM-6) under GEF-5: Enabling Activities: Support enabling activities and capacity building under the Convention. The outcome is: "Adequate resources allocated to support enabling activities under the Convention" and the Outputs are "Countries receiving GEF support for national communication, etc." & "National communications, etc. completed and submitted to the UNFCCC as appropriate". In inventory analysis, the TNC will increase the reliability of emission data and put in place a more sustainable inventory process, through a national inventory management system. The project would specifically address the gaps identified in the INC and SNC, particularly on capacity building needs, sector-specific data, developing and refining country specific emission/sequestration factors, and developing integrated vulnerability and adaptation frameworks for identified hotspots that are vulnerable to climate change.

The enabling activity aims at assisting the Government of India to carry out all the necessary activities to prepare the Third National Communication (TNC) to comply with its commitments to the UNFCCC in agreement with the Conventions' Articles 4.1 and 12.1. The project comprises of seven components and the main components are:

1. *India's National Circumstances*
2. *National GHG Inventory*
3. *Impacts and vulnerability assessment and adaptation measures*
4. *Measures to mitigate climate change*
5. *Other information relevant for the preparation of TNC*

6. *Third National Communication report preparation*

7. *Other new information required under the aegis of the Convention*

The TNC project advances the findings of the First and Second National Communication project outputs and also builds on the technical and institutional capacity that exists in India. The TNC will be based on the latest scientific knowledge, modelling and methods. The following strategies will be adopted for the development of TNC.

- a) **Expand and strengthen the wide institutional network** *established during the INC and SNC from different parts of India, to enable their participation and contribution to the preparation of TNC*
- b) **Conduct periodic stakeholder consultations** *to ensure broader participation of scientific institutions, industrial organizations, civil society, government departments and so on*
- c) **Adopt the best methods and models** *for climate projections, impact and vulnerability assessments, GHG inventory and Biennial Update Reports (BURs)*
- d) **Promote the participation of state governments** *in the preparation of TNC as well as in addressing climate change, since so far the National Communication process was largely a national level exercise*
- e) **Assist decision-makers at the national and state level** *in the development of policies and measures to address climate change*

3. OBJECTIVES OF THE MTR

The MTR will assess progress towards the achievement of the project objectives and outcomes as specified in the Project Document and assess early signs of project success or failure with the goal of identifying the necessary changes to be made in order to set the project on-track to achieve its intended results. The MTR will also review the project's strategy and its risks to sustainability.

4. MTR APPROACH & METHODOLOGY

The MTR must provide evidence-based information that is credible, reliable and useful. The MTR team will review all relevant sources of information including documents prepared during the preparation phase (i.e. PIF, UNDP Initiation Plan, UNDP Environmental & Social Safeguard Policy, the Project Document, project reports including Annual Project Review/PIRs, project budget revisions, lesson learned reports, national strategic and legal documents, and any other materials that the team considers useful for this evidence-based review). The MTR team will review the baseline GEF focal area Tracking Tool submitted to the GEF at CEO endorsement, and the midterm GEF focal area Tracking Tool that must be completed before the MTR field mission begins.

The MTR team is expected to follow a collaborative and participatory approach¹ ensuring close engagement with the Project Team, government counterparts (the GEF Operational Focal Point), the UNDP Country Office(s), UNDP-GEF Regional Technical Advisers, and other key stakeholders.

¹ For ideas on innovative and participatory Monitoring and Evaluation strategies and techniques, see [UNDP Discussion Paper: Innovations in Monitoring & Evaluating Results](#), 05 Nov 2013.

Engagement of stakeholders is vital to a successful MTR.² Stakeholder involvement should include interviews with stakeholders who have project responsibilities, including but not limited to government officials involved in the project; executing agencies, senior officials and task team/component leaders, key experts and consultants in the subject area, Project Board, project stakeholders, academia, local government and CSOs, etc. Additionally, the MTR team is expected to conduct field missions to institutions involved in studies related to preparation of BUR and TNC.

The final MTR report should describe the full MTR approach taken and the rationale for the approach making explicit the underlying assumptions, challenges, strengths and weaknesses about the methods and approach of the review.

5. DETAILED SCOPE OF THE MTR

The MTR team will assess the following four categories of project progress. See the *Guidance For Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects* for extended descriptions.

i. Project Strategy

Project design:

- *Review the problem addressed by the project and the underlying assumptions. Review the effect of any incorrect assumptions or changes to the context to achieving the project results as outlined in the Project Document.*
- *Review the relevance of the project strategy and assess whether it provides the most effective route towards expected/intended results. Were lessons from other relevant projects properly incorporated into the project design?*
- *Review how the project addresses country priorities. Review country ownership. Was the project concept in line with the national sector development priorities and plans of the country (or of participating countries in the case of multi-country projects)?*
- *Review decision-making processes: 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 during project design processes?*
- *Review the extent to which relevant gender issues were raised in the project design. See Annex 9 of Guidance For Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects for further guidelines.*
- *If there are major areas of concern, recommend areas for improvement.*

Results Framework/Log frame:

- *Undertake a critical analysis of the project's log frame indicators and targets, assess how "SMART" the midterm and end-of-project targets are (Specific, Measurable, Attainable, Relevant, Time-bound), and suggest specific amendments/revisions to the targets and indicators as necessary.*
- *Are the project's objectives and outcomes or components clear, practical, and feasible within its time frame?*
- *Examine if progress so far has led to, or could in the future catalyse beneficial development effects (i.e. income generation, gender equality and women's empowerment, improved governance etc...) that should be included in the project results framework and monitored on an annual basis.*

² For more stakeholder engagement in the M&E process, see the [UNDP Handbook on Planning, Monitoring and Evaluating for Development Results](#), Chapter 3, pg. 93.

- Ensure broader development and gender aspects of the project are being monitored effectively. Develop and recommend SMART ‘development’ indicators, including sex-disaggregated indicators and indicators that capture development benefits.

ii. Progress Towards Results

Progress Towards Outcomes Analysis:

- Review the log frame indicators against progress made towards the end-of-project targets using the Progress Towards Results Matrix and following the Guidance For Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects; colour code progress in a “traffic light system” based on the level of progress achieved; assign a rating on progress for each outcome; make recommendations from the areas marked as “Not on target to be achieved” (red).

Table. Progress Towards Results Matrix (Achievement of outcomes against End-of-project Targets)

Project Strategy	Indicator ³	Baseline Level ⁴	Level in 1 st PIR (self-reported)	Midterm Target ⁵	End-of-project Target	Midterm Level & Assessment ⁶	Achievement Rating ⁷	Justification for Rating
Objective:	Indicator (if applicable):							
Outcome 1:	Indicator 1:							
	Indicator 2:							
Outcome 2:	Indicator 3:							
	Indicator 4:							
	Etc.							
Etc.								

Indicator Assessment Key

Green= Achieved Yellow= On target to be achieved Red= Not on target to be achieved

In addition to the progress towards outcomes analysis:

- Compare and analyse the GEF Tracking Tool at the Baseline with the one completed right before the Midterm Review.
- Identify remaining barriers to achieving the project objective in the remainder of the project.
- By reviewing the aspects of the project that have already been successful, identify ways in which the project can further expand these benefits.

iii. Project Implementation and Adaptive Management

Management Arrangements:

- Review overall effectiveness of project management as outlined in the Project Document. Have changes been made and are they effective? Are responsibilities and reporting lines clear? Is decision-making transparent and undertaken in a timely manner? Recommend areas for improvement.
- Review the quality of execution of the Executing Agency/Implementing Partner(s) and recommend areas for improvement.
- Review the quality of support provided by the GEF Partner Agency (UNDP) and recommend areas for improvement.

³ Populate with data from the Logframe and scorecards

⁴ Populate with data from the Project Document

⁵ If available

⁶ Colour code this column only

⁷ Use the 6 point Progress Towards Results Rating Scale: HS, S, MS, MU, U, HU

Work Planning:

- *Review any delays in project start-up and implementation, identify the causes and examine if they have been resolved.*
- Are work-planning processes results-based? If not, suggest ways to re-orientate work planning to focus on results?
- Examine the use of the project's results framework/ logframe as a management tool and review any changes made to it since project start.

Finance and co-finance:

- *Consider the financial management of the project, with specific reference to the cost-effectiveness of interventions.*
- *Review the changes to fund allocations as a result of budget revisions and assess the appropriateness and relevance of such revisions.*
- *Does the project have the appropriate financial controls, including reporting and planning, that allow management to make informed decisions regarding the budget and allow for timely flow of funds?*
- *Informed by the co-financing monitoring table to be filled out, provide commentary on co-financing: is co-financing being used strategically to help the objectives of the project? Is the Project Team meeting with all co-financing partners regularly in order to align financing priorities and annual work plans?*

Project-level Monitoring and Evaluation Systems:

- Review the monitoring tools currently being used: Do they provide the necessary information? Do they involve key partners? Are they aligned or mainstreamed with national systems? Do they use existing information? Are they efficient? Are they cost-effective? Are additional tools required? How could they be made more participatory and inclusive?
- Examine the financial management of the project monitoring and evaluation budget. Are sufficient resources being allocated to monitoring and evaluation? Are these resources being allocated effectively?

Stakeholder Engagement:

- Project management: Has the project developed and leveraged the necessary and appropriate partnerships with direct and tangential stakeholders?
- Participation and country-driven processes: Do local and national government stakeholders support the objectives of the project? Do they continue to have an active role in project decision-making that supports efficient and effective project implementation?
- Participation and public awareness: To what extent has stakeholder involvement and public awareness contributed to the progress towards achievement of project objectives?

Reporting:

- Assess how adaptive management changes have been reported by the project management and shared with the Project Board.
- Assess how well the Project Team and partners undertake and fulfil GEF reporting requirements (i.e. how have they addressed poorly-rated PIRs, if applicable?)
- Assess how lessons derived from the adaptive management process have been documented, shared with key partners and internalized by partners.

Communications:

- Review internal project communication with stakeholders: Is communication regular and effective? Are there key stakeholders left out of communication? Are there feedback mechanisms when communication is received? Does this communication with stakeholders contribute to their awareness of project outcomes and activities and investment in the sustainability of project results?
- Review external project communication: Are proper means of communication established or being established to express the project progress and intended impact to the public (is there a web presence, for example? Or did the project implement appropriate outreach and public awareness campaigns?)
- For reporting purposes, write one half-page paragraph that summarizes the project's progress towards results in terms of contribution to sustainable development benefits, as well as global environmental benefits.

iv. Sustainability

- Validate whether the risks identified in the Project Document, Annual Project Review/PIRs and the ATLAS Risk Management Module are the most important and whether the risk ratings applied are appropriate and up to date. If not, explain why.
- In addition, assess the following risks to sustainability:

Financial risks to sustainability:

- What is the likelihood of financial and economic resources not being available once the GEF assistance ends (consider potential resources can be from multiple sources, such as the public and private sectors, income generating activities, and other funding that will be adequate financial resources for sustaining project's outcomes)?

Socio-economic risks to sustainability:

- Are there any social or political risks that may jeopardize sustainability of project outcomes? What is the risk that the level of stakeholder ownership (including ownership by governments and other key stakeholders) will be insufficient to allow for the project outcomes/benefits to be sustained? Do the various key stakeholders see that it is in their interest that the project benefits continue to flow? Is there sufficient public / stakeholder awareness in support of the long term objectives of the project? Are lessons learned being documented by the Project Team on a continual basis and shared/ transferred to appropriate parties who could learn from the project and potentially replicate and/ or scale it in the future?

Institutional Framework and Governance risks to sustainability:

- Do the legal frameworks, policies, governance structures and processes pose risks that may jeopardize sustenance of project benefits? While assessing this parameter, also consider if the required systems/ mechanisms for accountability, transparency, and technical knowledge transfer are in place.

Environmental risks to sustainability:

- Are there any environmental risks that may jeopardize sustenance of project outcomes?

Conclusions & Recommendations

The MTR team will include a section of the report setting out the MTR's evidence-based conclusions, in light of the findings.⁸

Recommendations should be succinct suggestions for critical intervention that are specific, measurable, achievable, and relevant. A recommendation table should be put in the report's executive summary. See the *Guidance For Conducting Midterm Reviews of UNDP-Supported, GEF-Financed Projects* for guidance on a recommendation table.

⁸ Alternatively, MTR conclusions may be integrated into the body of the report.

The MTR team should make no more than 15 recommendations total.

Ratings

The MTR team will include its ratings of the project’s results and brief descriptions of the associated achievements in a *MTR Ratings & Achievement Summary Table* in the Executive Summary of the MTR report. See Annex E for ratings scales. No rating on Project Strategy and no overall project rating is required.

Table. MTR Ratings & Achievement Summary Table for (Preparation of Third National Communication (TNC) and other new information to the UNFCCC)

Measure	MTR Rating	Achievement Description
Project Strategy	N/A	
Progress Towards Results	Objective Achievement Rating: (rate 6 pt. scale)	
	Outcome 1 Achievement Rating: (rate 6 pt. scale)	
	Outcome 2 Achievement Rating: (rate 6 pt. scale)	
	Outcome 3 Achievement Rating: (rate 6 pt. scale)	
	Etc.	
Project Implementation & Adaptive Management	(rate 6 pt. scale)	
Sustainability	(rate 4 pt. scale)	

6. TIMEFRAME

The total duration of the MTR will be approximately 20 working days over a time period of 8 weeks, and shall not exceed two months from when the team is appointed. The tentative MTR timeframe is as follows:

ACTIVITY	NUMBER OF WORKING DAYS	COMPLETION DATE
Document review and preparing MTR Inception Report (MTR Inception Report due no later than 2 weeks before the MTR mission)	3 Days	
MTR mission: stakeholder meetings, interviews, field visits	7 Days	
Presentation of initial findings- last day of the MTR mission	2 Day	
Preparing draft report (due within 3 weeks of the MTR mission)	5 Days	
Finalization of MTR report/ Incorporating audit trail from feedback on draft report (due within 1 week of receiving UNDP comments on the draft) <i>(note: accommodate time delay in dates for circulation and review of the draft report)</i>	3 Days	

Options for site visits should be provided in the Inception Report.

7. MIDTERM REVIEW DELIVERABLES

#	Deliverable	Description	Timing	Responsibilities
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1	<i>MTR Inception Report</i>	<i>MTR team clarifies objectives and methods of Midterm Review</i>	<i>No later than 2 weeks before the MTR mission</i>	<i>MTR team submits to the Commissioning Unit and project management</i>
2	<i>Presentation</i>	<i>Initial Findings</i>	<i>End of MTR mission</i>	<i>MTR Team presents to project management and the Commissioning Unit</i>
3	<i>Draft Final Report</i>	<i>Full report (using guidelines on content outlined in Annex B) with annexes</i>	<i>Within 3 weeks of the MTR mission</i>	<i>Sent to the Commissioning Unit, reviewed by RTA, Project Coordinating Unit, GEF OFP</i>
4	<i>Final Report*</i>	<i>Revised report with audit trail detailing how all received comments have (and have not) been addressed in the final MTR report (see Annex G for Audit Trail template)</i>	<i>Within 1 week of receiving comments on draft</i>	<i>Sent to the Commissioning Unit</i>

*The final MTR report must be in English. If applicable, the Commissioning Unit may choose to arrange for a translation of the report into a language more widely shared by national stakeholders.

8. PAYMENT MODALITIES AND SPECIFICATIONS

10% of payment upon approval of the final MTR Inception Report

30% upon submission of the draft MTR report

60% upon finalization of the MTR report

LETTER FOR MTR PANEL OF EXPERTS

Dr J R BHATT

Adviser/ Scientist G
National Project Director
GEF-UNDP-GOI NATCOM project
Tel: 01124695293
Email: jrbhatt@nic.in



भारत सरकार
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय
GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT, FORESTS AND CLIMATE CHANGE
इंदिरा पर्यावरण भवन, जोर बाग रोड,
नई दिल्ली-110 003
INDIRA PARYAVARAN BHAWAN, JOR BAGH ROAD,
NEW DELHI-110 003
Website : moef.nic.in

D. O. No. 26/4/2012-CC

Dated: 24th January 2019

Dear Dr Soni,

This pertains to our discussion on undertaking the Mid Term Review of the GEF-UNDP-GOI Project on "Preparation of Third National Communication and other information". It was agreed with UNDP that instead of hiring an international consultant, the review could be done by a Panel of National Experts identified jointly by the Ministry and UNDP.

2. In this regard, following experts have been identified jointly by the Ministry and UNDP.

- Dr C N Pandey, Former PCCF-Gujarat and Faculty, IIT-Gandhinagar
- Dr Ashok Bhatnagar, Professor (Retired), University of Delhi
- Dr R K Kohli, Vice Chancellor, Central University, Punjab
- Dr T S Nayar, Former Head of Division, Tropical Botanic Garden and Research Institute, Thiruvananthapuram (currently at Themath, KP-V/339(1), Kudappanakkunnu, Thiruvananthapuram)
- Dr L S Rathore, Former Director General, IMD (currently at 91, Girnar Colony North, Jagdish Marg, Gandhi Path, Vaishali Nagar, Jaipur)

3. The Ministry requests UNDP to initiate the process of MTR, preferably in the month of February 2019. The duration of MTR will be for a period of two months (including submission of the report). The experts may be paid TA/DA, honorarium etc from the project as per the extant UNDP rules/ norms.

4. Hope this meets your expeditious, kind attention.

Yours sincerely

Jaiwarshan R. Bhatt
Dr J R Bhatt

Dr Preeti Soni

Chief Climate Change Resilience & Energy
United Nations Development Programme
55, Lodhi Estate, New Delhi
CC: Usha Rao, Regional Technical Specialist, UNDP-Bangkok



CODE OF CONDUCT AGREEMENT FORMS

ToR ANNEX D: UNEG Code of Conduct for Evaluators/Midterm Review Consultants

Evaluators/Consultants:

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.*

MTR Consultant Agreement Form

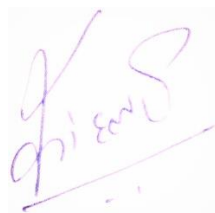
Agreement to abide by the Code of Conduct for Evaluation in the UN System:

Name of Consultant: **Prof. R. K. Kohli**

Name of Consultancy Organization (where relevant): **Not Applicable**

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

Signed at **New Delhi, India** on **05 April 2019**



Signature: _____

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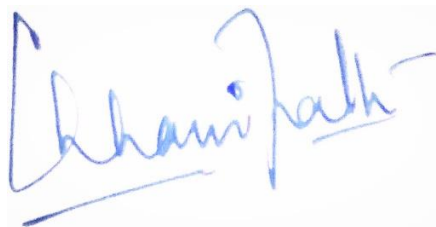
Agreement to abide by the Code of Conduct for Evaluation in the UN System:

Name of Consultant: **Dr C. N. Pandey**

Name of Consultancy Organization (where relevant): **Not Applicable**

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

Signed at **New Delhi, India** on **05 April 2019**



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MTR Consultant Agreement Form

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

Name of Consultant: **Dr L. S. Rathore**

Name of Consultancy Organization (where relevant): **Not Applicable**

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

Signed at **New Delhi, India** on **05 April 2019**



Signature: _____

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MTR Consultant Agreement Form

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

Name of Consultant: **Dr A. K. Bhatnagar**

Name of Consultancy Organization (where relevant): **Not Applicable**

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

Signed at **New Delhi, India** on **05 April 2019**



Signature: _____

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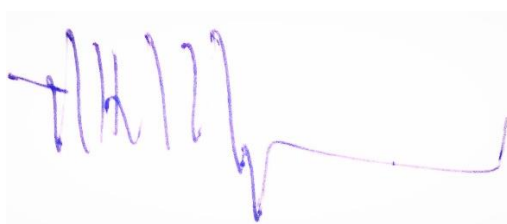
Agreement to abide by the Code of Conduct for Evaluation in the UN System:

Name of Consultant: **Dr T. S. Nayar**

Name of Consultancy Organization (where relevant): **Not Applicable**

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

Signed at **New Delhi, India** on **05 April 2019**



Signature: _____

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7. *Should reflect sound accounting procedures and be prudent in using the resources of the evaluation.*

MTR Consultant Agreement Form

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

Name of Consultant: **Shantanu Santoshkumar Goel**

Name of Consultancy Organization (where relevant): **Not Applicable**

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

Signed at **New Delhi, India** on **05 April 2019**



Signature: _____

ANNEX-III

4.2 MTR EXPERT PANEL DETAILED ITINERARY

Dates	Particulars	Dr L. S. Rathore	Dr T. S. Nayar	Dr C. N. Pandey	Dr A. K. Bhatnagar	Prof. R. K. Kohli
05/04	Briefing meeting with Project Management Unit	✓	✓	✓		
	Visit to IARI to review two studies commissioned under GHG inventory for the agriculture sector and IVA.	✓	✓	✓		
06/04	Visit CII to discuss study commissioned on GHG inventory of IPPU sector. CII also presented the pilot IPPU sector GHG inventory Management System that they are developing voluntarily and with their own funding.	✓	✓	✓	✓	
23-24/04	Visit FSI, FRI, ICFRE, IIP and WII to discuss the studies commissioned under IVA, mitigation, and GHG inventory for LULUCF sector.				✓	✓
17/06	Meeting to finalise MTR Report structure and discuss initial findings.	✓	✓	✓	✓	✓
	Meeting Delhi based	✓	✓	✓	✓	✓

Dates	Particulars	Dr L. S. Rathore	Dr T. S. Nayar	Dr C. N. Pandey	Dr A. K. Bhatnagar	Prof. R. K. Kohli
	stakeholder namely IMD).					
18/06	Meeting with CEEW	✓	✓		✓	
15-16/07	Meeting to discuss first draft of the MTR Report	✓	✓	✓	✓	✓
20-21/07	Meeting to finalise to draft of the MTR report	✓	✓	✓	✓	✓

4.3 LOG-FRAME AS PER PRODOC

STRATEGY	INDICATORS	ADJUSTMENTS	BASELINE	LEVEL IN 1ST PIR (SELF-REPORTED)	MIDTERM LEVEL & ASSESSMENT	END-OF-PROJECT TARGET	ACHIEVEMENT RATINGS and JUSTIFICATION FOR RATINGS
To prepare the Third National Communication and other new information required to meet obligations under the UNFCCC.	(A) National GHG inventory according to IPCC guidelines for the sectors: (i) Energy; (ii) Industry; (iii) Agriculture; (iv) LULUCF; and (v) Waste for 2011, 2013 and 2014; and trend analysis over 2000-2012.	(A) National GHG inventory according to IPCC guidelines for the sectors: (i) Energy; (ii) Industry; (iii) Agriculture; (iv) LULUCF; and (v) Waste for 2010, 2014 and 2016; 2017 will be prepared for TNC; and trend analysis over 2000-2016/17	(A) SNC		National GHG inventory for all five sectors have been prepared and published for the year 2010 in BUR-1 and 2014 in BUR-2. Trend analysis over 2000-2014 also completed and presented in BUR-2.	(A) TNC	HS. The information may be seen in BUR-1 and Bur-2 which are available on UNFCCC and MoEFCC websites.
	(B) Climate projections and assessment of impacts and vulnerability and adaptation policies & measures to address climate variability, climate change and extreme events.		(B) SNC		54 studies have been commissioned to project future climate, assess impacts of CC on key sectors including vulnerability assessment and adaptation mapping. Further, under the project MoEFCC in partnership with other institutions is making efforts to prepare books on CC impacts on nine sectors namely agriculture, disaster risk management, coastal and marine areas, biodiversity, water resources etc. Three of the nine sectoral books have already been released. MoEFCC is also making efforts on bringing out a book on India's achievements and pathway towards Paris Agreement.	(B) TNC	HS. The three sectoral books are available with PMU and have been reported in BUR-2. The studies awarded are mentioned in the list provided by the PMU. The proposal and other information would be available on record.
	(C) Assessments of policies and measures to mitigate climate change.		(C) SNC		Four studies have been commissioned to assess mitigation potential and progress of existing policies and measures. Further, India has declared NDCs. A roadmap for achieving four NDC goals are being prepared under the project for which the first national consultation workshop has already been held. India is to also submit a mid-century, long-term, low carbon development strategy to UNFCCC. Two studies to prepare this document have already been commissioned.	(C) TNC	S. The studies awarded are mentioned in the list provided by the PMU. The proposal and other information would be available on record.
	(D) Publication of Third National Communication.		(D) N/A		Studies to provide inputs for TNC have been commissioned and are in advance stages of report finalization.	(D) TNC	S. The studies awarded are mentioned in the list provided by the PMU.

							The proposal and other information would be available on record.
	(E) Biennial Update Report for reference year 2014.		(E) N/A		First Biennial Update Report for reference year 2010 was submitted on 22 January 2016. Second Biennial Update Report for reference year 2014 was duly submitted to UNFCCC on 31 December 2018.	(E) BUR-2018	HS. The information may be seen in BUR-1 and Bur-2 which are available on UNFCCC and MoEFCC websites.
Outcome 1: Updated report on India's National Circumstances prepared.	(A) Report on national and state level developmental priorities in the context of climate change.		(A) SNC		A comprehensive, but non-exhaustive, reporting of national and state level policies related to CC has been done in BUR-I and II. This reflects the development priorities of India.	(A) TNC	HS. The information may be seen in BUR-1 and Bur-2 which are available on UNFCCC and MoEFCC websites.
	(B) Report on national actions to reduce GHG emissions.		(B) SNC		Various inter-ministerial consultations were conducted to collect and compile the national actions relevant to reducing climate change. The same was reported in BUR-I and further strengthened and revised for BUR-II with the quantification, wherever possible.	(B) TNC	HS. The information may be seen in BUR-1 and Bur-2 which are available on UNFCCC and MoEFCC websites. The studies awarded are mentioned in the list provided by the PMU. The proposal and other information would be available on record.
	(C) Report on the status of the environment, natural resources and energy use.		(C) SNC		Since 2008, the Government of India (GoI) has constituted Prime Minister's Council on Climate Change which has notified the National Action Plan on Climate Change covering eight sectors. Further, the GoI is contemplating on increasing the number of sectors under NAPCC. The Prime Minister's Council monitors the status of the environment, natural resources and energy use. Various ministries, departments, institutions etc. of India are constantly generating such data as per their mandates. This information has been collated and compiled in the chapter on national circumstances in BUR-I and II.	(C) TNC	HS. The information may be seen in BUR-1 and Bur-2 which are available on UNFCCC and MoEFCC websites.
	(D) Description of the status of the national missions under NAPCC.		(D) SNC		Status of NAPCC mission have been reported in detail in BUR-I and II. Further, SAPCC for each state has been prepared.	(D) TNC	HS. The information may be seen in BUR-1 and Bur-2 which are available on UNFCCC and MoEFCC websites.
Outcome 2: National GHG inventory prepared for the years 2011, 2013 and 2014.	(A) National GHG inventory for the sectors: (i) Energy; (ii) Industry; (iii) Agriculture; (iv) LULUCF; and (v) Waste for 2011, 2013 and 2014;	(A) National GHG inventory according to IPCC guidelines for the sectors: (i) Energy; (ii) Industry; (iii) Agriculture; (iv) LULUCF; and (v)	(A) GHG inventory available for the period 1994, 2000 & 2007 from		National GHG inventory for all five sectors have been prepared and published for the year 2010 in BUR-1 and BUR-2014 in BUR-2. Trend analysis over 2000-2014 also completed and presented in BUR-2.	(A) GHG inventory available for the period 2011, 2013 & 2014, and	HS. The information may be seen in BUR-1 and Bur-2 which are available on UNFCCC and MoEFCC websites.

and trend analysis over 2000-2012.	Waste for 2010, 2014 and 2016; 2017 will be prepared for TNC; and trend analysis over 2000-2016/17	INC, SNC and INCCA report respectively.			trend analysis over 2000-2012.	
(B) IPCC 2005 guidelines, AFLOU approach adopted.		(B) IPCC 2003, LULUCF guidelines, methods used in SNC.		Estimations of GHG inventory for Agriculture and LULUCF sectors for 2010-14 have been done using 2006 IPCC guidelines.	(B) Activity data on emission factors generated for all sectors including AFLOU.	HS. The information may be seen in BUR-1 and Bur-2 which are available on UNFCCC and MoEFCC websites.
(C) Uncertainty of the GHG inventory estimation using Approach-2 methods and reduction.		(C) Uncertainty estimated using Tier 1 methods in SNC.		IPCC GHG and 2006 IPCC guidelines on Uncertainty analysis have been applied for quantification of uncertainty in BUR-II.	(C) Uncertainty estimates provided in Third NC.	HS. The information may be seen in BUR-1 and Bur-2 which are available on UNFCCC and MoEFCC websites.
(D) Emission factor database and activity database prepared.		(D) Book published on emission factors.		The new and refined national emission factors are under various stages of development. Activity data is collected by expert institutions and is revised from time to time based on any new disaggregated data that is made available.	(D) Emission factors and activity database available.	HS. The information may be seen in BUR-1 and Bur-2 which are available on UNFCCC and MoEFCC websites.
(E) QA/QC procedures established.		(E) No previous experience.		A study on QA QC procedures for inventory is being conducted at IIMA.	(E) QA/QC systems established and operational.	S. The studies awarded are mentioned in the list provided by the PMU. The proposal and other information would be available on record.
(F) National Inventory management system for different sectors.		(F) No previous experience.		NICCSA is envisaged to be the nodal agency for CC in India. The establishment of the institution under Climate Change Action Programme (CCAP) of MoEFCC with an outlay of ₹250 million is already approved. The objective of NICCSA is to support all scientific, technical and analytical studies relating to climate change policy and implementing strategies. GoI has also established several institutions which provide data and inputs for various facets of CC such as GHG inventory preparation, mitigation and adaptation actions, and CC projections at different levels. Some of these include: 1) NICRA under MoAFW 2) CCCR at the IITM, Pune under MoES	(F) Institutional arrangements for sustained inventory established and operational.	S. The information regarding NICCSA is available on the internet and MoEFCC records. Information regarding strengthening of existing institutional arrangements may be seen in BUR-1 and BUR-2.

					<p>3) RCC at IMD, Pune in conjunction with WMO 5) NIOT, MoES. 6) PPAC, MoPNG. 7) FSI and ISRO. 8) Inter-University Consortium on Cryosphere and CC under the DST.</p> <p>Institutional Arrangement for NCs was also strengthened by inducting new institutions in the process of preparing NATCOM and BURs. Examples of new institutions introduced include EESL, IORA, CEEW, BOBP IGO, BNHS, SDMRI, FRLHT-TDU and INTACH.</p> <p>The institutional arrangements have been appropriately covered under the BUR-1 and BUR-2 as independent section.</p>		
Outcome 3: Impacts and vulnerability assessments, and adaptation measures.	(A) Climate variability profiles & trends prepared at national & state level.		(A) No state level climate variability profiles available.	The process of identifying studies and institutes had commenced and concept notes from 11 institutes had been received.	A study on Historical Climate Trends and Climate Change Projections at District Level for States in India is being conducted at IISc, Bengaluru.	(A) Climate variability profiles and maps prepared at state level	S. The studies awarded are mentioned in the list provided by the PMU. The proposal and other information would be available on record.
	(B) Climate change projections using latest CIMIP5 multiple GCM based outputs for different RCP scenarios at national & state level.		(B) Climate Change projections are available only for SRES A2, B2 & A1B scenarios.		Study on climate change projections using latest model ensembles being conducted at IITM, Pune. The projections will be available for national level as well as regional levels.	(B) Climate Change projections and maps prepared based on multiple model ensemble based on CIMIP5 & RCP scenarios at GCM & RCM grid scales. Projections of extreme events made available.	S. The studies awarded are mentioned in the list provided by the PMU. The proposal and other information would be available on record.
	(C) Quantitative impacts of climate change using latest models for different sectors such as water resources, agriculture, forest ecosystems,		(C) SNC presents climate impacts based on SRES scenarios.		There are 40 studies launched to give impact projection using latest models in the key sectors such as Himalayas and Glacier, Water resources, Agriculture, Forest and Biodiversity, Wildlife, Food and Livelihood, Human health, Coastal Areas,	(C) Impacts of Climate Change on key sectors assessed using latest	S. The studies awarded are mentioned in the list provided by the PMU. The proposal and other information would be available on record.

	health, coastal zones etc.				Infrastructure. Draft reports of these studies have been received. A mid-term workshop was conducted in February 2019 to suggest mid-course corrections. The studies are in concluding phase. Studies on impact assessment would also help improve the models for better projections in different sectors.	climate change projections for RCP scenarios and improved impact models.	
	(D) Climate change vulnerability profiles developed at national & state level for different sectors.		(D) Vulnerability profiles are not available for all the key sectors at national & state level.		Sectoral vulnerability profiles are being developed for all the sectors of study.	(D) Vulnerability profiles based on climatic, bio-physical & socio-economic factors developed.	S. The studies awarded are mentioned in the list provided by the PMU. The proposal and other information would be available on record.
	(E) Adaptation matrix for coping with climate impacts for different sectors and different regions.		(E) Preliminary adaptation practices presented in SNC for only agriculture and forest sectors.		Draft Reports received from the concerned expert institutions.	(E) Adaptation matrix developed for projected climate change impacts for different sectors at regional level and updated information for agriculture and forest sectors.	S. The studies awarded are mentioned in the list provided by the PMU. The proposal and other information would be available on record.
	(F) Adaptation framework and policies for mainstreaming developed.		(F) No adaptation framework presented in SNC and no national & state level adaptation framework & policies exist for mainstreaming adaptation in different sectors.		Draft Reports received from the concerned expert institutions.	(F) Policy Framework developed for mainstreaming adaptation.	S. The studies awarded are mentioned in the list provided by the PMU. The proposal and other information would be available on record.

Outcome 4: Measures to mitigate climate change	(A) Documentation and synthesis of national climate change policies.		(A) No such analysis is available, except a book published in 2004.		National Climate Change Mitigation policies have been documented as a part of BUR-1 and BUR-2.	(A) Climate Change policy synthesis, analysis and implications described	HS. The information may be seen in BUR-1 and Bur-2 which are available on UNFCCC and MoEFCC websites.
	(B) GHG emissions scenarios for 2020 and 2030.		(B) Ministry of Environment has published in 2004.		Two studies have been launched to study GHG Emission scenarios under India's Mid-Century Long-Term Low Carbon Strategy on Climate Change.	(B) Improved model based GHG emissions projections developed.	S. The studies awarded are mentioned in the list provided by the PMU. The proposal and other information would be available on record.
	(C) Mitigation potential of Energy and Land use sectors and projections for 2020 and 2030 based on modelling.		(C) Mitigation potential not reported in SNC, but a few published papers available, which are based on limited information.		Two studies have been launched to study GHG Emission scenarios under India's Mid-Century Long-Term Low Carbon Strategy on Climate Change.	(C) Model based mitigation potential estimates for energy and land use sectors along with marginal abatement cost curves developed	S. The studies awarded are mentioned in the list provided by the PMU. The proposal and other information would be available on record.
	(D) Mitigation action plans at national and state levels.		(D) No national mitigation plan available apart from a Low Carbon strategy prepared by the Planning Commission. State level preliminary mitigation plans available for some states.		A comprehensive, but non-exhaustive, reporting of national and state level policies related to CC has been done in BUR-I and II. In Addition, there are Two studies launched on preparing the NDC implementation roadmap on NDC goals 3 and 5. These studies will feed into national and state level mitigation planning.	(D) Sectoral mitigation options developed at national & state level along implications for GDP, employment, etc.	HS. The information may be seen in BUR-1 and Bur-2 which are available on UNFCCC and MoEFCC websites.
	(E) Constraints, gaps and related technical, financial and capacity needs.		(E) SNC		Constraints, gaps and related technical, financial and capacity needs have been reported in BUR-1 and BUR-2.	(E) Gaps and constraints analysed, and barriers are ranked using AHP methods.	HS. The information may be seen in BUR-1 and Bur-2 which are available on UNFCCC and MoEFCC websites.
	(F) TNA and technology transfer and financial needs.		(F) SNC		A study has been launched to carry out TNA at the national level. 10 Sectors are being covered in the study. Preliminary	(F) Detailed TNA and technology	S. The studies awarded are mentioned in the list provided by the PMU.

					outcomes of the study have already been reported in BUR-2. Two studies have been launched to study Finance, Technology & Capacity needs under the purview of NDC goals 7 and 8.	transfer and financial needs assessed.	The proposal and other information would be available on record.
Outcome 5: Other information relevant for the preparation of the TNC - Comprehensive description of climate change research, strategies for sustainable National Communication process and communicating climate change to public.	(A) Climate change research status and needs.		(A) SNC information until 2010.	A two-day workshop on Climate Change Projections, Impacts-Vulnerability-Adaptation was conducted on 21 & 22 May, 2014. Over 50 experts from various institutes in India participated. This workshop led to discussions and previews for various studies and research that can be taken up for IVA.	A Science Plan document on Long Term Ecological Observation was released during Paris COP in 2015.	(A) Systematic and comprehensive plan for research and climate change along with estimation of financial resources	S. The studies awarded are mentioned in the list provided by the PMU. The proposal and other information would be available on record.
	(B) Financial and technical support for climate change related activities received from national and international sources.		(B) No quantitative estimates available in SNC.		Financial and Technical support for climate change related activities from national and international sources have been reported in BUR-2.	(B) Report on the financial flows into climate change activities from national and international sources.	HS. The information may be seen in BUR-1 and Bur-2 which are available on UNFCCC and MoEFCC websites.
	(C) Institutional arrangements for sustained National Communication process.		(C) No institutional arrangement for long-term and sustained preparation of national communication process presented in SNC.		NICCSA is envisaged to be the nodal agency for CC in India. The establishment of the institution under Climate Change Action Programme (CCAP) of MoEFCC with an outlay of ₹250 million is already approved. The objective of NICCSA is to support all scientific, technical and analytical studies relating to climate change policy and implementing strategies. GoI has also established several institutions which provide data and inputs for various facets of CC such as GHG inventory preparation, mitigation and adaptation actions, and CC projections at different levels. Some of these include: 1) NICRA under MoAFW 2) CCCR at the IITM, Pune under MoES 3) RCC at IMD, Pune in conjunction with WMO 5) NIOT, MoES. 6) PPAC, MoPNG. 7) FSI and ISRO.	(C) Institutional arrangements with roles and responsibilities and financial and technical resource needs assessed and made available.	HS. The information may be seen in BUR-1 and Bur-2 which are available on UNFCCC and MoEFCC websites.

					8) Inter-University Consortium on Cryosphere and CC under the DST.		
	(D) Stakeholder consultation and communicating climate change to different stakeholders.		(D) Limited stakeholder consultation during SNC and no programs for communicating climate change.		Twenty-six stakeholder consultations and other workshops were organized under the project. (Annexure VII)	(D) Mechanisms and institutional arrangements made and implemented for communicating climate change to stakeholder and public.	HS. The information may be seen in BUR-1 and Bur-2 which are available on UNFCCC and MoEFCC websites.
Outcome 6: Third National Communication Report preparation.	(A) Reporting of the outcomes of the National Communication process on NATCOM website, along with GHG inventories, climate change projection and impact and vulnerability maps.		(A) SNC reported on the website.		The findings of the studies commissioned under NATCOM are compiled, collated and disseminated through BUR 1 & 2 which are available on MoEFCC and UNFCCC websites. Further, the Principal Investigators publish their findings in national and international peer-reviewed scientific journals.	(A) All information relevant to preparation of TNC published on the NATCOM website	HS. The information may be seen in BUR-1 and Bur-2 which are available on UNFCCC and MoEFCC websites.
	(B) Publication / printing of the TNC.		(B) SNC published and shared with the public and stakeholder.		The studies commissioned for preparation of TNC are in advanced stages of completion.	(B) TNC finalised and presented to Government of India and report published after approval.	NOT APPLICABLE
	(C) Summary Report of the National Communication translated in major languages of India.		(C) So far no summaries has been published in major Indian languages.			(C) Summary and key findings of the TNC published in major India languages.	

	(D) Periodic technical reports on climate change projections, impacts and vulnerability assessments.		(D) A few technical reports published during the preparation of SNC.		Eleven technical reports on climate change were published under the project (Annexure VI)	(D) Periodic technical reports, book and journal articles published.	HS. The information may be seen in BUR-1 and Bur-2 which are available on UNFCCC and MoEFCC websites.
	(E) Final evaluation report.		(E) Final evaluation report of SNC completed.		After project completion.	(E) Final Evaluation report completed and submitted	NOT APPLICABLE
Outcome 7: Enhanced understanding of domestic mitigation actions and preparation of Biennial Update Reports for submission during 2014, 2016 and 2018.	(A) Biennial update of GHG inventory for the years 2010 and 2012.	(A) National GHG inventory according to IPCC guidelines for the sectors: (i) Energy; (ii) Industry; (iii) Agriculture; (iv) LULUCF; and (v) Waste with 2010 data for BUR-1, 2014 data for BUR-2 and 2016 data for BUR-3; 2017 will be prepared for TNC; and trend analysis over 2000-2016/17	(A) No previous reports other than SNC reporting GHG inventory for year 2000.	7 consultation, meeting and workshop held for BUR Inventory. Contracts awarded for studies on National circumstances; Inventory; Mitigation; Gaps & Constraints	BUR-1 published and submitted to UNFCCC in 2016 with National GHG Inventory of 2010. The report also gives time series of 2000-2010. BUR-2 published and submitted to UNFCCC in 2018 with National GHG Inventory of 2014. The report also gives time series of 2000-2014.	(A) BUR for 2014, 2016 and 2018	HS. The information may be seen in BUR-1 and Bur-2 which are available on UNFCCC and MoEFCC websites.
	(B) Update of the national circumstances and institutional arrangements from BUR perspective for 2014 and 2016.	BUR-1 to be submitted in 2016, BUR-2 in 2018 and BUR-3 in 2020.	(B) Only SNC report	and draft reports 70 % received 2nd installment processed for GHG inventory studies and some studies of mitigation. Contracts awarded for on domestic MRV arrangement in various sectors and 1st instalment processed for all four studies on MRV.	Chapter on National Circumstances has been reported in BUR-1 and BUR-2.	(B) BUR for 2014, 2016 and 2019	
	(C) Mitigation actions and their effects until 2020, including associated assumptions, methodologies and modelling.		(C) No previous reports		Mitigation Actions including their effects, both in qualitative and quantitative terms were reported in BUR-1 and BUR-2. In BUR-2 the mitigation benefits were quantified in terms of emissions reduced/ expected to be reduced Underlying data / assumption/ methodology was also recorded and reported in BUR-1 and BUR-2. All major sectors of economy were covered in mitigation assessment. BUR-1 revealed that India has reduced its emission intensity of GDP by 12% between 2005 and 2010; as per BUR-2 between 2005 and 2014 this figure was 21%.	(C) BUR for 2014, 2016 and 2020	
	(D) Update on technical, financial capacity needs and support received for	BUR-1 to be submitted in 2016, BUR-2 in 2018 and BUR-3 in 2020.	(D) Only SNC		Constraints, gaps and related technical, financial and capacity needs have been reported in BUR-1 and BUR-2.	(D) BUR for 2014, 2016 and 2021	

	implementing these mitigation actions.						
	(E) Biennial Update Reports (BUR) submitted in 2014 and 2016.		(E) Only SNC		First BUR was submitted to UNFCCC on 22 January 2016 while second BUR was submitted on 31 December 2018.	(E) BUR for 2014, 2016 and 2022	

CO-FINANCE DOCUMENTATION

S.N.	Component	Institution	Location	Principal Investigator	Title of the Study	Cofinance documented
1	Impacts, Vulnerability and Adaptation	BNHS	Mumbai	Dr. Deepak Apte	Temporal changes in the population and behaviour patterns of waterbirds in point Calimere, Tamilnadu with respect to land use and climate change	10,000,000
2	Impacts, Vulnerability and Adaptation	BNHS	Mumbai	Dr. Deepak Apte	Predictive Modelling of climate change and El Nino related impacts of Giant Clams in Lakshadweep Archipelago and its conservation implications	10,000,000
3	Impacts, Vulnerability and Adaptation	Centre for Ecological Sciences, IISc	Bengaluru	Prof. R Sukumar	Climate change vulnerability of India's Biodiversity	2,696,000
4	Impacts, Vulnerability and Adaptation	Centre for Urban Equity, CEPT University	Ahmedabad	Dr. Darshini Mahadevia	Inclusive Urban housing as climate change resilience strategy	2,428,749
5	Impacts, Vulnerability and Adaptation	FRLHT-TDU	Bengaluru	Shri D K Ved	Impact of Climate Change on wild populations of medicinal plants of conservation concern (endemic, niche-specific & red listed): A Futuristic Scenario	1,280,000
6	Impacts, Vulnerability and Adaptation	FRLHT-TDU	Bengaluru	Dr DK Ved/ Darshan Shankar	Study on phenological response of endemic plants of Western Ghats to climate change: based on herbarium records, historical datasets and ground truthing	1,380,000
7	Impacts, Vulnerability and Adaptation	G B Pant Institute of Himalayan Env & Dev (GBPIHED)	Almora	Dr. P P Dhyani	Vulnerability profiling of major Forest ecosystems in relation to climate change in the North-Western Himalayan States for developing adaptation framework and strategies	986,000
8	Impacts, Vulnerability and Adaptation	IARI,	New Delhi	Dr. Soora Naresh Kumar	Regional assessment on climate change impacts, vulnerability and adaptation for agriculture	277,175,350
9	Impacts, Vulnerability and Adaptation	Indian Institute of Management	Ahmedabad	Prof. Amit Garg	Economic cost of impacts and adaptation to extreme rainfall event induced flooding for selected Indian states	2,536,500
10	Impacts, Vulnerability and Adaptation	Indian Institute of Management	Ahmedabad	Prof. Amit Garg	Risk and uncertainty assessment for port infrastructure due to impacts of climate change: Case studies on Kandla and Vishakhapatnam	3,103,300
11	Impacts, Vulnerability and Adaptation	IITM	Pune	Dr. Ashwini Kulkarni	Projected Changes in Weather and Climate Extremes over India	18,700,000
12	Impacts, Vulnerability and Adaptation	Indian Inst of Forest Management (IIFM),	Bhopal	Dr. Bhaskar Sinha	Developing Adaptation Strategies for Sal and Teak Dominated Landscape of Central India	1,650,000
13	Impacts, Vulnerability and Adaptation	Indian Institute of Management and Indian Institute of Technology	Ahmedabad and Gandhinagar	Dr Amit Garg and Dr Vimal Mishra	Risk and uncertainty assessment for Critical Railway Infrastructure due to impacts on Climate change	10,082,400
14	Impacts, Vulnerability and Adaptation	Indian Institute of Science	Bengaluru	Dr. Renee M. Borges	The vulnerability of Pollinators and Pollination Services in India in the Context of Climate Change	2,700,000
15	Impacts, Vulnerability and Adaptation	Indian Institute of Soil Science	Bhopal	Dr. Sangeeta Lenka	Vulnerability and Impact Assessment of Climate Change on soil and Crop production of Madhya Pradesh	1,115,000
16	Impacts, Vulnerability and Adaptation	Indian National Trust for Art and Cultural Heritage (INTACH)	New Delhi	Dr. Manu Bhatnagar	A survey of Ramsar sites in India	5,712,000

17	Impacts, Vulnerability and Adaptation	Institute of Home Economics, University of Delhi	New Delhi	Dr. (Mrs.) Savita Aggarwal	Gendered Analysis of Vulnerability and adaptation strategies in agriculture	4,350,000
18	Impacts, Vulnerability and Adaptation	INTACH	New Delhi	Dr. Manu Bhatnagar	NLCP: An assessment of the delivery and impact of scheme in last 5 years: Current status and nature tourism potential	1,626,000
19	Impacts, Vulnerability and Adaptation	International Management Institute	Kolkata	Dr. Tirthankar Nag	Exploring strategic interdependencies of value chains of Infrastructure Industries: A study of climate induced vulnerabilities and impact assessment of domestic coal supply chains on power generation in India	3,543,184
20	Impacts, Vulnerability and Adaptation	Jadavpur University	Kolkata	Prof. Joyashree Roy	Assessment of economic cost of impact of heat stress on labour productivity and adaptation in selected building and transport sector	3,876,000
21	Impacts, Vulnerability and Adaptation	National Institute of Malaria Research (NIMR)	New Delhi	Dr. RC Dhiman	Vulnerability, impact assessment and adaptation measures to combat adverse impacts of climate change on vector borne diseases	2,530,000
22	Impacts, Vulnerability and Adaptation	Suganthi Devadason Marine Research Institute (SDMRI)	Tuticorin	Dr. J.K. Patterson Edward	Impacts of climatic and non-climatic stressors on the status and health of coral reefs of Gulf of Mannar and Palk Bay, Southeastern India: A field to modelling approach	32,500,000
23	Impacts, Vulnerability and Adaptation	Tamil Nadu Agricultural University	Coimbatore	Prof. V Geethalakshmi	Mapping climate change vulnerability to strengthen food security with climate smart adaptation and mitigation options in Tamil Nadu	46,900,000
24	Impacts, Vulnerability and Adaptation	Wildlife Institute of India (WII)	Dehradun	Dr. B.S. Adhikari	Ecological responses of flora and fauna to climate change in the Trans-Himalayan landscape with special reference to vulnerability and adaptations	18,287,500
25	Impacts, Vulnerability and Adaptation	Wildlife Institute of India (WII)	Dehradun	Dr. G.S. Rawat	Assessment of climate change impacts on soil health through microbial and plant communities in alpine ecosystems of the Indian Himalayan Region	25,434,500
26	Mitigation Component	Indian Council for Forestry Research and Education	Dehradun	Shri VRS Rawat	Mitigation Actions in Forestry	1,089,000
27	Mitigation Component	Indian Institute of Management	Ahmedabad	Prof Amit Garg	Mitigation Actions in Infrastructure	2,783,000
28	National GHG Inventory	Indian Agricultural Research Institute	New Delhi	Dr. Niveta Jain	Green House Gas Emission Inventory from Indian Agriculture for BUR-2 under the preparation of Third National Communication (TNC) and other new information to the UNFCCC	36,450,000
29	National GHG Inventory	Indian Institute of Management	Ahmedabad	Prof. Amit Garg	Design and implementation of QA/QC for GHG Inventory	4,618,890
30	National GHG Inventory	Indian Institute of Management	Ahmedabad	Prof. Amit Garg	Coordination of GHG Inventory for Energy Sector	4,644,940
31	National GHG Inventory	Indian Institute of Management	Ahmedabad	Prof. Amit Garg	GHG Inventory of Unorganized Sectors	4,828,500
32	National GHG Inventory	IORA Ecological Solutions	New Delhi	Dr. Sumana Bhattacharya	Towards a comprehensive assessment of GHG Emission Trends due to Energy Consumption from Railways, Aviation, and Water-borne Navigation sectors in India	200,988,400
33	National GHG Inventory	National Dairy Research Institute	Karnal	Dr. Madhu Mohini	Up gradation of methane emission factors for Indian Livestock and Preparation of Inventory of Green House Gases (GHGs) from Indian Livestock	9,000,000
		MoEFCC	New Delhi		Human resource and infrastructure provided by MoEFCC	60,000,000
Total in INR (₹)						814,995,213
Total in US\$ (average exchange rate ₹53/- to a US\$)						15,377,268
Total in US\$ (average exchange rate ₹70/- to a US\$)						11,642,789

ANNEXURE - VI

DISSEMINATION MATERIAL ON CLIMATE CHANGE

1. *Towards Preparation of India's TNC and Biennial Update Report to UNFCCC (2012).*
2. *Towards Preparation of India's first BUR to UNFCCC (2014) released by MEFCC Shri Prakash Javadekar.*
3. *Climate Friendly Lifestyle Practices in India (2015) released at COP 21 by MEFCC Shri Prakash Javadekar.*
4. *Parampara India's Climate Friendly Sustainable Practices (2015) released at COP21 by Prime Minister.*
5. *India, Climate Change and Paris Agreement, भारत, जलवायु परिवर्तन और पेरिस करार (2016).*
6. *Low Carbon Lifestyle Right Choices for our Planet (2016) released at COP22 by MEFCC Shri A M Dave.*
7. *Samanvay Harmonizing traditions and modernity (2017) released at COP23 by MEFCC Dr Harsh Vardhan.*
8. *Climate Change and Water Resources in India (2018) released at COP24 by MEFCC Dr Harsh Vardhan.*
9. *Biodiversity and Climate Change (2018) released at COP24 by MEFCC Dr Harsh Vardhan.*
10. *Climate Change and Vulnerable Indian Coast (2018) released at COP24 by MEFCC Dr Harsh Vardhan.*
11. *Ravikumar, K., Noorunnisa Begum, S., Ved, D.K., & Bhatt, J.R. (2018). Compendium of traded Indian medicinal plants. Foundation for Revitalisation of Local Health Traditions (FRLHT), Bangalore. ISBN 978-81-908965-4-2 released by honourable Prime Minister at World Environment Day (WED) 2018.*
12. *MoEFCC. (2018). Beat Plastic Pollution: Good News from India. Ministry of Environment, Forest and Climate Change, New Delhi. ISBN 978-81-933131-4-5 released by honourable Prime Minister at World Environment Day (WED) 2018.*
13. *MoEFCC. (2018). Plastics in Life and Environment. Ministry of Environment, Forest and Climate Change, New Delhi. ISBN 978-81-933131-3-8 released by honourable Prime Minister at World Environment Day (WED) 2018.*

The project contributed towards the scientific and technical aspects through audio-visual and interactive exhibits displayed in the train named as Science Express Climate Action Special. The train travelled across India from 2015-17 and has had a footfall of more than 18 million people (mainly students).

<http://www.sciencexpress.in/index.html>

ANNEXURE - VII

MEETINGS, WORKSHOPS, TRAINING PROGRAMMES ORGANISED UNDER NATCOM

Following stakeholder's consultation and other workshops were organized under the project:

1. *First meeting of the National Steering Committee for India's Third National Communication and other new information to the UNFCCC; 7th August 2013 at Paryavaran Bhawan, New Delhi.*
2. *Consultation meeting on GHG inventory for LULUCF sector for India's first BUR; 29th January 2014 at Paryavaran Bhawan, New Delhi.*
3. *Workshop on GHG inventory for Energy and IPPU sectors for India's first BUR; 12-13th March 2014 at IIM, Ahmedabad.*
4. *Consultation meeting for coordination of network of institutes for all studies under the first BUR; 19th March 2014 at Paryavaran Bhawan, New Delhi.*
5. *Meeting of forestry expert group on LULUCF inventory preparation for BUR; 20th March 2014 at IISc, Bangalore.*
6. *Meeting on progress of GHG inventory preparation of Agriculture and Waste sectors under India's first BUR; 29th April 2014 at NATCOM Project Management Unit, New Delhi.*
7. *Meeting to review the activities towards preparation of India's first BUR- "National Circumstances, Mitigation Actions, Constraints and Gaps"; 15th May 2014 at NATCOM Project Management Unit, New Delhi.*
8. *Meeting to review the activities towards preparation of India's first BUR to UNFCCC- "GHG Inventory for BUR"; 16th May 2014 at NATCOM Project Management Unit, New Delhi.*
9. *Expert group meeting for LULUCF sector GHG Inventory on 3rd September 2014 at MoEFCC, New Delhi.*
10. *Expert group meeting for Waste and Agriculture sector GHG inventories on 10th September 2014 at MoEFCC, New Delhi.*
11. *Expert group meeting for Energy and IPPU sector GHG inventories on 11th September 2014 at MoEFCC, New Delhi.*
12. *Meeting on GHG Inventory for BUR chaired by Secretary, MoEFCC on 11th November 2014.*

13. *Meeting of the Expert Advisory Committee chaired by Additional Secretary, MoEFCC at Indira Paryavaran Bhawan, New Delhi on 24th April 2015.*
14. *Second Meeting of the National Steering Committee chaired by Secretary, MoEFCC at Indira Paryavaran Bhawan, New Delhi on 30th April 2015.*
15. *Consultative meeting of sectoral experts on GHG inventory (IPPU, LULUCF, Agriculture, Waste) on 27 January 2016, New Delhi.*
16. *Meeting on Development of National GHG Inventory Management System (NIMS) on 13th June 2016, at Indira Paryavaran Bhawan, New Delhi.*
17. *Consultative meeting on India's National GHG Inventory for Biennial Update Reports and Third National Communication to UNFCCC on 1 August 2016 at Kaveri Hall, Indira Paryavaran Bhawan, New Delhi.*
18. *Energy Sector Expert Group for National GHG Inventory for Second BUR on 10 August 2016 at MoEFCC, New Delhi.*
19. *Meeting of the National Advisory Committee on Preparation of second BUR on 8th September 2017 at Ministry of Agriculture, Cooperation and Farmers Welfare, Krishi Bhawan, New Delhi.*
20. *A Review Meeting on Status of Preparedness for India's BUR-2 including Inventory, Mitigation, Technology Needs Assessment, and Domestic Measurement, Reporting and Verification on 12 October 2017 at WWF India office, New Delhi.*
21. *A Workshop to Share Experiences between India and Norway on GHG Emission Inventory on 26-27 October 2017 at TERI University, New Delhi.*
22. *A quality check meeting for National GHG Inventory at MoEFCC, New Delhi on 12 January 2018.*
23. *A Meeting to review the preparation of National GHG Inventory for BUR- 2 on 8th February 2018 at Narmada Hall, Indira Paryavaran Bhawan, MoEFCC.*
24. *A National Validation Workshop on Technology Needs Assessment at Indira Paryavaran Bhawan, New Delhi on 9th March 2018.*
25. *A meeting to review national GHG inventory for BUR-2 on 12th September 2018 at MoEFCC, Indira Paryavaran Bhawan, New Delhi.*
26. *Meeting of the Technical Advisory Committee to India's Third National Communication and BURs to the UNFCCC on 26 October 2018 at Indira Paryavaran Bhawan, New Delhi.*