TERMINAL EVALUATION 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 4673***

1 March 2023

Implementing Agency: Ministry of Environment, Forest and Climate Change, Government of India

Executing Agency: United Nations Development Programme (India)

TERMINAL EVALUATION Panel of Experts

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NOTE: The Terminal Evaluation Panel of Experts conducted the Mid-Term Review of the TNC/NATCOM-3 project. Accordingly, this report has been built upon the MTR report and a lot of information has been reproduced verbatim for ready reference of the users/readers. The report has tried its best to follow the plagiarism guidelines but may have overlooked some instances as this report is not for scientific research/academic purposes, but for use by GEF, UNDP and the Government of India. No transgression or infringement on the works of any person or institution is intended and any acts of reproduction of thoughts, ideas, views or writings by the TE Panel of Experts may be viewed in this perspective only.

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ACKNOWLEDGEMENTS

The TE Panel of Experts would like to thank Ms Leena Nandan, Secretary, MoEFCC, Ms Richa Sharma, Additional Secretary, MoEFCC, Dr J. R. Bhatt, Scientist G and National Project Director, NATCOM Project, MoEFCC, Mr Ajay Raghav, Scientist C, MoEFCC and Dr Ruchi Pant, Chief-Climate Change, Resilience and Energy, UNDP-India for entrusting us with the responsibility to undertake the Terminal Evaluation of the project. We would like to thank Dr Ashish Chaturvedi, Head of Energy and Environment Unit, Mr. Saba Kalam, and Ms. Sonali Bhatnagar, UNDP-India, and Project Officers and other members of the Project Management Unit of NATCOM, all the stakeholders and Principal Investigators of the studies commissioned under the NATCOM project for efficient and professional organisational support they provided during this review.

The impressive efforts are reflected in the skilled approach adopted towards the project implementation. This review gives a fair assessment of the project achievements and hopefully all parties would accept the candid observations with the same healthy spirit with which these are presented.

The TE Panel of Experts expresses its gratitude to Mr. Shantanu Goel, Programme Manager, Sustainability and Environment, Pune Knowledge Cluster (PKC) for putting in timely efforts in coordinating and conducting the meetings and preparing the draft report.

TE Panel of Experts

ACRONYMS AND ABBREVIATIONS

S. R. No.	Accr/Abb	FULL FORM
1.	AFLOU	Agriculture, Forest and Other Land Uses
2.	AHP	Analytical Hierarchy Process
3.	APR	Annual Project Review
4.	BNHS	Bombay Natural History Society
5.	BOBP IGO	Bay of Bengal Programme Inter-Governmental Organisation
6.	BTOR	Back to Office Report
7.	BUR	Biennial Update Report
8.	CBD	Convention on Biological Diversity
9.	CBDR	Common but Differentiated Responsibilities
10.	CCCR	Centre for Climate Change Research
11.	CCCTA	Comprehensive, Complete, Comparable, Transparent and Accurate
12.	CDM	Clean Development Mechanism
13.	CEEW	Council on Energy, Environment and Water
14.	CES	Centre for Ecological Studies
15.	CMIP5	Coupled Model Intercomparison Project Phase 5
16.	CO	Country Office
17.	CoP	Conference of Parties
18.	CORDEX	Coordinated Regional Downscaling Experiment
19.	CPAP	Country Programme Action Plan
20.	CS	Country Specific
21.	CSO(s)	Civil Society Organisation(s)
22.	CTCN	Climate Technology Centre and Network
23.	DST	Department of Science and Technology
24.	EESL	Energy Efficiency Services Limited
25.	EF	Emission Factors
26.	ERC	Evaluation Resource Center
27.	FRLHT TDU	Foundation for Revitalisation of Local Health Traditions (FRLHT) and The University of Trans-Disciplinary Health Sciences and Technology
28.	FSI	Forest Survey of India
29.	FSP	Full-Size Project
30.	GCM	Global Climate Model
31.	GEF	Global Environment Facility
32.	GHG	Green House Gas
33.	GoI	Government of India
34.	GPG	Good Practice Guideline

S. R. No.	Accr/Abb	FULL FORM
35.	GWP	Global Warming Potential
36.	ICFRE	Indian Council of Forestry Research and Education
37.	IDRC	International Development Research Centre
38.	IIM	Indian Institute of Management
39.	IIT	Indian Institute of Technology
40.	IITM	Indian Institute of Tropical Meteorology
41.	IMD	India Meteorological Department
42.	INC	Initial National Communication
43.	INCCA	Indian Network for Climate Change Assessment
44.	INTACH	Indian National Trust for Art and Cultural Heritage
45.	IORA	IORA Ecological Solutions Pvt. Ltd.
46.	IPCC	Intergovernmental Panel on Climate Change
47.	IPPU	Industrial Processes and Product Use
48.	IRADe	Integrated Research and Action for Development
49.	ISRO	Indian Space Research Organisation
50.	IISc	Indian Institute of Science, Bengaluru
51.	IVA	Impact, Vulnerability and Adaptation
52.	LULUCF	Land Use, Land Use Change and Forestry
53.	M&E	Monitoring and Evaluation
54.	MNRE	Ministry of New and Renewable Energy
55.	MoAFW	Ministry of Agriculture and Family Welfare
56.	MoEF	Ministry of Environment and Forests
57.	MoEFCC	Ministry of Environment, Forest and Climate Change
58.	MoES	Ministry of Earth Science
59.	MoF	Ministry of Finance
60.	MoPNG	Ministry of Petroleum and Natural Gas
61.	MoSPI	Ministry of Statistics and Programme Implementation
62.	MSME	Medium, Small and Micro Enterprises
63.	MSW	Municipal Solid Waste
64.	MTR	Mid-Term Review
65.	TE	TERMINAL EVALUATION
66.	NAMA	Nationally Appropriate Mitigation Action
67.	NAPCC	National Action Plan for Climate Change
68.	NATCOM	National Communication
69.	NBSAP	National Biodiversity Strategy and Action Plan
70.	NC	National Communication
71.	NCV	Net Calorific Value

S. R. No.	Accr/Abb	FULL FORM
72.	NGO	Non-Governmental Organisation
73.	NICRA	National Innovations on Climate Resilient Agriculture
74.	NIMS	National Inventory Management System
75.	NIOT	National Institute of Ocean Technology
76.	NITI Aayog	National Institution for Transforming India
77.	NPD	National Project Director
78.	NSC	National Steering Committee
79.	PAT	Perform Achieve and Trade
80.	PCA	Principal Component Analysis
81.	PIR	Project Implementation Reports
82.	PMU	Project Management Unit
83.	PPAC	Petroleum Planning & Analysis Cell
84.	PPR	Project Progress Reports
85.	ProDoc	Project Document duly signed by the Government, Executing Entity/Implementing Partner and UNDP.
86.	PSC	Project Steering Committee
87.	QA/QC	Quality Assurance/ Quality Control
88.	R&D	Research and Development
89.	RC	Respective Capabilities
90.	RCC	Regional Climate Centre
91.	RCM	Regional Climate Model
92.	RCP	Representative Concentration Pathways
93.	RCU	Regional Coordination Unit
94.	REDD	Reducing Emissions from Deforestation and Forest Degradation
95.	RSO	Research on Systematic Observations
96.	SAPCC	State Action Plan for Climate Change
97.	SBAA	Standard Basic Assistance Agreement
98.	SDG	Sustainable Development Goals
99.	SDMRI	Suganthi Devadason Marine Research Institute
100.	SNC	Second National Communication
101.	SRES	Special Report on Emissions Scenarios
102.	SSP	Shared Socio-Economic Pathways
103.	STA	Senior Technical Advisor
104.	STAR	System for Transparent Allocation of Resources
105.	TAC	Technical Advisory Committee
106.	TAG	Technical Advisory Group
107.	TERI	The Energy and Resources Institute

S. R. No.	Accr/Abb	FULL FORM
108.	TNA	Technology Needs Assessments
109.	TNC	Third National Communication
110.	ToR	Terms of Reference
111.	UNDAF	United Nations Development Action Framework
112.	UNDP	United Nations Development Programme
113.	UNFCCC	United Nations Framework Convention on Climate Change
114.	V&A	Vulnerability and Adaptation
115.	WMO	World Meteorological Organization

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 #):	**4673**	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:	**02 September 2020**
GEF Focal Area Strategic Objective:	**Outcome 6.1: Adequate resources allocated to support** **enabling activities under the** **Convention**	Terminal Evaluation completion date:	**30 June 2022**
		Planned closing date:	**31 January 2018**
Trust Fund [indicate GEF TF, LDCF, SCCF, NPIF]:	**GEFTF**	If revised, proposed op. closing date:	**GEF Funds received: 01 December 2013.** **Closing Date: 30 June 2022.**

Executing Agency/ Implementing Partner:	**Ministry of Environment, Forest and Climate Change (MoEFCC) with support from the United Nations Development Programme (UNDP)**
Other execution partners:	Nil

Project Financing	*at CEO endorsement (US$)*	*at Midterm Review (US$)*	*at Midterm Review (US$)*
1. GEF financing:	**9,010,604**	**4,564,937**	**9,010,604**
2. UNDP contribution:	**150,000**		
3. Government:	**26,090,000**	**15,371,683**	**41,600,000**
4. Other partners:	**NIL**		NIL
5. Total co-financing [2+3+4]:	**26,240,000**		**41,600,000**
PROJECT TOTAL COSTS [1+5]	**35,250,604**	**19,936,620**	**50,610,604**

PROJECT DESCRIPTION

As per the decisions 17/CP.8 and 2/CP.17, Non-Annex 1 countries are to submit their national communications and biennially update them. Accordingly, the NATCOM project is designed to enable India to undertake activities for preparing its Third National Communication and Other New Information namely, Biennial Update Reports to the UNFCCC according to the guidelines provided by the Conference of Parties. The NATCOM project design was 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 policymakers, 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 concerns 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

Further, the Panel of Experts have assessed the original log-frame and found that four of the seven Outcomes are 'highly satisfactory and the remaining three are 'satisfactory'. Therefore, the overall project progress is adjudged as '**highly satisfactory**'. During MTR, the Panel of Experts felt that the Results Framework/Log-frame given in the Project Document (ProDoc) did not address the new and emerging issues and requirements of UNFCCC and India. Accordingly, the Expert Panel had suggested a revised Log-frame which has eight Outcomes to be achieved through 21 Outputs and numerous activities. Seven of the eight Outcomes are found to be 'highly satisfactory', and one is 'satisfactory'. In terms of the achievement of the Outputs, nineteen of the twenty-one are adjudged as 'highly satisfactory', and two are 'satisfactory'.

TE RATINGS & ACHIEVEMENT SUMMARY TABLE

Monitoring & Evaluation (M&E)	Rating[1]
M&E design at entry	6
M&E Plan Implementation	6
Overall Quality of M&E	6
Implementation & Execution	Rating
Quality of UNDP Implementation/Oversight	6
Quality of Implementing Partner Execution	6
Overall quality of Implementation/Execution	6
Assessment of Outcomes	Rating
Relevance	6
Effectiveness	6
Efficiency	6
Overall Project Outcome Rating	6
Sustainability	Rating
Financial resources	4
Socio-political/economic	4
Institutional framework and governance	4
Environmental	4
Overall Likelihood of Sustainability	4

[1] Outcomes, Effectiveness, Efficiency, M&E, I&E Execution, Relevance are rated on a 6-point rating scale: 6 = Highly Satisfactory (HS), 5 = Satisfactory (S), 4 = Moderately Satisfactory (MS), 3 = Moderately Unsatisfactory (MU), 2 = Unsatisfactory (U), 1 = Highly Unsatisfactory (HU). Sustainability is rated on a 4-point scale: 4 = Likely (L), 3 = Moderately Likely (ML), 2 = Moderately Unlikely (MU), 1 = Unlikely (U)

ANSWERS TO EVALUATIVE QUESTIONS:

EVALUATIVE QUESTION 1: Are India's national development priorities and policies aligned with the international (UNFCCC) objective?

YES. India communicates information on national inventories of greenhouse gases not controlled by the Montreal Protocol, steps taken or envisaged to implement the Convention and any other information that the Party considers relevant to the achievement of the objective of the Convention and suitable for inclusion in its communications namely, NCs and BURs.

EVALUATIVE QUESTION 2: Does the project help the country meet the commitments, including new and additional, made to UNFCCC and also track the progress thereto?

YES. Decision 2/CP.17, Paragraph 41(f) and (g) mandated Non-annex I Parties to submit BURs every two years with the national GHG inventories being not more than four years older than the submission year. In fulfilment of these requirements, MoEFCC with its cross-ministerial and institutional network submitted its BURs 1, 2, and 3 under the project and the TNC is undergoing review.

Under Component - vii. Other new information required under the aegis of the Convention, studies have been completed on developing a long-term strategy for low carbon development and road map for achieving NDC goals 3, 5, 7, and 8.

EVALUATIVE QUESTION 3: Does the project create awareness and build up the capacity of stakeholders and institutions to continue to meet the reporting requirements of UNFCCC?

YES. External communication with all stakeholders has been commendable with release of fifteen publications including two books under print. The publications include books for various stakeholders including the general public (Sustainable Lifestyles – Parampara, Samanvay: Harmonizing Traditions and Modernity, Low Carbon Lifestyles: Right Choices for Our Planet), policy makers (India: Climate Change and the Paris Agreement), and experts/scientists/researchers (Indian Long Term Ecological Observatories).

EVALUATIVE QUESTION 4: Do the project outputs provide inputs to national and state policies to meet the development priorities in the backdrop of CC?

YES. The project Outputs namely, BURs, NCs, study reports, and strategy documents such as long-term strategy and NDC road maps are used by the GoI to draft national regulatory frameworks, policies, schemes/ programmes.

EVALUATIVE QUESTION 5: 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?

Despite the ongoing COVID-19 pandemic, the project not only successfully submitted the BUR-3 to UNFCCC but has also prepared the draft TNC report. The project has been able to leverage more than US$34 million to US$47.9 million documented co-finance from GoI, Civil Society and Private Sector.

EVALUATIVE QUESTION 6: Are there any financial, institutional, socio-economic, and/or environmental risks to sustaining long-term project results?

NO. Financial, institutional, socio-economic, and/or environmental risks to sustaining long-term project results are highly 'unlikely'. GEF Trust Fund has committed more than US$10 million for three projects that ensure the TNC (NATCOM-3) project.

RECOMMENDATION OF MTR SUMMARY TABLE

Recommendation 1: MoEFCC, UNDP and GEF may like to adopt the revised log-frame suggested by the Expert Panel.

Action taken: Understandably, the revision of the log-frame was too late in the project cycle and may have led to unnecessary complications for the GEF Secretariat. Hence, the same was not used by UNDP for GEF progress reporting but was used internally by MoEFCC and UNDP to track the progress of the project.

Recommendation 2: 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.

Action taken: All relevant departments/ministries provide inputs in a timely manner and have representation on the National Steering Committee to ensure the accuracy and correctness of the data and analysis. Having too many institutions in project implementation may lead to unnecessary and avoidable complications. Hence, it was decided that other departments/ministries of GoI need not become responsible partners in the follow-up projects.

Recommendations 3: Regarding lacunae under some Outcomes and Outputs requiring immediate attention

a. Output 5.1: Studies for comprehensive description of systematic observations and research on climate change be commissioned on an urgent basis.

Action taken: Studies were commissioned to the Indian Institute of Tropical Meteorology, Pune.

b. Output 5.2: Long-term ecological studies to understand impacts of climate change on biodiversity and other sectors be commissioned at the earliest.

Action taken: MoEFCC launched the Long-Term Ecological Observatories (LTEO) for Climate Change Studies under the 'Climate Change Action Programme' with an outlay of Rs. 400 million. Under the programme, studies have been commissioned to 32 institutions under the overall guidance and supervision of Indian Institute of Science.

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 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 the 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.

Action taken: The establishment of NICCSA as a standalone institution has been replaced by devolving the responsibilities to a network of institutions. The establishment of the National Inventory Management System (NIMS) could not happen because of the evolving nature of negotiations under Article 6 of the Paris Agreement. A decision on the article has been taken at CoP-26 to the UNFCCC. Accordingly, the establishment of NIMS is being addressed through new GEF Trust Fund project. More information on this is given below i.e., in Action Taken on Recommendation 9, 13 and 14.

Recommendations 4:

a. Output 2.1: There is a need to circulate the NCs more widely and getting the Executive Summary translated into scheduled languages.

Action Taken: Along with being available on the UNFCCC websites, the NCs and BURs have also been made available on the Ministry's website. Further, due to the ongoing COVID-19 pandemic, printing of the documents was rendered difficult (lock-downs, limited staff and other problems) and futile (no physical contact, so distribution was difficult).

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.

Action Taken: The books are in final stages of editing. The delay in publishing the books is on account of the ongoing COVID-19 pandemic.

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. **Action Taken:** The books are in final stages of editing. The delay in publishing the books is on account of the ongoing COVID-19 pandemic.

Recommendations 5, 9 and 10: Establishing a National Institution on CC, institutionalizing the PMU, continued GEF financing, roadmap for future reporting including financing.

Action taken: The Outcomes of the new GEF Trust Fund project Capacity-building for establishing an Integrated and Enhanced Transparency Framework for climate actions and support measures (CBIT) include establishing: i) a National Institutional Coordination System (NICS) and ii) the National Climate Information System (NCIS). Further, under the 4NC and BUR4 project, it is envisaged to establish a National Inventory Management System (NIMS). Under the CBIT project, it is envisaged to integrate NICS with National Inventory Management System (NIMS) and other online tracking tools to create a centralised National Climate Information System (NCIS) for disseminating information in the public domain. NCIS will also help enhance the capacity to mobilise climate finance. Government of India has also established Centre for Climate Change Research at Indian Institute of Tropical Meteorology, Pune under Ministry of Earth Sciences with the following objectives:

i) To develop high resolution climate models or Earth System Models (ESM) to address scientific questions on attribution and projection of regional climate change. ii) To use regional climate models to produce projections of Indian monsoons under different scenarios and assess the uncertainty in these projections. iii) To study Monsoon Variability and Predictability by identifying regional and global climate drivers for monsoon inter-annual variability and to identify useful predictors and to understand the dynamics of dry and wet epochs of the Indian summer monsoon rainfall (ISMR) and their relation to the ENSO and other global coupled phenomenon. iv) To document chief features of regional monsoon climate change based on climate reconstructions derived from high resolution proxies and to understand the long-term monsoon climate variability over the Asian region. v) To build in-house capacity in global and regional climate modelling to address all issues concerning the science of regional climate change with particular emphasis on the South Asian monsoon system.vi) To generate reliable climate inputs for impact assessments. vii) To develop hydrological model for large-scale estimation of run-off and soil moisture using satellite derived data. viii) To understand the role of aerosol loading over the Indian region in monsoon interannual variability and its possible implications on the Indian Monsoon. ix) To study and understand the role of aerosol chemistry (both organic and inorganic ionic species) in radiative forcing and regional climate change.

Recommendation 6: PMU may bring out BUR-3 with 2016 GHG inventory by December 2019 and TNC by June 2020.

Action taken: The BUR-3 with 2016 inventory was submitted to the UNFCCC on 20 February 2021 and the TNC with 2017 to 2019 inventory is complete and undergoing a review process. The delay in submission and preparation of BUR-3 and TNC respectively is on account of the ongoing COVID-19 pandemic. The delay in preparation and submission of the national reports was intimated to GEF Secretariat and project extended accordingly.

Recommendation 7: 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.

Action taken: The studies for the gap areas were duly commissioned and the results incorporated in BUR-3 submitted in February 2020 and the draft TNC is being reviewed).

Recommendation 8: PMU may commission a study to compile, collate and document the co-finance from various sources.

Action taken: The PMU itself compiled, collated and documented the co-finance from various sources and has reported the same to the Expert Panel and GEF.

CONCLUSIONS

1. *The project is multifaceted, complex and unique involving multiple stakeholders, vast amounts of data (both current and historical), cutting edge science and technology, and addresses problems at all levels. In terms of science and data collection, analysis and management, more than 50 institutions and 100 scientists were involved.*
2. *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.*
3. *The project implementation and adaptive management exhibited by NPD and PMU are found commendable.*
4. *MoEFCC has developed internationally acclaimed BURs due to its rigorous Monitoring and Evaluation framework comprising scrutiny by scientific/technical experts, all relevant departments/ministries of GoI, Technical Advisory Committee and National Steering Committee.*
5. *Stakeholder engagement and communication under the project are highly appreciable and noteworthy. Under the project, more than 15 books/publications were brought out*

for the international and national audiences such as general public, decision and policy makers, academicians and businesses.

6. *The Results Framework/Log-frame*
   a. *At the time of MTR, the Panel of Experts proposed a revised log-frame comprising eight Outcomes to be achieved through 20 Outputs and numerous activities. Understandably, the revision of the log-frame was too late in the project cycle and might have led to unnecessary complications for the GEF Secretariat. Hence, the same was not used by UNDP for GEF progress reporting but was used internally by MoEFCC and UNDP to track the progress of the project.*
   b. *With regards to the original log-frame: the Panel of Experts found the Objective to be fully achieved and six of the seven Outcomes to be 'highly satisfactory' and the one remaining to be 'satisfactory'. In terms of total indicators and their envisaged targets, out of the total thirty-six targets, thirty-one stand fully achieved and adjudged 'highly satisfactory' and the remaining five to be partially achieved and adjudged 'satisfactory'. Therefore, the overall project progress is adjudged as 'highly satisfactory'.*
   c. *With regards to the proposed MTR log-frame: the project achieved 'highly satisfactory' ratings for all four indicators and targets at the objective level, seven of the eight Outcomes were adjudged 'highly satisfactory', and the remaining one was found 'satisfactory'. In terms of the achievement of the Output level indicators and targets, twenty of the twenty-one are adjudged as 'highly satisfactory', and one as 'satisfactory'.*

7. *The project has been managed, monitored and implemented extremely well by MoEFCC with the support of UNDP.*

8. *India, a Non-Annex-1 Party to the UNFCCC, submitted its First to Third BURs and its Initial and Second NCs to the UNFCCC and the TNC is under review. The submission of the BURs by India in a timely manner shows the country's commitment towards reporting to the UNFCCC.*

9. *India's advances in the fields of GHG inventory and reporting to UNFCCC are remarkable as evident from the climbing of the Tier ladder, developing country specific emission factors and activity data for key sectors from INC till TNC.*

10. *More than 100 studies were undertaken by over 50 institutions to collect, collate and analyse data. The role of PMU, MoEFCC and UNDP in undertaking the gargantuan task of commissioning the studies, and thereafter sieving through the enormous data, results and findings to draft the BURs and TNC is highly appreciable.*

11. *It is heartening to note India's progress and enhanced transparency in reporting have been commended by TTE and parties during the ICA process for BURs 1, 2, and 3. The international recognition speaks volumes of the efforts put in by experts, institutions, Government of India, especially MoEFCC, PMU and UNDP in collection of data and drafting of the BURs.*

12. ***Since INC, India has been using actual data for GHG inventorisation and not projections/modelling. This requires continuous flow of scientific data with constant monitoring. In view of the scientific strategic requirements, India has prepared GHG inventories for 2010, 2014, 2016 and 2017-19, which are beyond the envisaged targets of the TNC project. India's contribution to the understanding of Climate Science through projects such as the extant one needs to be continued through future projects. In this context, India has developed the requisite individual and institutional capacities to sustain the scientific rigour for the forthcoming three GEF Trust Funded projects.***

13. ***India announced the 'SATAT' (Sustainable Alternative Towards Affordable Transportation) scheme to convert agricultural biomass (residue) into biofuels (Bio-CNG, green Hydrogen and 2G ethanol). It is imperative that in line with such an initiative, the country further climbs the GHG inventory Tier ladder and develops Country Specific (CS) emission factors and activity data for agriculture and renewable energy sectors.***

14. *Given the size, socio-economic-environmental diversity and developmental needs of India, it is acknowledged that a single project like the extant TNC project will have limited or often unfathomed contribution in affecting or achieving policy changes. It is the considered opinion of the Panel of Experts that reporting by country parties including India does lead to awareness of the problems/issues and collective actions.*

15. *The project with its deliverable can be used as a role model for future projects.*

RECOMMENDATIONS

UNDP (India) with endorsement of MoEFCC has developed the following three GoI-GEF projects:

1. "Preparation of India's Fourth National Communication (4NC) and Fourth Biennial Update Report (BUR4) to the UNFCCC and Strengthening Institutional and Analytical Capacities on Climate Change (4NC project)".
2. "Preparation of India's first Biennial Transparency Report" (BTR).
3. "Capacity-building for establishing an Integrated and Enhanced Transparency Framework for climate actions and support measures (CBIT)".

Based on the findings, evaluative questions and understanding of the subject, the Panel of Experts make the following recommendations:

S. No	RECOMMENDATIONS	RESPONSIBLE PARTY	TIME FRAME
1.	Reporting of BR/BUR under UNFCCC will be superseded by Biennial Transparency Report (BTR) for Parties to the Paris Agreement. Accordingly, final BURs are to be submitted no later than 31 Dec 2024 (1/CP.24, para 38), and First BTR must be submitted by all Parties no later than 31 Dec 2024 (18/CMA.1, para 3). During the technical analysis (TA) of BUR-3, India put on record that the capacity building needs identified during TA of its BUR-2 and even prior to that (i.e., since 2004) are still relevant and remain mostly unmet and continue to multiply. **Given that two reports i.e., BUR4 and the first BTR, are to be submitted by 2024, and the needs for capacity building that have remained unmet so far, the CBIT project needs to be initiated immediately.**	UNDP and GEF Sec	Within 3 months
2.	While the studies and all major activities were carried out by MoEFCC, UNDP (India) supported project implementation by: • finance management, including releasing funds as per the authorisation of MoEFCC, financial accounting and auditing; and • administrative support, including, inter alia, engaging staff, procuring services of national and international consultants, procuring equipment, and logistic and boarding support for travel and meetings/conferences. **The support provided by UNDP (India) in the form noted above for project implementation**	MoEFCC-UNDP	Project period of the three new projects

	was crucial and must continue for follow-on projects.		
3.	India is promoting low-carbon growth and development across the economy and utilizing available opportunities and synergies in various sectors: In particular, for low-carbon growth in the transport sector, and addressing GHG emissions from wastes, India is promoting green hydrogen, electric mobility (based on renewable energy) and converting biomass (agriculture and domestic wastes) into biofuels (Bio-CNG, green Hydrogen and 2G ethanol). The country may explore climbing the GHG inventory Tier ladder and develop Country Specific (CS) emission factors for agriculture and renewable energy sectors.	MoEFCC	
4.	More than 100 studies were undertaken by over 50 institutions to collect, collate and analyse data. This itself has been a remarkable feat. While, the essential results and findings of these studies may find place in the BURs and TNC, there would be lots of data and findings that may not get reported. Accordingly, the studies may be compiled into reports for dissemination to various stakeholders.	MoEFCC	One year since inception of the new projects

LESSONS LEARNED

1. The strategy of building on past learnings from projects helps ensure better results/success, continuity, institutionalisation and effective implementation through replication.

2. Retaining the implementation arrangements is imperative, since it helps begin a new project from the point where the last one ended.

3. Rigorous M&E by project implementation unit and third-party independent evaluators on a continuous and periodical basis is essential for the success of a project.

4. The project has enabled the creation of foundational capacities in India for scientific research that are of paramount value for informing climate policy and action in different

sectors. The entire protocol of developing the National Communications and the BUR as well as the institutional architecture to support the development of these reports to the UNFCCC have been a contribution of the GEF-GOI-UNDP NATCOM project. Hence, Enabling Activity projects should be used to create and continuously upgrade systemic capacities and not be focused on only creating outputs and deliverables.

5. The creation and strengthening of systemic capacity have important knowledge benefits. Several outputs that were not originally envisaged under the project have emerged because of the information, experience and expertise created out of the project.

6. The focus on Sustainable Lifestyles and Lifestyles for Environment (LiFE), that has evolved to become a fundamental aspect of India's climate policy, has also been informed by a series of knowledge products commissioned under this project. The recommendation from this experience is to allow more country ownership and flexibility in the design and implementation of these projects rather than focus exclusively on the agreed upon deliverables. Such ownership and flexibility would enable much more impactful use of these projects.

7. As a consequence of the funding arrangements, with the funding being obtained from GEF in project mode with substantial co-funding by GoI through multiple channels, the institutional structure of India's preparation of the BURs and NCs is incorrectly described as being in project mode. India's inventory preparation system is nor ad-hoc nor without institutional foundations in Government, whose functioning and processes are administratively and legally recognized. The current institutional structure of the BUR and NC preparation process is also well aligned with that of other large developing economies, while comparison with developed countries is not relevant in keeping with India's status as a developing country Party to the UNFCCC. Hence, the desirability of a National Inventory Management System (NIMS) and its development may be independently undertaken after due consideration by Government of India, but its establishment is not an immediate requirement as per the current experience. Further, such a NIMS should not become a barrier to the development of appropriate processes and relevant knowledge generation for climate policy making, whose successful contribution has been noted above, and which remains a necessity for India as a developing country.

1 INTRODUCTION

1.1. PURPOSE OF THE TERMINAL EVALUATION (TE)

The "Preparation of Third National Communication (TNC) and other new information to the UNFCCC" (TNC or NATCOM PROJECT) is termed as an Enabling Activity (EA) which in GEF parlance means a project for the preparation of a plan, strategy, or report to fulfil commitments under a Convention. Mid-Term Reviews (MTRs) and Terminal Evaluations (TEs) are optional for expedited Enabling Activities (EAs). Accordingly, since the TNC project is designed to fulfil India's reporting requirements to UNFCCC, it falls under the EA category. However, in the past i.e., in 2019, Ministry of Environment, Forest and Climate Change (MoEFCC) and UNDP felt need to conduct an MTR of the TNC project. Further, they also felt that Mid-Term Review (MTR) by one or two international experts might not do justice as the project is quite complex and multi-sectoral. 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. The current panel of experts were identified by MoEFCC and UNDP to undertake the MTR since the experts neither have any stake in the project nor is there any conflict of interest. Accordingly, a Mid-Term Review Expert Group was constituted on 24 January 2019 vide D.O.No.26/4/2012-CC. Understandably, MoEFCC, UNDP and GEF have once again decided that the Terminal Evaluation of the project be undertaken by the same Panel of Experts. This need is felt to understand the success/failure of the TNC project, its achievements vis-à-vis the expected Outcomes and Outputs and to document the lessons learnt, especially for the follow-up EA project entitled "Preparation of India's Fourth National Communication (4NC) and Fourth Biennial Update Report (BUR4) to the UNFCCC and strengthening institutional and analytical capacities on climate change (NATCOM-4)", set to begin in early 2022.

Terminal Evaluation (TE) is an integral part of projects supported by the United Nations Development Programme (UNDP) with grant financing from the Global Environmental Facility (GEF) family of funds. The Guidance for Conducting Terminal Evaluations of UNDP-supported, GEF-financed Projects clearly spells out the following purposes:

- ensure accountability and transparency;
- help improve the selection, design and implementation of future UNDP-supported GEF-financed initiatives;
- improve the sustainability of benefits and aid in overall enhancement of UNDP programming;

- assess and document project results and their contribution towards achieving GEF strategic objectives aimed at global environmental benefits;
- gauge the extent of project convergence with other UNDP country programme priorities such as climate change, reducing disaster risk and vulnerability, and gender equality, empowering women and supporting human rights.

The objective of the TE is to highlight the expected and achieved accomplishments, critically examine the presumed causal chains, processes, and attainment of results as well as the contextual factors that may have enhanced or impeded the achievement of results. The evaluation will focus on determining the relevance, impact, effectiveness, efficiency and sustainability of project work in order to make adjustments and improve contributions to development of future similar projects.

The TE presented an opportunity for stakeholders to discuss and critically assess the administrative and technical strategies, and the gaps, issues, challenges and constraints of the project. 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 for similar projects, 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 TE. The process and report may be used by managers and stakeholders to (a) strengthen the adaptive management and monitoring function of future 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 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 GoI 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 TE 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 TE 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 TE is to assess the achievement of project results against what was expected to be achieved, and draw lessons that can both improve the sustainability of benefits from this project, and aid in the overall enhancement of UNDP programming. The TE report promotes accountability and transparency, and assesses the extent of project accomplishments.

B) Scope of the Evaluation

The TE report must define the parameters and focus of the evaluation, including the time period being evaluated, segments of the target beneficiaries and geographic area included, besides which components were assessed.

C) Methodology

The TE report will describe the selected methodological approaches; the rationale for their selection; and how, within the constraints of time and money, the approaches and methods employed yielded data that helped answer the evaluation questions and achieved the evaluation purposes. The description should help report users judge the merits of the methods used in the evaluation and credibility of the findings, conclusions and recommendations.

D) Data Collection and Analysis

The TE report must include a section that articulates how data have been collected and analysed. This includes the sources of information (documents, stakeholders, beneficiaries, etc.), the rationale for their selection and how the information obtained addressed the questions in the Evaluation Criteria Matrix (Table 3 on page 10 of Guidance for Conducting Terminal Evaluations of UNDP-supported, GEF-financed Projects). Lists of documents reviewed and persons interviewed should be annexed to the report.

E) Ethics

The Panel of Experts have signed a code of conduct upon acceptance of the assignment (Annexure-III). The evaluation has been conducted in accordance with the principles outlined in the United Nations Evaluation Group (UNEG) 'Ethical Guidelines for Evaluations' and the GEF and UNDP M&E policies. The TE team clarified to all stakeholders interviewed that their feedback and input would be confidential. To protect the rights and confidentiality of persons interviewed, the TE Panel of Experts have not disclosed the identity of the stakeholders interviewed and/or their thoughts/views or qualitative data in order to uphold confidentiality.

F) Limitations

The TE Panel of Experts was constrained due to the COVID-19 Pandemic and couldn't visit and meet the stakeholders in person. Meetings were held online using various platforms. The limitations encountered by the TE team during the evaluation process include limitations of

methodology, data collection methods, and any potential influence of limitation on how findings may be interpreted, and conclusions drawn. Limitations include among other inaccessible project institutions, issues with access to data or verification of data sources, issues with availability of interviewees, methodological limitations in collecting more extensive or more representative qualitative or quantitative evaluation data, deviations from planned data collection and analysis set out in the ToR and Inception Report. Efforts made to mitigate the limitations must also be included in the TE report.

1.3. KEY ISSUES ADDRESSED

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

1. *Is the project "Relevant", "Effective", and "Efficient"?*

   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 objective? 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 have been compared with that for similar projects.

2. *Is this project "on track" in achieving its objective?*

3. *What actions, if any, were required to be considered for increasing the likelihood of success and if these actions were taken?*

4. *Will the project outcomes and objective be sustained after the project period?*

   Sustainability: The GEF Monitoring and Review Policy specifies that the TE 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. 4. KEY DELIVERABLES

The Key Deliverable of the TE is this final TE Report which has been prepared after submission of Inception Report on 11 April 2022, presentation on initial findings on 27 September 2022,

submission of Draft Report on 17 August 2022 and submission of Final Report on 30 September 2022.

1. 5. SCOPE & METHODOLOGY

The Guidance for Conducting Terminal Evaluations of UNDP-supported, GEF-financed Projects (UNDP, 2020) has been followed for conducting the TE. 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 final report of the review (**Annexure–I**).

The TE Panel of Experts have undertaken the Mid-Term Review of the project in the past and are conversant with the project. Further, two of the TE 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 well aware of the process. Furthermore, MoEFCC and UNDP also engaged a consultant namely, Mr Shantanu Goel, who served earlier as a Project Monitoring Officer on a GEF project, helped the Panel of Experts conduct the Mid-Term Review of the extant project and is knowledgeable with the project, the review process and requirements. The consultant assisted the TE Expert Panel in the entire exercise and was present for meetings and discussions. It was ascertained by the TE Panel of Experts that Shantanu Goel had no conflict of interest with NATCOM project and had signed the 'Code of Conduct Agreement Form' at **Annexure– II.**

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. *UNDP's "Guidance for conducting Terminal Evaluation of UNDP-supported, GEF-financed projects" (2020).*
ii. *Project Document.*
iii. *Project Implementation Review submitted to GEF.*
iv. *Annual Work Plans (2013-2018).*
v. *Financial Statements (Combined Delivery Reports) of the Project from 2013 to 2018.*
vi. *Achievements vis-à-vis Project Results Framework/ Log-Frame prepared by PMU.*
vii. *Co-finance document prepared by the Project Management Unit (PMU).*
viii. *Technical Reports namely, Biennial Update Reports 1 & 2 submitted to UNFCCC.*

A briefing meeting was held online where the PMU of the project gave detailed background and achievements of the project. The PMU apprised the TE experts on the procedures,

guidelines and expectations from the TE. 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. As stated earlier, the NATCOM project is unlike other GEF projects, and mainly addresses policy issues and meeting reporting requirements to the UNFCCC. Against the backdrop of the difficulties and uncertainties caused by the COVID-19 pandemic, it was discussed and decided to conduct the TE using project documents and information provided by PMU and UNDP. 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. Mr Shantanu Goel proved useful, allowing for immediate resolution of questions pertaining to project administration or processes.

The Expert Panel has relied on published and unpublished literature and documents to review the project. The Expert Panel reviewed and measured project performance based on the quantitative and qualitative indicators. The TE 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 TE Expert Panel sieved through enormous literature and data available with MoEFCC, UNDP, stakeholders, Project Investigators (PIs) and internet to finalise the Report. All findings of the TE have been substantiated and backed by verifiable sources/methods.

1.6. Evaluative Questions

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

1.6.1 International Background and Context

As a party to the United Nations Framework Convention on Climate Change (UNFCCC), India is obliged to regularly submit national reports to the Conference of the Parties (COP) to the UNFCCC on how the country is implementing the Convention. This is highlighted under Article 4.1 “Commitments” of the Convention, which, among others states that all Parties shall “develop, periodically update, publish and make available to the Conference of the Parties, in accordance with Article 12, national inventories of anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, using comparable methodologies to be agreed upon by the Conference of the Parties” and “formulate, implement, publish and regularly update national and, where appropriate, regional programs containing measures to mitigate climate change by addressing

anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, and measures to facilitate adequate adaptation to climate change". Reporting through national communications (NCs) and biennial update reports (BURs) is the Convention's primary source of information on Parties implementation of commitments and collective progress toward meeting its ultimate objective. Preparation of a national communication and biennial update report helps India to focus coordination and planning at the national level. In this way, a regular reporting obligation can facilitate the development of permanent institutional capacity and processes related to climate change activities. Further, communication of information on implementation provides a vehicle for exchange of experiences and learning globally.

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 through 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 energy, transport, industry, agriculture, forestry and waste management;
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;

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; and
9) Communicate to the Conference of the Parties information related to implementation in accordance with Article 12.

1.6.2. India's Commitments to UNFCCC

The Government of India signed the United Nations Framework Convention on Climate Change (UNFCCC) on June 10, 1992 and ratified it on November 1, 1993. India also ratified the Kyoto Protocol in 2002 and finally, in 2016, India signed and ratified the Paris Agreement. As a party to the United Nations Framework Convention on Climate Change (UNFCCC), India is obliged to regularly submit national reports to the Conference of the Parties (CoP) to the UNFCCC on how the country is implementing the Convention. Accordingly, as per Article 4, 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 emission intensity of its GDP 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 its 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. India submitted three BURs (1, 2, and 3) in 2016, 2018 and 2021 respectively.

Further, the Paris 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. Moreover, the Paris Agreement entails an Enhanced Transparency Framework (ETF), an important component of the ambition cycle in the global climate regime, designed to build trust and confidence that all countries are contributing their share to the global effort by taking action to meet their national climate targets and actions defined in their Nationally Determined Contributions (NDCs). This includes information related to Parties' greenhouse gas (GHG) emissions, actions taken to reduce those emissions and to adapt to the impacts of climate change, as well as the financial, technological, and capacity building support provided and received by some Parties. Part of the decision made at CoP 24 and the first session of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement is the introduction of modalities, procedures and guidelines for the transparency framework for action and support referred to in Article 13 of the Paris Agreement. The new mechanism requires the Parties to adopt the

2006 IPCC guidelines with any subsequent version or refinement and submit time series GHG inventory, subject to a technical expert review and facilitative, multilateral consideration of progress. This poses further challenge to the preparation of a follow-up GHG inventory, institutional strengthening and capacity-building. Even though the ETF provides built-in flexibility to those developing countries that need it owing to their national circumstances different starting points in institutional capacities or readiness to fulfil reporting requirements, capacity-building and support from developed country Parties will be crucial for facilitating improvement in reporting over time. Accordingly, the reporting requirements have significantly increased.

EVALUATIVE QUESTION:

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

1.6.3. India's National Policies and Priorities

India has been conscious of the global challenge of Climate Change and has taken a number of steps in the recent past for addressing the same. These are as follows:

I. In 2008, India's national priorities were summarised in the National Action Plan on Climate Change (NAPCC) outlining the existing and future policies and programs addressing climate mitigation and adaptation. 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. 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 institutions 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) National Innovations on Climate Resilient Agriculture (NICRA) under Ministry of Agriculture and Farmers Welfare (MoAFW).

2) Centre for Climate Change Research (CCCR) at the Indian Institute of Tropical Meteorology (IITM), Pune under Ministry of Earth Sciences (MoES).

3) Regional Climate Centre (RCC) at India Meteorological Department (IMD), Pune in conjunction with World Meteorological Organization (WMO)

5) National Institute of Ocean Technology (NIOT), MoES.

6) Petroleum Planning & Analysis Cell (PPAC), Ministry of Petroleum and Natural Gas (MoPNG).

7) Forest Survey of India (FSI), under MoEFCC and Indian Space Research Organisation (ISRO).

8) Inter-University Consortium on Cryosphere and Climate Change (IUCCCC) under the Department of Science & Technology (DST).

II. At the sub-national level, state governments have been asked to develop state-specific action plans for agriculture, water, forest, disaster, energy, industry and transport sectors in line with NAPCC. Most of the states have prepared the State Action Plan on Climate Change (SAPCC).

III. India submitted its Nationally Determined Contribution (NDC) to the UNFCCC, outlining the climate actions intended to be taken under the Paris Agreement. India has communicated mitigation and adaptation targets under NDCs and the estimated financial requirements needed to meet its NDCs. India's NDC commitments encompass the areas such as clean energy, industrial energy efficiency, urban centres, waste management, transportation and forestry. The NDC also mentions adaptation actions that cover agriculture, water, health, coastal regions and islands, Himalayan ecosystems, rural livelihoods and forestry.

IV. India has made substantial investments in weather, climate and environment monitoring.

V. India has taken a number of new initiatives to meet its voluntary declaration goals to reduce the emission intensity. Some of them are as under:

i. Increased solar, wind, hydropower generation: India is implementing one of the largest renewable energy expansion programmes with a target of achieving 450 GW of renewable energy capacity. Towards this goal, in October 2020, India's total renewable energy installed capacity (including hydropower) reached over 136 GW and the share of renewable energy in electric installed capacity was over 36 percent.

ii. Pradhan Mantri Ujjwala Yojana (PMUY): The scheme envisages of smoke free Rural India and aims to benefit 50 million families, especially the women living below poverty line (BPL), by providing concessional LPG connections to the entire nation by 2019. However, the

target has been exceeded and as on today, 71.9 million cooking gas connections have been provided to households to enable women to carry out their kitchen work more efficiently, protect their health and also to reduce GHG emissions through reduced fuelwood consumption.

iii. Swachh Bharat Mission: Swachh Bharat Abhiyan or Clean India Mission is a country-wide campaign initiated to eliminate open defecation and improve solid waste management. The mission aims at waste disposal by segregation at source and using technologies to compost or make energy.

iv. Dedicated Freight Corridors (DFC): DFC will help India migrate from diesel propelled freight trains and fossil fuel-based road traffic to electric-powered railway locomotives. Further, double-stack standard shaped containers drawn by electric locomotives with trailing loads of 15,000 tonne and trains with 400 container capacities will help not only reduce transportation cost but also GHG emissions and aerosols.

v. Implementation of Bharat Emission Standards for Commercial and passenger vehicles: Bharat Stage (BS) emission standards are laid down by the government to regulate the output of air pollutants from internal combustion engine and spark-ignition engine equipment, including motor vehicles. The fourth iteration, BSIV, was introduced in 2017 and the delay between the introduction of BS3 and BS4 resulted in fast-tracking the BSVI emission norms rather than BSV (BS5) norms. From April 2020, vehicle makers are manufacturing and selling BS-VI (BS6) vehicles while the state governments are only issuing fresh registrations for the same.

vi. National Mission for Enhanced Energy Efficiency (NMEEE): NMEEE consists of initiatives to enhance energy efficiency in energy intensive industries. Perform Achieve and Trade (PAT) scheme for energy efficiency in industries and other energy-intensive sectors launched in 2012, covering 478 designated consumers (DCs), avoided emissions of 92.34 MtCO2 in PAT Cycle I (2012-13 to 2014-15) and Cycle II (2016-17 to 2018-19).

vii. Afforestation: A comparison between the 2015 and 2019 assessments of FSI revealed that the forest and tree cover has increased by 1.65 percent. It is estimated that Forest and tree cover sequestered 331 MtCO2 in 2016 which is around 15 % of total carbon dioxide emissions occurring in the country.

VI. India has successfully prepared its First and Second National Communications and is also preparing its Third National Communication. Since the preparation of its Initial NC (INC), the process of development of national communications has resulted in large scale networking, capacity building and involvement of research organisations and various government departments. The preparation of the two previous NCs has led to the development of expert teams for preparation of GHG inventories as well as assessment of impacts, vulnerability and adaptation.

VII. India also submitted three Biennial Update Reports (2016, 2018 and 2020).

i. In the first BUR, India reported emission of 2.136 billion tonnes of CO_2 equivalent (tCO2eq.) greenhouse gases (GHG) in 2010 with the energy sector being the top contributor at 71 per cent.

ii. In the second BUR, India reported a total of 2.607 billion tCO_2eq. of GHGs emissions from all activities (excluding LULUCF). The net national GHG emissions after including LULUCF were 23,06,295 Gg CO2 equivalent (around 2.306 billion tCO2eq.). Out of the total emissions, energy sector accounted for 73%, IPPU 8%, agriculture 16% and waste sector 3%. About 12% of emissions were offset by the carbon sink action of forestland, cropland and settlements.

iii. In the third BUR, India reported that in 2016 India's total GHG emissions, excluding Land Use Land-Use Change and Forestry (LULUCF), were 2,838.89 million tCO_2e and including LULUCF, it stood at 2,531.07 million tCO_2e. India's emission intensity of gross domestic product (GDP) has reduced by 24% between 2005 and 2016. India is, therefore, on track to meet its voluntary declaration to reduce the emission intensity of GDP by 20-25% from 2005 levels by 2020.

VIII. The FSV held for previous BURs stated, "India reported transparently in its BUR on its national circumstances, institutional arrangements, GHG emissions inventory, mitigations policies relevant to the preparation of its national communications and BURs on a continuous basis." It reported that the government has taken steps towards creating institutional arrangements for the preparation of national communications and BURs on a continuous basis.

IX. Transparency arrangements play a very crucial role to understand the challenges and opportunities towards meeting the long-term temperature goal and to ensure an adequate balance between action and support. In this bid, the developing countries have been accorded built-in flexibilities with the implementation of ETF measures considering their limited capacities and further needs for improvement. India has received approval for a project entitled "Capacity-building for establishing an Integrated and Enhanced Transparency Framework for Climate actions and support measures" referred to as CBIT project under GEF-7 cycle. The project objective is to enable domestic policy planners in following the enhanced transparency framework guidelines prescribed by the Paris Agreement through an efficient coordination mechanism between relevant stakeholders. The project outcomes focus on the following outcomes: a)The nodal ministry (MoEFCC) would be better equipped to lead, plan, coordinate, implement, monitor and evaluate policies, strategies, and programmes to enhance transparency, including communications with states and expert agencies in an effective manner; b) Bringing all stakeholders together through a web-based National Institutional Coordination System (NICS) to enhance efficiency and transparency with climate reporting; c) Ability to report GHG emission inventories as per IPCC 2006 guidelines (or latest applicable); d) Information to facilitate clarity, transparency, and understanding of NDCs associated with climate actions; e) State focal points submitting information through NICS; f) Developing capacity retention mechanisms; g) Dissemination of relevant information on GHG inventories and NDC progress through the National Climate Registry (NCR); h) Enhanced

capacity to mobilise climate finance; i) Knowledge management and project-related learnings. The 4NC/BUR4 project will complement the CBIT project and will build on its outcomes and outputs and vice versa. The workplans and activities of the 2 projects will be closely coordinated to enhance synergies and avoid overlap.

EVALUATIVE QUESTION:

1. *RELEVANCE – Are India's national development priorities and policies addressed in the project design?*
2. *EFFICIENCY, EFFECTIVENESS AND ACHIEVEMENT OF RESULTS – Do the project outputs provide inputs to national and state policies to meet the development priorities in the backdrop of CC?*
3. *SUSTAINABILITY - Does the project create public awareness and build up the capacity of stakeholders and institutions to address the issues of CC?*

1.1.1. Contribution of Project towards Meeting the International Objective 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. *RELEVANCE, EFFICIENCY AND EFFECTIVENESS – Do the project design and strategy address the international objective and India's development priorities and policies? To what extent is there country ownership, and does it use the best route towards expected results?*
2. *EFFICIENCY AND EFFECTIVENESS – Do the Project Implementation and Governance structure provide enough flexibility for adaptive management?*
3. *EFFICIENCY AND EFFECTIVENESS – 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. *SUSTAINABILITY - Are there any financial, institutional, socio-economic, and/or environmental risks for sustaining long-term project results?*

1.7. STRUCTURE OF THE TE REPORT

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

i. *Guidance for Conducting Terminal Evaluation of UNDP-supported, GEF-financed Projects (UNDP, 2020)*

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 final report of the review.
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

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 fulfilment 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, 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). 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 ProDoc 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

GoI is committed to meet the obligations under UNFCCC and in this regard, the preparation of TNC and other new information (mainly BURs) are 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, objective and 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 (reproduced verbatim), 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 reproduced below:

(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 modelling required for the TNC preparation. India has set up a National Climate Change Research Centre as well as several scientific centers to promote research on climate change. GoI 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 TERMINAL EVALUATION for assessing the nature of new guidelines and their incorporation thereof.

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

2.4 PROJECT STRATEGY

The Project Strategy given in the ProDoc 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 levels in the development of policies and measures to address climate change."*

2.5. PROJECT IMPLEMENTATION ARRANGEMENTS

MoEFCC is the nodal ministry for climate change in India and is responsible for preparing the National Communications to UNFCCC. The Ministry also hosts the GEF operational focal point responsible for all the GEF supported projects in the country. On behalf of GoI, 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/ support of UNDP. MoEFCC, the Executing Agency, is coordinating and implementing the project activities.

Given the size and complexity of the project, MoEFCC appointed a National Project Director (NPD) duly supported by a Project Management Unit (PMU) comprising Project Officers, Assistant Project Officers, Project Assistants and Finance Assistants. The NPD supported by PMU and UNDP is responsible for implementation of the work programme and coordination of various activities. Partnerships between key partners and institutions were facilitated and new partnerships encouraged for TNC, especially in areas not sufficiently addressed by the SNC. Preparation of the Third National Communication (NC) and the Biennial Update Reports (BURs) requires a comprehensive institutional, technical and administrative arrangement, in addition to stakeholders' consultation/ participation in 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 various elements of information in the two reports (NC and BURs). Technical consultations were 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 sufficient and accordingly, the following Exclusive Committees were also constituted, which have 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).

The GEF financed TNC project is similar to the earlier INC and SNC projects. The funds for the INC and SNC had not been routed through the Consolidated Fund of India, but UNDP released the funds as per the authorisation of the Ministry. Understandably, routing the fund flow for the GEF financed TNC project through the Consolidated Fund of India with a reimbursement

modality would have unnecessarily complicated and delayed the TNC project and the well-established methods and mechanisms. Accordingly. the pre-established system of fund flow arrangements for INC, and SNC, was followed for the TNC project.

2.6. SIGNIFICANT SOCIO-ECONOMIC AND ENVIRONMENTAL CHANGES

Some significant socio-economic and environmental changes and other major external contributing factors since the Mid-Term Review i.e., 2019. Major changes and external factors are as follows:

a) *The twenty-fourth session of the Conference of the Parties to the United Nations Framework Convention on Climate Change was held in Katowice from 2 to 15 December 2018, more commonly referred to as the Katowice Climate Change Conference or COP24. At Katowice, the parties to the UNFCCC agreed to build on and enhance existing Monitoring, Reporting, and Verification (MRV) arrangements through the new Enhanced Transparency Framework (ETF). ETF was established with the objective to strengthen global response to the threat of climate change by diluting difference between reporting requirements of developed and developing countries while providing built-in flexibility to those developing countries that need it in the light of their capacities. Flexibility under ETF is self-determined by those developing countries who elect to apply it. For each flexibility provided, the Party is required to explain capacity constraint that does not allow them to apply the full provision and is required to provide its anticipated timeframe for improvements. To provide clarity on how the ETF will operate, the Parties to UNFCCC, at Katowice, adopted the transparency rulebook – referred to as the Transparency MPGs (Modalities, Procedures, and Guidelines). Further, the following MPG provisions are noteworthy:*

- *Reporting of BR/BUR under UNFCCC will be superseded by Biennial Transparency Report (BTR) for Parties to the Paris Agreement;*
- *Review of BR and technical analysis of BUR will be superseded by technical expert review for Parties to the Paris Agreement;*
- *Multilateral assessment (MA) and facilitative sharing of views (FSV) will be superseded by a facilitative multilateral consideration of progress (FMCP) for Parties to the Paris Agreement;*
- *National communications will continue to be submitted by Annex I and non-Annex I Parties;*
- *Annual GHG inventory will continue to be submitted by Annex I Parties;*
- *Technical annex on REDD+ to be reported by Parties seeking results-based payment (14/CP.19, para 7) as annex to BTR and is reviewed during review of BTR (1/CP.24, para 45-46).*
- *Final BURs to be submitted no later than 31 Dec 2024 (1/CP.24, para 38) and;*

- *First BTR must be submitted by all Parties no later than 31 Dec 2024 (18/CMA.1, para 3).*

b) *The first part of IPCC's Sixth Assessment Report by Working Group I titled "Climate Change 2021: the Physical Science Basis" was approved by the member countries of IPCC. The report highlights that unless there are immediate, rapid, and large-scale reductions in greenhouse gas emissions, limiting warming to close to 1.5°C or even 2°C will be beyond reach.*

c) *The WMO provisional statement on the State of the Global Climate says that the global average temperature in 2019 (January to October) was about 1.1 degrees Celsius above the pre-industrial period. Further, observation is that concentrations of carbon dioxide in the atmosphere hit a record level of 407.8 parts per million in 2018 and continued to rise in 2019.*

d) *As per the WMO's State of the Global Climate 2020 (WMO-No. 1264), despite setbacks from COVID-19, global greenhouse gas emissions increased in 2020. In 2020, GMST was 1.2 ± 0.1 °C warmer than the pre-industrial baseline (1850-1900), despite La Niña cooling conditions. While, 2020 was one of the three warmest years on record the last decade, 2011-2020 is the warmest on record.*

e) *UNEP published the 12th edition of the annual series titled "The Emissions Gap Report 2021: The Heat Is On" in which provides an overview of the difference between where greenhouse emissions are predicted to be in 2030 and where they should be to avert the worst impacts of climate change.* ***The findings presented in the reports are:***

   i. *New national climate pledges (NDCs) combined with other mitigation measures put the world on track for a global temperature rise of 2.7°C by the end of the century, well above the Paris Agreement target of 1.5 to 2°C.*
   ii. *To keep global warming below 1.5°C this century, the world needs to have annual greenhouse gas emissions in the next eight years.*
   iii. *Robust and effectively implemented Net-zero commitments could limit warming to 2.2°C;* ***however****, many national climate plans delay action until after 2030.*
   iv. *The reduction of methane emissions from the fossil fuel, waste and agriculture sectors could help close the emissions gap and reduce warming in the short term.*

f) *As part of its contribution to the IPCC Sixth Assessment Report, the Working Group II brought out the "Climate Change 2022: Impacts, Adaptation, and Vulnerability". The Working Group assessed the impacts of climate change, looking at ecosystems, biodiversity, and human communities at global and regional levels. It also reviewed vulnerabilities and the capacities and limits of the natural world and human societies to adapt to climate change. With a High Confidence, the Working Group states "Human-induced climate change, including more frequent and intense extreme events, has caused widespread adverse impacts and related losses and damages to nature and people, beyond natural climate variability. Some development and adaptation efforts have reduced vulnerability. Across sectors and regions, the most vulnerable people and systems are*

observed to be disproportionately affected. The rise in weather and climate extremes has led to some irreversible impacts as natural and human systems are pushed beyond their ability to adapt."

g) *As per the provisional WMO State of the Global Climate 2021, the global mean temperature for 2021 (based on data from January to September) was about 1.09°C above the 1850-1900 average. Currently, the six datasets used by WMO in the analysis place 2021 as the sixth or seventh warmest year on record globally, which was expected to change by the end of the year.*

h) *The twenty-sixth Conference of the Parties (COP26) to the UNFCCC was held in Glasgow from 31 October to 13 November 2021. At the conference, 134 countries through the Declaration on Forests and Land Use committed to end deforestation by 2030, to prevent the loss of carbon sinks and to protect biodiversity.*

i) *So far, of the 155 Non-Annex-1 Parties to the UNFCCC, 80 submitted BUR-1, 37 submitted BUR-2 and only 24 submitted BUR-3. Similarly, 154 Parties submitted their first/initial National Communication (NC), 145 submitted the second NC and 95 submitted the third NC. India submitted its First to Third BURs and its Initial and Second NCs to the UNFCCC and the TNC is under review.*

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 TE 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.*

f) *In order to address the issue of air pollution due to farm stubble burning and to reduce carbon footprints of thermal power generation, Ministry of Power set up a* ***National Mission on use of Biomass in coal based thermal power plants****. This mission is expected*

to further support the energy transition in the country and its targets to move towards cleaner energy sources.

2.7. KEY PARTNERS AND STAKEHOLDERS

GoI 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 levels 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. A summary of some of the Key Partners and stakeholders is given in the table below and the detailed information is in Annexure VI:

Stakeholder	Key Function
State Focal Points	To prepare state-level action plans by extending and complementing national action plans on climate change. To report state priorities to the MoEFCC through the State Action Plan on Climate Change (SAPCC).
Ministry of Coal (MoC)	Provide official information on the production and supplies of coal across the end-use sectors primarily at the national level.
Ministry of Petroleum and Natural Gas (MoPNG)	Provide official information on the production and supplies of liquid and gaseous fuels across the end-use sectors primarily at the national level.
Sectoral Focal Points comprised of subject specific ministry/public departments	Provide official information on the end-use consumption of energy and progress with sector specific mitigation/adaptation targets.
Academic and Research centres, Laboratories of the institutions of the MoES, CSIR, ICAI, IISc, IITs, and IIMs.	Conduct scientific studies and assist in improvement of measuring and tracking emissions through various sources. Example: Central Institute of Mining and Fuel Research (CIMFR), National Environmental Engineering Research Institute (NEERI), Technology Information Forecasting and Assessment Council.
National Institution for Transforming India (NITI Aayog)	NITI Aayog India has been entrusted with the nodal role of overseeing the implementation of the 2030 development agenda for Sustainable Development Goals (SDGs).

Ministry of Statistics and Programme Implementation (MoSPI)	The Ministry of Statistics and Programme Implementation covers quality aspects of statistics released in the country.
Non-governmental Organisations (NGOs)	Conducting independent assessment of government policies and schemes and suggesting improvement measures
Private sector (Industry and/or Industry associations)/NGO	They play a very crucial role in the overall economic, social, and environmental ecosystem of the country. They are the ultimate point source of information and bringing innovative reforms towards deep decarbonization.
Local and indigenous Community	Represent rural and vulnerable population of India whose livelihood will be impacted due to adversities of climate change

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 communications, 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. During the MTR, it was observed that the Outcomes and Outputs described from Page 11 to 35 of the ProDoc were not reflected in the log-frame. Further, the reporting requirements to UNFCCC have undergone considerable changes and, as a result, the burden of reporting on non-Annex-I parties has increased manifold. Accordingly, the project design has to be adapted 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 (2010), BUR-2 (2014) and BUR-3 (2016). The TNC will contain GHG inventory of 2017 to 2019.

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 in the following section on ‘Progress-Towards-Results’. At the time of MTR, it was observed that the log-frame gave only objective and outcome level indicators. However, it was 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, at the time of MTR it was observed that the PMU used the original log-frame and assigned Outputs as given in the ProDoc against each Outcome. Further, the PMU used the indicators of the Outcome to monitor the progress against each Output and devised activities accordingly. This adaptive management by the PMU ensured that the project remained on track and could achieve the envisaged outcomes and objective. At the time of MTR, the Panel of Experts felt that due to national reporting requirements to UNFCCC and other socio-economic and environmental changes, it was necessary to revise the log-frame. Therefore, the Expert Panel at MTR stage suggested an updated log-frame as given in **Annexure – IV** of this report. However, understandably, the revision of the log-frame was too late in the project cycle and may have led to un-necessary complications for the GEF Secretariat. Hence, the same was not used by UNDP for GEF progress reporting, but was used internally by MoEFCC and UNDP to track the progress of the project.

3.2. PROGRESS TOWARDS RESULTS

India has submitted three BURs to the UNFCCC under the project. BUR-1 with 2010 GHG inventory was submitted on 22 January 2016, BUR-2 with 2014 GHG inventory was submitted on 31 December 2018 and BUR-3 with 2016 inventory was submitted to UNFCCC on 20 February 2021. Further, during MTR the Expert Panel had recommended a new log-frame. However, this called for extensive changes and understandably, it was decided to use the suggested log-frame for internal monitoring by MoEFCC and oversight by UNDP. The progress against each outcome, output, activity and their respective indicators in the log-frame suggested by the Expert Panel is at **Annexure – IV (on page 119).** The actual project 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 given in the table below:

STRATEGY	INDICATORS	MIDTERM LEVEL & ASSESSMENT	END-OF-PROJECT TARGET	END OF PROJECT RESULT	ACHIEVEMENT RATINGS and JUSTIFICATION, if any.
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 2015 to 2017 will be prepared for TNC.	National GHG inventory for all five sectors has been prepared and published for the year 2010 in BUR-1 and 2014 in BUR-2. Trend analysis over 2000-2014 was also completed and presented in BUR-2.	(A) TNC	BUR - 1 with 2010 GHG inventory submitted to UNFCCC on 22 January 2016. BUR - 2 with 2014 GHG inventory submitted to UNFCCC on 31 December 2018. BUR-3 with 2016 GHG inventory submitted to UNFCCC on 20 February 2020. 91 studies had been commissioned to more than 50 institutions across the country. TNC studies completed and data compiled, collated and analysed. TNC to highlight GHG emissions from 2017 to 2019. The Chapters of TNC have been drafted and the review process has begun. No further support from the project is required.	HS.
	(B) Climate projections, assessment of impacts, vulnerability and adaptation policies & measures to address climate variability, climate change and extreme events.	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. Two 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		
	(C) Assessments of policies and measures to mitigate climate change.	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	(C) TNC		

STRATEGY	INDICATORS	MIDTERM LEVEL & ASSESSMENT	END-OF-PROJECT TARGET	END OF PROJECT RESULT	ACHIEVEMENT RATINGS and JUSTIFICATION, if any.
		UNFCCC. Two studies to prepare this document have already been commissioned.			
	(D) Publication of Third National Communication.	Studies to provide inputs for TNC have been commissioned and are in advance stages of report finalization.	(D) TNC		
	(E) Biennial Update Report for reference year 2014.	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		
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 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		
		Each State has prepared their respective State Action Plans for Climate Change adaptation and mitigation.			
	(B) Report on national actions to reduce GHG emissions.	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		
	(C) Report on the status of the environment, natural resources and energy use.	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		

STRATEGY	INDICATORS	MIDTERM LEVEL & ASSESSMENT	END-OF-PROJECT TARGET	END OF PROJECT RESULT	ACHIEVEMENT RATINGS and JUSTIFICATION, if any.
	(D) Description of the status of the national missions under NAPCC.	Status of NAPCC mission have been reported in detail in BUR-I and II. Further, SAPCC for each state has been prepared.	(D) TNC		
Outcome 2: National GHG inventory prepared for the years 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) Waste for 2015 to 2017 will be prepared for TNC.	National GHG inventory for all five sectors 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.	(A) GHG inventory available for the period 2011, 2013 & 2014, and trend analysis over 2000-2012.	BUR - 1 with 2010 GHG inventory submitted to UNFCCC on 22 January 2016. BUR - 2 with 2014 GHG inventory submitted to UNFCCC on 31 December 2018. BUR-3 with 2016 GHG inventory submitted to UNFCCC on 20 February 2020. TNC studies completed and data compiled, collated and analysed. TNC to highlight GHG emissions from 2017 to 2019. The Chapters of TNC have been drafted and the review process has begun. No further support from the project is required.	HS. India has prepared GHG inventories for 2010, 2014, 2016 and 2017-19, which are beyond the envisaged targets.
	(B) IPCC 2005 guidelines, AFLOU approach adopted.	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.	About 16 activity data and country specific emission factors have been developed since SNC.	HS. Annexure - VII.
	(C) Uncertainty of the GHG inventory estimation using Approach-2 methods and reduction.	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.	Information is given in BURs and TNC	HS.
	(D) Emission factor database and activity database prepared.	The new and refined national emission factors are under various stages of development. Activity data are collected by expert institutions and are revised from time to time based on any new disaggregated data that is made available.	(D) Emission factors and activity database available.	About 16 activity data and country specific emission factors have been developed since SNC.	HS. Annexure - VII.
	(E) QA/QC procedures established.	A study on QA QC procedures for inventory is being conducted at IIMA.	(E) QA/QC systems established and operational.	Information is given in BURs and TNC	HS.

STRATEGY	INDICATORS	MIDTERM LEVEL & ASSESSMENT	END-OF-PROJECT TARGET	END OF PROJECT RESULT	ACHIEVEMENT RATINGS and JUSTIFICATION, if any.
	(F) National Inventory management system for different sectors.	The Government of India has envisaged that the National Institute on Climate Change Studies and Actions (NICCSA) will be the nodal agency for CC studies including inventorisation of GHG in India. The Cabinet has already approved the establishment of the institution. Accordingly, 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 Confederation of Indian Industries (CII) for IPPU sector. A pilot platform has already been launched and is active.	(F) Institutional arrangements for sustained inventory established and operational.	The National Inventory Management System (NIMS) has been partially established because of the evolving nature of negotiations under Article 6 of the Paris Agreement. A platform to collect data from industries, especially Medium Small and Micro Enterprises, is being developed by Confederation of Indian Industries (CII) for IPPU sector. The pilot platform is functional.	S. The establishment of the institution is incorporated into the forthcoming GEF Trust Fund project.
Outcome 3: Impacts and vulnerability assessments, and adaptation measures.	(A) Climate variability profiles & trends prepared at national & state level.	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	The study is complete, and results are included in the TNC.	HS.
	(B) Climate change projections using latest CIMIP5 multiple GCM based outputs for different RCP scenarios at national & state level.	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.		
	(C) Quantitative impacts of climate change using latest models for different sectors such as water resources, agriculture, forest ecosystems, health, coastal zones etc.	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, 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.	(C) Impacts of Climate Change on key sectors assessed using latest climate change projections for RCP scenarios and improved impact models.		

STRATEGY	INDICATORS	MIDTERM LEVEL & ASSESSMENT	END-OF-PROJECT TARGET	END OF PROJECT RESULT	ACHIEVEMENT RATINGS and JUSTIFICATION, if any.
	(D) Climate change vulnerability profiles developed at national & state level for different sectors.	Sectoral vulnerability profiles are being developed for all the sectors of study.	(D) Vulnerability profiles based on climatic, bio-physical & socio-economic factors developed.		
	(E) Adaptation matrix for coping with climate impacts for different sectors and different regions.	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.		
	(F) Adaptation framework and policies for mainstreaming developed.	Draft Reports received from the concerned expert institutions.	(F) Policy Framework developed for mainstreaming adaptation.		
Outcome 4: Measures to mitigate climate change	(A) Documentation and synthesis of national climate change policies.	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.	Information is given in BURs 1, 2 and 3 submitted to UNFCCC and TNC	HS.
	(B) GHG emissions scenarios for 2020 and 2030.	Two studies have been launched to investigate GHG Emission scenarios under India's Mid Century Long Term Low Carbon Strategy on Climate Change.	(B) Improved model based GHG emissions projections developed.		
	(C) Mitigation potential of Energy and Land use sectors and projections for 2020 and 2030 based on modelling.	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		
	(D) Mitigation action plans at national and state levels.	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.		

STRATEGY	INDICATORS	MIDTERM LEVEL & ASSESSMENT	END-OF-PROJECT TARGET	END OF PROJECT RESULT	ACHIEVEMENT RATINGS and JUSTIFICATION, if any.
	(E) Constraints, gaps and related technical, financial and capacity needs.	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.		
	(F) TNA and technology transfer and financial needs.	A study has been launched to carry out TNA at the national level. 10 Sectors are being covered in the study. Preliminary 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.	(F) Detailed TNA and technology transfer and financial needs assessed.		
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 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	MoEFCC launched the Long-Term Ecological Observatories (LTEO) for Climate Change Studies under the 'Climate Change Action Programme' with an outlay of Rs. 400 million. Under the programme, studies have been commissioned to 32 institutions with the overall guidance and supervision of Indian Institute of Science. Further, India is required to submit a mid-century, long-term, low carbon development strategy to UNFCCC. This report is under review.	HS. The reports are available with the PMU.
	(B) Financial and technical support for climate change related activities received from national and international sources.	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.	GEF Trust Funds have been committed for three ensuing projects related to NC, BUR and BTR.	HS.

STRATEGY	INDICATORS	MIDTERM LEVEL & ASSESSMENT	END-OF-PROJECT TARGET	END OF PROJECT RESULT	ACHIEVEMENT RATINGS and JUSTIFICATION, if any.
	(C) Institutional arrangements for sustained National Communication process.	The Government of India envisions to create a National Institute for Climate Change Studies & Actions. Rs. 25 crores were budgeted for the institute.	(C) Institutional arrangements with roles and responsibilities and financial and technical resource needs assessed and made available.	The National Inventory Management System (NIMS) has been partially established because of the evolving nature of negotiations under Article 6 of the Paris Agreement. A platform to collect data from industries, especially Medium Small and Micro Enterprises, is being developed by Confederation of Indian Industries (CII) for IPPU sector. The pilot platform is functional.	S. The establishment of the institution is incorporated into the forthcoming GEF Trust Fund project.
	(D) Stakeholder consultation and communicating climate change to different stakeholders.	Stakeholders' consultations/ workshops/ meetings organized: 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	(D) Mechanisms and institutional arrangements made and implemented for communicating climate change to stakeholder and public.	Sixteen to Eighteen institutions were involved in preparation of the BURs 1, 2 and 3, and the internal communication is well established and duly practiced. More than 100 studies have been commissioned for preparation of BURs 1, 2, 3 and the TNC. These studies are reviewed in consultative events/meetings for facilitating cross-learning and getting suggestions for improvements. The internal communications in the project helped India climb the tier ladder for GHG inventory for most key sectors. Further, regular meetings and interactions are held among the institutions and the Ministry to ensure exchange of ideas and better the results. As stated in the sub-section on Stakeholder Engagement, relevant departments/ministries of GoI	HS.

STRATEGY	INDICATORS	MIDTERM LEVEL & ASSESSMENT	END-OF-PROJECT TARGET	END OF PROJECT RESULT	ACHIEVEMENT RATINGS and JUSTIFICATION, if any.
		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 MoEF&CC, New Delhi. 10. Expert group meeting for Waste and Agriculture sector GHG inventories on 10th September 2014 at MoEF&CC, New Delhi. 11. Expert group meeting for Energy and IPPU sector GHG inventories on 11th September 2014 at MoEF&CC, 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.		are kept well informed of the project results. The list of workshops/ consultations/ meetings since Mid-Term Review are given in BUR-3.	

STRATEGY	INDICATORS	MIDTERM LEVEL & ASSESSMENT	END-OF-PROJECT TARGET	END OF PROJECT RESULT	ACHIEVEMENT RATINGS and JUSTIFICATION, if any.
		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."			
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.	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	TNC studies completed, and data compiled, collated and analysed. TNC to highlight GHG emissions from 2017 to 2019. The Chapters of TNC have been drafted and the review process	S. The TNC is delayed due to the ongoing COVID-19 pandemic.

STRATEGY	INDICATORS	MIDTERM LEVEL & ASSESSMENT	END-OF-PROJECT TARGET	END OF PROJECT RESULT	ACHIEVEMENT RATINGS and JUSTIFICATION, if any.
	(B) Publication / printing of the TNC.	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.	has begun. No further support from the project is required.	
	(C) Summary Report of the National Communication translated in major languages of India.		(C) Summary and key findings of the TNC published in major Indian languages.		
	(D) Periodic technical reports on climate change projections, impacts and vulnerability assessments.	Following technical reports on climate change were published: 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 पेिरस 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	(D) Periodic technical reports, book and journal articles published.	Since the commencement of the project ,15 Publications/Books (including two books under print) have been brought so far, besides popular articles and research papers. The additional three publications since MTR are as follows: 1. 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. 2. 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.	HS. Annexure - VIII

STRATEGY	INDICATORS	MIDTERM LEVEL & ASSESSMENT	END-OF-PROJECT TARGET	END OF PROJECT RESULT	ACHIEVEMENT RATINGS and JUSTIFICATION, if any.
		(2018) released at COP24 by MEFCC (Dr Harsh Vardhan)		3. 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	
	(E) Final evaluation report.	After project completion.	(E) Final Evaluation report completed and submitted	The final Terminal Evaluation Report is submitted to MoEFCC and UNDP.	HS.
Outcome 7: Enhanced understanding of domestic mitigation actions and preparation of Biennial Update Reports for submission in2014, 2016 and 2018.	(A) Biennial update of GHG inventory for the years 2010 and 2012.	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	BUR - 1 with 2010 GHG inventory submitted to UNFCCC on 22 January 2016. BUR - 2 with 2014 GHG inventory submitted to UNFCCC on 31 December 2018. BUR-3 with 2016 GHG inventory submitted to UNFCCC on 20 February 2020.	HS.
	(B) Update of the national circumstances and institutional arrangements from BUR perspective for 2014 and 2016.		(B) BUR for 2014, 2016 and 2019		
	(C) Mitigation actions and their effects until 2020, including associated assumptions, methodologies and modelling.	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 were 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 had 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 implementing these mitigation actions.	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		

STRATEGY	INDICATORS	MIDTERM LEVEL & ASSESSMENT	END-OF-PROJECT TARGET	END OF PROJECT RESULT	ACHIEVEMENT RATINGS and JUSTIFICATION, if any.
	(E) Biennial Update Reports (BUR) submitted in 2014 and 2016.	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		

Notes: **Indicator Assessment Key**

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

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

Most 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 by providing support such as direct release (upon receipt of authorisation from MoEFCC) of payments to experts/institutions for various studies and services, procurement of equipment and services of short-term consultants, travel bookings and arrangements, and financial management and auditing. Accordingly, while the executing and the implementing agency is MoEFCC, UNDP is providing support services upon request and authorization of MoEFCC. The project is implemented and constantly supervised by a National Project Director (NPD) who is a Joint Secretary level officer. The NPD reports to and seeks approvals of the Additional Secretary, Secretary and Minister-in-Charge of MoEFCC, as and when required. The NPD is assisted by PMU and supported by UNDP in the implementation of the work programme and coordination of various activities. The PMU currently through co-finance comprises the NPD, a scientist, support staff (Section Officer, Stenographer, Peon, Driver) and through GEF resources consists of a Project Assistant, Finance Assistant and some short-term support staff. Under the various project components, technical experts have been recruited as Programme Officers (six) and Project Associates (two). The technical staff assists MoEFCC in collecting, collating and compiling the data and information received under numerous studies and consultancies, and drafting and review of various chapters of the NCs and BURs. Preparation of the Third National Communication and the Biennial Update Reports requires a comprehensive institutional, technical and administrative arrangement. For the TNC project more than 105 studies were conducted by over 50 different institutions. Accordingly, the National Steering Committee (NSC) constituted under the chairpersonship of Secretary, MoEFCC and having representation from various concerned departments/ministries of the GoI continues to supervise the preparation and implementation of the work programme of the National Communication and the Biennial Update Reports.

3.3.2 Adaptive Management

The major socio-economic-political-environmental and health change brought about since the MTR is the COVID-19 pandemic. The world including India suffered immensely from the pandemic and its after effects. The pandemic posed challenges for MoEFCC in compiling, collating and ensuring submission of the Third Biennial Update Report due on 31 December 2020. Despite the challenges, MoEFCC quickly adapted to the new norms of limited staff (due

to isolated, often unwell and distant working), online meetings and communication over emails and phone to submit BUR-3 with 2016 inventory on 20 February 2021. The COVID-19 pandemic caused unprecedented shifts in the socio-economic activities of all countries including India. These shifts may have led to unfathomed changes in GHG emissions in 2020. The good practice of India is the use of actual GHG data and not just projections to report the GHG emissions. Despite these challenges, MoEFCC drafted the TNC with 2017-19 inventory, which is currently under review.

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

3.3.3 Work Planning

The Project Document was duly signed by the Executing Entity/Implementing Partner (MoEFCC) on 21 June 2013, Department of Economic Affairs on 27 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 was 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 with 2016 inventory was submitted on 20 February 2021 and the TNC with 2017-2019 inventory is currently under review. Understandably, the delay in submission of BUR-3 and TNC is the result of the ongoing COVID-19 Pandemic.

It is worth mentioning that the project period was envisaged to be five years i.e. from 2013 to 2018. As per UNFCCC decisions and resolutions, non-Annex-I Parties are to provide their BURs every two years and NCs every four years. The project design envisaged submission of three BURs and TNC. Accordingly, the project period should have been minimum six years if India was 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 had to seek a 'no-cost' extension up to December 2020. Unfortunately, due to the COVID-19 pandemic, the project had to seek 'no-cost' extensions up to 30 June 2022. The extensions sought by the PMU stand approved by GEF.

As an unanticipated, unavoidable, and inescapable consequence of COVID-19 pandemic, the project had to be extended up to 30 June 2022. It is the considered conclusion of the Expert Panel that the **work planning of the project was 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 GoI (in-kind and grant) co-finance was pegged at US$26,090,000 and UNDP contribution at US$150,000. The total cost of the project, therefore, has been estimated at US$35,250,604. It is to be noted that the project was probably designed in 2012-13 (Page 72-76 of the ProDoc) when the average currency exchange rate was ₹53 for a US$. Over the period from 2014 to 2022, the average currency exchange rate has increased from ₹53 for a US$ to ₹62.10 for a US$. Accordingly, the increase in the total budget of the project in terms of Indian Rupee has been significant i.e., by almost 30%. It is observed that during the period 2013-2021, the total GEF grant spent stands at US$ 8,312,767, which is about 92% of the total grants.

Total GEF grants and Year-wise expenditure in (US$) incurred as per the Combined Delivery Report

YEAR	PRODOC BUDGET	ANNUAL WORK PLAN	ACTUAL SPENT	SPENT/AWP (%)	EX. RATE ₹ for US$**	% of Total Budget spent
2013	9,010,604	300,000	165,326	55	54	1.8
2014	8,845,278	996,078	711,220	71	61	7.9
2015	8,134,058	585,375	209,866	36	65	2.3
2016	7,924,192	1,647,700	1,005,220	61	67	11.2
2017	6,918,972	1,478,641	900,996	61	64	10.0
2018	6,017,976	1,431,822	1,572,309	110	70	17.4
2019	4,445,667	2,471,001	1,624,501	66	70	18.0
2020	2,821,166	2,821,166	472,736	17	74	5.2
2021	2,351,336	2,247,453	1,688,228	74	74	18.7
2022	676,492	676,492	676,492	100	76	7.5
Total	**9,010,604**	**13,979,236**	**9,010,604**			

**https://www.rbi.org.in/scripts/PublicationsView.aspx?id=20541

It is evident from the percentage of Total Budget spent column in the above table that from 2016 to 2019 and again in 2021, the project activities were being implemented in a timely, planned and consistent manner. The spending took a nosedive in 2020 due to the COVID-19 pandemic but resumed to the earlier levels in 2021, when the country was still reeling under the effects of the pandemic. The total GEF Trust Fund grants have been utilized till June 2022 (100% utilisation). The vigour and zeal in project implementation are, therefore, highly appreciable.

Year- and activity-wise expenditure incurred in (US$) as per the Combined Delivery Report

Outcomes		1	2	3	4	5	6	7	PMU	TOTAL
BUDGET as per Prodoc		4,30,936	14,79,360	19,35,195	11,44,045	6,66,818	4,03,720	25,00,000	4,50,530	**90,10,604**
2013	**AWP**	3,000.00	40,000.00	16,000.00	7,000.00			2,10,000	24,000	**3,00,000**

Outcomes		1	2	3	4	5	6	7	PMU	TOTAL
	CDR							1,51,406	13,919	**1,65,325**
2014	AWP		2,75,000	2,75,000		69,667	1,833	2,34,668	1,39,910	**9,96,078**
	CDR					25,954		5,99,987	85,278	**7,11,220**
2015	AWP	15,150	1,76,550	1,19,100		11,275		1,47,500	1,15,800	**5,85,375**
	CDR	5,646	5,273	10,484		47,729		43,927	96,804	**2,09,866**
2016	AWP	50,000	6,50,000	5,00,000	1,50,000	62,000	11,000	55,000	1,69,700	**16,47,700**
	CDR	22,498	2,33,901	4,87,425		-31,313	6,336	50,493	2,35,881	**10,05,221**
2017	AWP	2,04,500	4,00,000	5,00,000	2,00,000	1,00,000	15,000	47,500	11,641	**14,78,641**
	CDR	1,01,886	470	7,62,412			-6,365	13,003	29,590	**9,00,996**
2018	AWP	1,70,000	5,00,000	3,00,000	2,10,000	1,00,000	80,000	57,500	14,322	**14,31,822**
	CDR	4,06,674	-151	11,95,498			74		-29,786	**15,72,309**
2019	AWP	2,54,000	12,09,000	6,26,500	62,000	1,45,741	53,000	86,000	34,760	**24,71,001**
	CDR	3,03,482	36,165	13,97,816					-1,12,962	**16,24,501**
2020	AWP	73,123	12,01,797	60,469	9,12,624	5,03,696	18,000	11,457	40,000	**28,21,166**
	CDR	1,24,988	2,01,458	-7,98,340	29,145	2,60,486	2,77,615	6,18,159	9,200	**4,72,736**
2021	AWP	73,123	11,10,505	60,469	6,82,898	2,55,203	33,798	11,457	20,000	**22,47,453**
	CDR	76,079	12,92,095	-3,40,621	3,33,725	2,65,171	25,660	5,941	28,388	**16,86,439**
AWP		8,42,896	52,87,852	21,82,538	22,24,522	11,77,915	2,10,798	6,26,414	4,30,223	
CDR		7,91,277	17,69,212	26,98,314	3,64,729	5,68,028	3,03,321	14,82,919	3,56,313	**83,34,112**
BALANCE		-3,60,341	-2,89,852	-7,63,119	7,79,316	98,790	1,00,399	10,17,081	94,217	**6,76,492**
% of Component Budget		-84	-20	-39	68	15	25	41	21	8
% of overall project budget		9	20	30	4	6	3	16	4	92

The Table above presents the project component/outcome-wise budget, annual work plan and expenditure. It is observed that overspending has occurred under Components 1 (84%), 2 (20%) and 3 (39%) which are related to National Circumstances, GHG Inventory and Impacts, vulnerability Assessment and Adaptation Measures (IVA) respectively. Most of the expenditure under Component 1 - National Circumstances took place in 2018 and 2019. Similarly, most of the expenses for Component 2 - GHG Inventory took place in 2021 and Component 3 - Impacts, Vulnerability Assessment and Adaptation Measures took place in 2016 to 2019. GHG emissions are linked to the National Circumstances of the country such as total area, geography and geology, weather, human population, and GDP. Further the National Circumstances are linked to the Impact, Vulnerability and Adaptation of a country to Climate Change. India has a diverse geography which makes it vulnerable to extreme weather events such as cyclones and intense rainfall as well as ongoing climate change with increased impacts in the future. While India invests huge sums in collecting data such as weather, human and livestock census, and GDP, a lot of efforts go into analysis and interpretation of the data and information. The country bears the data collection and most part of the analysis, the cost of which is enormous. Understandably, 5% of the total project budget was kept for the Outcome (Component) 1 i.e., for data collection and analysis related to national circumstances, which was insufficient, and the project ended up overspending 4% of the Total Project Budget under Component 1. Similarly, about 30% instead of 21% of the Total Project budget was spent on Outcome (Component) 3 i.e., IVA. Given the vastness of the country, varying socio-geo-political-environmental changes, such overspending under Components 1 and 3 is understandable and it is the considered view of the Expert Panel that this may be

acceptable. Furthermore, one of the main requirements of UNFCCC is reporting of GHG emissions by countries. Towards this requirement, BURs 1, 2, and 3 and TNC report GHG emissions from India for the years 2010, 2014, 2016, 2017-2019. All these reports contain actual emissions (not projections), which require constant research and moving up the tier ladders. A system of methodological tiers has been developed by IPCC to represent different levels of methodological complexity. Tier 1 uses an IPCC default value, Tier 2 uses country specific emission factors that are based on either measurements or IPCC Tier 2 emission factors, and Tier 3 is the most demanding in terms of complexity and data requirements. Tier 3 may include models and inventory management systems tailored to address national circumstances, repeated over time, and determined by high-resolution activity data and disaggregated at the sub-national level. In its initial report i.e. Initial National Communication (INC) to the UNFCCC, India had accounted three major GHGs namely (i) carbon dioxide (CO_2), (ii) methane (CH_4) and, (iii) nitrous oxide (N_2O). In the subsequent reports i.e. Second NC, BUR - 1, BUR – 2, BUR – 3 and Third NC (all except SNC have been prepared under this project), five more GHGs namely, (i) HFC-134a, (ii) HFC 23, (iii) tetrafluoromethane (CF4), (iv) hexafluoroethane (C2F6) and, (v) sulphur hexafluoride (SF6) were accounted for the final estimation of national GHG inventories. Further, default emission factors (developed by IPCC) were used in the INC, which were updated under the SNC and this project through in-depth country situation driven research and analysis. India used TIER 2 and Tier 3 values for some sectors and subsectors in BURs 1, 2 and 3 and TNC. Accordingly, the Expert Panel is of the view that overspending on this most crucial component is justified.

It is pertinent to note that while there was overspending under some components, the other components did not require the envisaged budget and inter-budget head (Component/Outcome) transfers were made by MoEFCC/UNDP. This resulted in ensuring proper and 100% utilization of funds to achieve the project objective. With this background, the Panel of Experts are of the considered opinion that **the project fund utilization is 'highly satisfactory'**.

CO-FINANCE

As per the data received from the PMU, more than 100 studies have been commissioned under the project. The co-finance documented by the PMU, based on the data provided by more than half the PIs and calculation of MoEFCC (resource and infrastructure) stands at ₹2,587,347,971 i.e., US$47.9 million, US$34 million and US$41.6 million with average currency exchange rate of ₹61 (2014), ₹76 (2022) and ₹62.1 (average rates between 2014-2022) for a US$ respectively. The documented co-finance is about 162.5%, 130.4% and 159.7% of the total committed by GoI i.e., US$26 million with average currency exchange rate of ₹61 (2014), ₹76 (2022) and ₹62.1 (average rates between 2014-2022) for a US$ respectively. The co-finance leveraged by PIs of various studies was made available by PMU for verification by the Expert Panel (**Annexure-V**). The documented co-finance does not take into account the historical, inflation adjusted (direct and in-direct) costs of India in data

collection and analysis. The historical data collected by the country are used in components such as National Circumstances and IVA. A few examples of co-finance leveraged from GoI not accounted in the co-finance document 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.*
6. *Biodiversity data of BNHS and IISc have been collected over decades through various projects and grants. This data along with data from IMD have been used to assess the IVA of CC on biodiversity and to report the same.*
7. *As per information received from the Central Institute of Mining and Fuel Research, nation-wide activities under various projects lead to the generation of information and data utilized in Energy sector inventory for BURs and NCs:*
    a. *The Activities of co-financing are linked and spread across various Institutions including CIMFR, coal mines, refineries, ONGC, washeries, power plant, cement plants, and steel plants.*
    b. *The information regarding the cost component (co-finance) is scattered across various locations in India, making it difficult to derive a cost estimate. The cost-intensive activities are as follows:*
        i. *Collection of coal samples and sample preparation at various loading points of mines of ECL, BCCL, CCL, NCL, etc. on round the clock basis.*
        ii. *Collection of coal samples and sample preparation at various unloading points of power plants on round the clock basis.*
        iii. *Coal sample transportation under tight security to get the samples analysed at various labs.*
        iv. *Imported coal samples and preparation from ships at various ports.*
        v. *Generation of various grade-wise production and dispatch statistics in the field.*
        vi. *Establishing infrastructure for sampling and analysis activities related to coal supply and coal utilization.*
        vii. *Generation of washery performance data.*

viii. *Generation and management of power plant operational data, performance data, etc.*
ix. *Generation and management of data for coal mining and handling activities by Directorate General of Mines Safety which are utilised in estimating fugitive emissions from those activities.*
x. *Data generation through field and lab investigations funded by various sponsors such as different subsidiaries of Coal India Ltd, like BCCL, ECL and SECL , and ONGC, TISCO, RIL, JSW, and Ambuja.*
xi. *Cement and various oil companies which cater to the need of estimation of fugitive emissions.*
xii. *Development of huge Institutional and extra institutional infrastructure in various centres of CIMFR, CIL quality control labs as well as in Chemical labs owned by power plants, steel plants, cement plants, etc. to carry out extensive chemical analysis of the samples.*
xiii. *Development of infrastructures through projects funded through CSIR, SERB-DST and other sponsors, which are frequently accessed for the investigation on fugitive emissions from coal mining and handling activities.*
xiv. *Huge travel and Human days are involved in various nation-wide activities/ projects.*

From Point 7 above, it can be gauged that the costs involved for collection of data and information in the energy sector which accounts for 75% of the total carbon emissions from India is extremely high. The total expenditure of CIMFR between the year 2014-15 and 2019-20 was about ₹998.27 million p.a. Considering an extremely low 1% of annual expenditure being spent on collection of data and information utilized for GHG inventory for Energy Sector, the co-finance can be considered at ₹9.9 million p.a. This co-finance doesn't take into account the expenditure incurred by other partners of CIMFR which sent samples and data to CIMFR for analysis.

It is, therefore, the considered assessment of the Expert Panel that the **financial management and co-finance leveraging have been 'highly 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

Type of M&E activity	Responsible Parties	Time Frame	Achievements
			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, MoEFCC	At the beginning of project implementation	The M&E system is given in the ProDoc. A National Steering Committee and an Expert Advisory Committee were to be constituted and notified. This was duly done. Further, the progress of studies commissioned was 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 were commissioned following due procurement processes of MoEFCC. Further, the progress of studies commissioned was also reviewed through meetings called specifically for the purpose.
ARR/ Project Implementation Report (PIR)	• *Project manager and team* • *UNDP CO* • *UNDP RTA*	Annually	PIRs from 2014 to 2021 have been shared with TE Expert Panel. It has been observed from the PIRs

Type of M&E activity	Responsible Parties	Time Frame	Achievements
	• *UNDP EEG*		that UNDP RTA regularly reviews and provides 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	• *Project management team* • *UNDP CO and RCU* • *External Consultants (i.e. evaluation team)*	At the mid-point of project implementation.	The MTR report was submitted to MoEFCC/UNDP on 30 June 2019.
Final Evaluation	• *Project Management Team* • *UNDP CO* • *UNDP RTA* • *External Consultants (i.e., evaluation team)*		At the time of MTR, the project was to end by December 2020. However, due to the ongoing COVID-19 Pandemic, the project has received 'no-cost extension' until 30 June 2022. The TE was commissioned in December 2021.
Project Terminal Report	• *National Project Director* • *Project management Team*	At the end of project implementation	The Terminal Report is not required as a summary of the findings of studies is presented in BURs-1, 2, 3 and TNC. However, MoEFCC may consider bringing out a comprehensive report of all major findings of the various studies.

Type of M&E activity	Responsible Parties	Time Frame	Achievements
Audit	• *Project Management Team* • *UNDP CO*	Yearly	UNDP commissions annual audits of the project and actions on audit observations are not pending.
Visits to Field Sites	• UNDP CO • UNDP RTA (as appropriate) • *Government representatives*	Yearly	The project is an enabling activity with limited on ground implementation. Accordingly, the monitoring and oversight by UNDP and Government were limited to conducting meetings and engagement with various stakeholders.

It is vital to note that the BURs also undergo rigorous scrutiny of the relevant departments/ministries of GoI concerned with the information furnished in the BURs and National Communications. The scrutiny by departments/ministries is followed by review of the Technical Advisory Committee and the National Steering Committee. Finally, the Government of India approves the NCs and BURs. 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. Following the submission of BURs by Parties to the UNFCCC, the ICA process takes place. It consists of two steps: A technical analysis of BUR by a team of experts (TTE) and a facilitative sharing of views in the form of workshop under the Subsidiary Body for Implementation (SBI). All BURs are subjected to ICA process. BUR-1 of India successfully completed the ICA process on 29 June 2017, BUR-2 on 03 March 2020 and BUR-3 on 21 Jan. 2022.

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 the 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 GoI 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 GoI is concerned, the BURs undergo rigorous review and scrutiny of various departments/ministries of GoI, Technical Advisory Committee and a National Steering Committee comprising representatives of various Departments/Ministries concerned with sectors related to GHG or climate change, thereby ensuring the engagement 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 the 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, and 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 and as per BUR-3 (brought out during COVID-19 pandemic), eight events /consultative meetings were held.*
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. As per BUR-3 (Pages 472-226), eighteen institutions and sixteen experts (individual capacity) were involved in preparation of the BUR and comments/inputs were received from 64 experts. These do not include the department and ministries of GoI or the data (current and historical) collected by the various government, non-government, academic, research, and private and public sector institutions.*
3. *The NPD and PMU staff frequently participated in meetings, consultations and workshops organized by Civil Society Organisations, Academic and Research Institutions.*

4. *Special efforts were made for enhancing public awareness. So far, 15 publications (including two under print) on various facets of Climate Change have been brought out under the project by MoEFCC (**Annexure-VI**).*

As stated earlier, at the international level, the BURs undergo a scrutiny process known as International Consultation and Analysis (ICA). The three BURs have successfully undergone the process. In the technical analysis report for BUR-2, India has been commended for enhancing the transparency of the information reported. Similarly for BUR-3, in addition to observing India's efforts to enhance transparency in reporting, the TTE noted improvements in the reporting in India's third BUR compared with that in its second BUR. During the FSV of BUR-2, India's efforts were commended by Australia, China, European Union, Japan, Malaysia, New Zealand, Saudi Arabia, Switzerland and United States.[1] Similarly, the efforts of India for BUR-3 were commended by China, Czechia, European Union, Indonesia, Luxembourg, Saudi Arabia, Republic of South Korea, Switzerland and United Kingdom.[2] India's efforts to engage with the international community through the internationally recognised quality of reporting is noted by the Panel of Experts.

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 is as per the standard practice and norms of 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.

The adaptive changes and follow-up actions have been given under the section Project Design and Adaptive Management. The Expert Panel noted that the adaptive management was rendered possible due to the existence of efficient communication system and practice between the PMU and the competent authorities.

As mentioned earlier, under the sub-section on M&E, the PIRs for 2014 to 2021 have been reported by PMU and UNDP in a timely manner. During the period 2014-2021, eight PIRs have

[1] Record of the facilitative sharing of views at the fifty-first session of the Subsidiary Body for Implementation: India (FCCC/WEB/2019/FSVR.2/IND dated 03 March 2020 available at: https://unfccc.int/sites/default/files/resource/FSVR%202_IND_v5.pdf)

[2] Record of the facilitative sharing of views at the fifty-second to fifty-fifth session of the Subsidiary Body for Implementation: India (FCCC/WEB/2021/FSVR.3/IND dated 21 January 2022 available at: https://unfccc.int/sites/default/files/resource/FSVR3_IND.pdf)

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 the considered opinion of the Expert Panel that **Reporting within the Project Management Unit, Implementing/Executing Agency, UNDP and GEF is 'highly satisfactory'**.

3.3.8. Communication

Sixteen to eighteen institutions were involved in preparation of the BURs 1, 2 and 3 and the internal communication is well established and duly practiced. Further, more than 100 studies have been commissioned for preparation of BURs 1, 2, 3 and the TNC. The studies commissioned under the project were reviewed in consultative events/meetings for facilitating cross-learning and getting suggestions for improvements. The internal communications in the project have helped India climb the tier ladders for GHG inventory for most key sectors. Regular meetings and interactions have been held amongst the institutions and MoEFCC to share ideas and results. As stated in the sub-section on Stakeholder Engagement, relevant departments/ministries of GoI were kept well informed of the project results. Further, the BURs are submitted to the UNFCCC and are available on MoEFCC and Convention's websites. 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 fifteen publications (including two books under print) (Annexure - VIII). The publications include books for various stakeholders such as the general public (Sustainable Lifestyles – Parampara, Samanvay: Harmonizing Traditions and Modernity, Low Carbon Lifestyles: Right Choices for Our Planet), policy makers (India: Climate Change and the Paris Agreement), and experts/scientists/researchers (Indian Long Term Ecological Observatories).

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

- 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 and Research Institutions.

In light of the above findings, the Expert Panel rates **Communication under the project as 'highly satisfactory'.**

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

3.4. SUSTAINABILITY

As a party to the United Nations Framework Convention on Climate Change (UNFCCC), India regularly submits national reports to the Conference of the Parties (COP) to the UNFCCC on how the country is implementing the Convention. This is highlighted under Article 4.1 "Commitments" of the Convention, which, among others states that all Parties shall "develop, periodically update, publish and make available to the Conference of the Parties, in accordance with Article 12, national inventories of anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, using comparable methodologies to be agreed upon by the Conference of the Parties" and "formulate, implement, publish and regularly update national and, where appropriate, regional programs containing measures to mitigate climate change by addressing anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, and measures to facilitate adequate adaptation to climate change". Reporting through national communications and biennial update reports is the Convention's primary source of information on Parties implementation of commitments and collective progress toward meeting its ultimate objective.

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 can also be judged by the fact that India will soon commence implementation of three new GEF Trust Fund supported projects, worth more than US$9 million, namely preparation of fourth NC (4NC) and fourth BUR (BUR-4), Capacity Building Initiative for Transparency (CBIT) and preparation of First Biennial Update Report (BTR-1). GoI 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, the institutions are likely to sustain the NCs preparation process.

Preparation of national communications and biennial update reports helps India to focus coordination and planning at the national level and the regular reporting obligation facilitates the development of permanent institutional capacity and processes related to climate change activities. 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$35 million, of which GEF contribution is pegged at US$9 million. The full GEF Trust Fund grants have been spent in preparation of the three BURs and TNC. Besides the GEF grants, the project has also received more than US$34 million documented co-finance from GoI, Civil Society and Private Sector. However, the documented co-finance may be an underestimate as all direct and indirect sources of co-finance, especially historical data from GoI departments/ministries have not been taken into account.

India has already received a commitment of more than US$10 million for future reporting of NCs, BURs and BTRs from the GEF Trust Fund. Accordingly, ***financial sustainability*** **is** ***'likely'***.

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. The country has also been building up the capacity of not only the academia but also other institutions to continue the reporting requirements of UNFCCC. The socio-economic benefits derived from the project go beyond reporting to UNFCC 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: i) notification of the National Policy on Biofuels, 2018, which allows production of ethanol from damaged food grains unfit for human consumption, ii) meeting electrification of villages through promotion of energy efficient lights and devices at large scale under the UJALA scheme, which has led to cumulative emission reduction of 180.08 $MtCO_2$ from 2014-15 to November 2020; and iii) promotion of production of energy through renewable resources with a target of 175 GW by 2022 and 450 GW thereafter. The learnings from the BURs and NCs form the basis of the initiatives of the GoI, which not only cater to the industries but also to people.

Accordingly, the Expert Panel is of the opinion that ***total socio-economic sustainability is 'likely'***.

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 up 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. 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 and it can be gauged by the fact that under the new GEF Trust Fund project 'Capacity-building for Establishing an Integrated and Enhanced Transparency Framework for Climate Actions and Support Measures' (referred to as CBIT project), one of the targets is to get 35 Indian experts trained and accredited on the 'Roster of Experts' to participate actively in the UNFCCC reviews. Under the CBIT project it is proposed to establish: i) a National Institutional Coordination System (NICS) to strengthen not only GHG inventory data processing and storage but also NDC monitoring; and ii) the National Climate Information System (NCIS) to share information among public, civil society and policy planners on GHG emissions and NDCs over time, and the progress made on mitigation and adaptation strategies. Further, under the 4NC and BUR4 project, it is envisaged to establish a National Inventory Management System (NIMS) for regular collection, analysis and reporting of GHG emissions data. Under the CBIT project, it is envisaged to integrate NICS with National Inventory Management System (NIMS) and other online tracking tools to create a centralized NCIS for disseminating information in the public domain. NCIS will also help enhance the capacity to mobilize climate finance. Finally, it is reiterated that the NCs and all other reporting to UNFCCC are done only after review by all concerned/relevant departments/ministries of GoI. 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 ongoing and planned initiatives and the institutional and governance framework established under the extant project, it is concluded that the ***sustainability of institutional framework and governance is 'likely'***.

3.4.4. Environmental Sustainability

Climate Change is a global problem inviting collective endeavour of all countries based on principles of equity, Common but Differentiated Responsibilities (CBDR) and Respective Capabilities (RC). It cannot be resolved by the action of any individual country or just a few countries. India is doing more than its fair share of mitigation and is currently acknowledged world-wide to be one of the few countries that is on track to meeting its Paris commitments. As per the BUR-3 submitted by India to the UNFCCC, the following are noteworthy:

- Between 2005 and 2016, India has decoupled its economic growth (GDP) from greenhouse gas emissions by 24%. Therefore, India is on track to meet its NDC target of reducing the emission intensity of GDP by 20-25% from 2005 levels by 2020.
- India's renewable energy expansion programmes with a target of 175 GW by 2022 and later up to 450 GW are one of the largest in the world.
- As per the Forest Survey of India, forest and tree cover has increased by 1.3 million ha between 2015 and 2019 assessments i.e., 1.65% increase.
- India's climate action is widely acknowledged by independent, international assessments to be among the few that are compatible with the well below 2°C warming target of the Paris Agreement.

Therefore, the considered view of the Expert Panel is that the ***environmental sustainability is 'likely'*.**

3.5. ANSWERS TO EVALUATIVE QUESTIONS

EVALUATIVE QUESTION 1: Are India's national development priorities and policies aligned with the international (UNFCCC) objective?

YES. Article 4.1 of UNFCCC states that "all Parties, taking into account their common but differentiated responsibilities and their specific national and regional development priorities, objectives, and circumstances, shall develop, periodically update, publish and make available to the Conference of the Parties (COPs), the information following Article 12 of the Convention and decisions of the COPs and related guidelines (UNFCCC, 1992)." Accordingly, Parties including India communicate information on national inventories of greenhouse gases not controlled by the Montreal Protocol, steps taken or envisaged to implement the Convention and any other information that the Party considers relevant to the achievement of the objective of the Convention and suitable for inclusion in its communication.

A few recent examples of India's national development priorities and policies being aligned with the international objectives are illustrated below:

- *As per the Third Biennial Update Report (BUR-3) submitted by India to the UNFCCC in 2016, India's total GHG emissions, excluding Land Use Land-Use Change and Forestry (LULUCF), were 2,838.89 million tonnes CO_2e.*
- *The top five GHG emitting countries are China, USA, India, Russia, and Japan. The high levels of CO_2 emissions in these countries are broadly linked to their economic sizes and structures, extent of urbanisation and the energy mix.* (https://www.euromonitor.com/article/top-5-countries-co2-emisssions-2016).

- *However, India's per capita GHG emission is around 1.96 tCO_2e which is less than one-third of the world's per capita GHG emissions (6.55 tCO_2e).*

(https://energy.economictimes.indiatimes.com/news/renewable/by-2030-cut-per-capita-emission-to-global-average-india-to-g20/84746951)

- *As per the BUR-3, India has progressively continued decoupling of economic growth from greenhouse gas emissions by reducing emission intensity of gross domestic product (GDP) by 24% between 2005 and 2016. Therefore, India is on track to meet its voluntary declaration to reduce the emission intensity of GDP by 20-25% from 2005 levels by 2020.*

Further, at the Twenty-sixth CoP to the UNFCCC at Glasgow, the Prime Minister of India, Shri Narendra Modi, highlighted the need for recognizing that sustainable lifestyles have a big role in climate change and proposed a "One-Word Movement". He said that "This One-Word, in the context of climate, can become the basic foundation of One World. This is a word- LIFE...L, I, F, E, i.e., Lifestyle For Environment.

EVALUATIVE QUESTION 2: Does the project help the country meet the commitments, including new and additional, made to UNFCCC and also track the progress thereto?

YES. Through its decision 1/CP.16, paragraph 60, the COP to the UNFCCC decided to enhance reporting from Parties not included in Annex I to the Convention stating that "Developing countries, consistent with their capabilities and the level of support provided for reporting, should submit biennial update reports containing updates of national greenhouse gas inventories, including a national inventory report and information on mitigation actions, needs and support received". The decision also states the need to consider national capabilities and financial support required to facilitate the timely preparation of biennial update reports. Decision 2/CP.17, Paragraph 41(f) and (g) mandated Non-annex I Parties to submit BURs every two years with the national GHG inventories being not more than four years older than the submission year. In fulfilment of these requirements, MoEFCC with its cross-ministerial and institutional network submitted its BURs 1, 2, and 3 under the project and the TNC is undergoing review.

Under Component - vii. Other new information required under the aegis of the Convention, studies have been completed on developing a long-term strategy for low carbon development and road map for achieving NDC goals 3, 5, 7, and 8.

EVALUATIVE QUESTION 3: Does the project create awareness and build up the capacity of stakeholders and institutions to continue to meet the reporting requirements of UNFCCC?

YES. External communication with all stakeholders has been commendable with fifteen publications including two books under print. The publications include books for various stakeholders including the general public (Sustainable Lifestyles – Parampara, Samanvay: Harmonizing Traditions and Modernity, Low Carbon Lifestyles: Right Choices for Our Planet),

policy makers (India: Climate Change and the Paris Agreement), and experts/ scientists/ researchers (Indian Long Term Ecological Observatories).

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

- 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 and Research Institutions.

EVALUATIVE QUESTION 4: Do the project outputs provide inputs to national and state policies to meet the development priorities in the backdrop of CC?

YES. The project Outputs namely, BURs, NCs, study reports, strategy documents such as long-term strategy and NDC road maps are used by the GoI to draft national regulatory frameworks, policies and schemes/ programmes. For example, to reduce GHG emissions from fuelwood and cow-dung burning, the GoI provides LPG connections to BPL households under the Pradhan Mantri Ujjwala Yojana and the GOBAR (Galvanizing Organic Bio-Agro Resources) - DHAN scheme focuses on keeping villages clean, increasing the income of rural households, and generation of energy from cattle, domestic, agriculture and other organic wastes.

EVALUATIVE QUESTION 5: 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?

During the MTR, the Panel of Experts had highlighted the adaptive management practices, monitoring and evaluation processes and results thereof, and efficiency of project implementation with cost-effectiveness. The same were found to be continued and despite the ongoing COVID-19 pandemic, the project not only successfully submitted the BUR-3 to UNFCCC but has also prepared the draft TNC report. The project has been able to leverage US$34 million to US$47.9 million documented co-finance from GoI, Civil Society and Private Sector.

EVALUATIVE QUESTION 6: Are there any financial, institutional, socio-economic, and/or environmental risks to sustaining long-term project results?

No. Financial, institutional, socio-economic, and/or environmental risks for sustaining long-term project results are highly 'unlikely'. GEF Trust Fund has committed more than US$10 million for the following projects that ensue the TNC (NATCOM-3) project:

a. Preparation of India's Fourth National Communication (4NC) and Fourth Biennial Update Report (BUR-4) to the UNFCCC and Strengthening Institutional and Analytical Capacities on Climate Change (4NC project) with a budget of US$4,566,000.
b. Capacity-building for establishing an Integrated and Enhanced Transparency Framework for climate actions and support measures (referred to as CBIT project) with a budget of US$3,800,000.
c. Preparation of India's first Biennial Transparency Report (BTR) with a budget of US$ 1,816,500.

3.6. Action Taken on MTR Recommendations

The Panel of Experts has also assessed the actions taken by the Implementing Agency on the recommendation made during the Mid-Term Review. These are as follows:

Recommendation 1: MoEFCC, UNDP and GEF may like to adopt the revised log-frame suggested by the Expert Panel.

Action taken: Understandably, the revision of the log-frame was too late in the project cycle and may have led to unnecessary complications for the GEF Secretariat. Hence, the same was not used by UNDP for GEF progress reporting but was used internally by MoEFCC and UNDP to track the progress of the project.

Recommendation 2: 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.

Action taken: All relevant departments/ministries provide inputs in a timely manner and have representation on the National Steering Committee to ensure the accuracy and correctness of the data and analysis. Having too many institutions in project implementation may lead to unnecessary and avoidable complications. Hence, it was decided that other departments/ministries of GoI need not become responsible partner in the follow up projects.

Recommendations 3: Regarding lacunae under some Outcomes and Outputs requiring immediate attention

d. Output 5.1: Studies for comprehensive description of systematic observations and research on climate change be commissioned on an urgent basis.

Action taken: Studies were commissioned to the Indian Institute of Tropical Meteorology, Pune.

e. Output 5.2: Long-term ecological studies to understand impacts of climate change on biodiversity and other sectors be commissioned at the earliest.

Action taken: MoEFCC launched the Long-Term Ecological Observatories (LTEO) for Climate Change Studies under the 'Climate Change Action Programme' with an outlay of Rs. 400 million. Under the programme, studies have been commissioned to 32 institutions under the overall guidance and supervision of Indian Institute of Science.

f. 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 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 the 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.

Action taken: The establishment of NICCSA as a standalone institution has been replaced by devolving the responsibilities to a network of institutions. The establishment of the National Inventory Management System (NIMS) could not happen because of the evolving nature of negotiations under Article 6 of the Paris Agreement. A decision on the article has been taken at CoP-26 to the UNFCCC. Accordingly, the establishment of NIMS is being addressed through new GEF Trust Fund project. More information on this is given below i.e., in Action Taken on Recommendation 9, 13 and 14.

Recommendations 4:

d. 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.

Action Taken: Along with being available on the UNFCCC website, the NCs and BURs have also been made available on MoEFCC's website. Further, due to the ongoing COVID-19 pandemic, printing of the documents was rendered difficult (lock downs,

limited staff and other problems) and futile (no physical contact, so distribution was difficult).

e. 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.

   Action Taken: The books are in final stages of editing. The delay in publishing the books is on account of the ongoing COVID-19 pandemic.

f. 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.

   Action Taken: The books are at final stages of editing. The delay in publishing the books is on account of the ongoing COVID-19 pandemic.

Recommendation 5, 9 and 10: Establishing a National Institution on CC, institutionalizing the PMU, continued GEF financing, roadmap for future reporting including financing.

Action taken: The Outcomes of the new GEF Trust Fund project Capacity-building for establishing an Integrated and Enhanced Transparency Framework for climate actions and support measures (CBIT) include establishing: i) a National Institutional Coordination System (NICS) and ii) the National Climate Information System (NCIS). Further, under the 4NC and BUR4 project, it is envisaged to establish a National Inventory Management System (NIMS). Under the CBIT project, it is envisaged to integrate NICS with National Inventory Management System (NIMS) and other online tracking tools to create a centralised National Climate Information System (NCIS) for disseminating information in the public domain. NCIS will also help enhance the capacity to mobilise climate finance. Government of India has also established Centre for Climate Change Research at Indian Institute of Tropical Meteorology, Pune under the Ministry of Earth Sciences with the following objectives:

i) To develop high resolution climate models or Earth System Models (ESM) to address scientific questions on attribution and projection of regional climate change. ii) To use regional climate models to produce projections of Indian monsoon under different scenarios and assess the uncertainty in these projections. iii) To study Monsoon Variability and Predictability by identifying regional and global climate drivers for monsoon inter-annual variability and to identify useful predictors and to understand the dynamics of dry and wet epochs of the Indian summer monsoon rainfall (ISMR) and their relation to the ENSO and other global coupled phenomenon. iv) To document chief features of regional monsoon climate change based on climate reconstructions derived from high resolution proxies and to

understand the long-term monsoon climate variability over the Asian region. v) To build in-house capacity in global and regional climate modelling to address all issues concerning the science of regional climate change with particular emphasis on the South Asian monsoon system.vi) To generate reliable climate inputs for impact assessments. vii) To develop hydrological model for large-scale estimation of run-off and soil moisture using satellite derived data. viii) To understand the role of aerosol loading over the Indian region in monsoon interannual variability and its possible implications on the Indian Monsoon. ix) To study and understand the role of aerosol chemistry (both organic and inorganic ionic species) in radiative forcing and regional climate change.

Recommendation 6: PMU may bring out BUR-3 with 2016 GHG inventory by December 2019 and TNC by June 2020.

Action taken: The BUR-3 with 2016 inventory was submitted to the UNFCCC on 20 February 2021 and the TNC with 2017 to 2019 inventory is complete and undergoing a review process. The delay in submission and preparation of BUR-3 and TNC respectively is on account of the ongoing COVID-19 pandemic. The delay in preparation and submission of the national reports was intimated to GEF Secretariat and project extended accordingly.

Recommendation 7: 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 public awareness.

Action taken: The studies for the gap areas were duly commissioned and the results incorporated in BUR-3 submitted in February 2020 and the draft TNC (currently being reviewed).

Recommendation 8: PMU may commission a study to compile, collate and document the co-finance from various sources.

Action taken: The PMU itself compiled, collated, and documented the co-finance from various sources and has reported the same to the Expert Panel and GEF.

4. CONCLUSIONS

1. The GoI-GEF project entitled 'Preparation of Third National Communication (TNC) and other new information to the UNFCCC' (NATCOM PROJECT) is multifaceted, complex and unique, involving multiple stakeholders, vast amounts of data (both current and historical), cutting edge science and technology, and addresses problems at all levels. In terms of science and data collection, analysis and management, more than 50 institutions and 100 scientists were involved. The institutions and scientists conduct primary and secondary research, collate and compile 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. Accordingly, more than 100 studies were commissioned to various institutions and experts across the country.

2. 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, 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.

3. The project implementation and adaptive management exhibited by NPD and PMU are found to be commendable.

4. MoEFCC has developed internationally acclaimed BURs due to its rigorous Monitoring and Evaluation framework comprising scrutiny by scientific/technical experts, all relevant departments/ministries of GoI, Technical Advisory Committee and National Steering Committee. Some of the GHG data provided in BUR-2 have been indirectly monitored by a consortium of Civil Society Organisations and airplane sorties.

5. Stakeholder engagement and communication under the project are highly appreciable and noteworthy. It is pertinent to note that the core deliverables of the project were preparation of three BURs and TNC. To support the core deliverables, more than 100 studies were commissioned. Understandably, the studies may result in several scientific, peer-reviewed publications. Since commencement, more than 13 books/publications were brought out by the PMU for the international and national audience such as general public, decision and policy makers, academicians and

businesses. The publications brought out under the project have been showcased at various national and international events. 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 indirect stakeholders, especially the 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 50 meetings, workshops and training programmes organised under the project. Some of the publications have been made available at: https://moef.gov.in/en/division/environment-divisions/climate-changecc-2/natcom/.

6. The Results Framework/Log-frame
   a) At the time of MTR, the Panel of Experts felt that the ProDoc log-frame needs to be revised to address new and emerging climate change issues and commitments by the country. Thus, a revised log-frame comprising eight Outcomes to be achieved through 20 Outputs and numerous activities had been proposed. Understandably, the revision of the log-frame was too late in the project cycle and might have led to unnecessary complications for the GEF Secretariat. Hence, the same was not used by UNDP for GEF progress reporting but was used internally by MoEFCC and UNDP to track the progress of the project.
   b) With regards to the original log-frame: the Panel of Experts found the Objective to be fully achieved and six of the seven Outcomes to be 'highly satisfactory' and the one remaining to be 'satisfactory'. In terms of total indicators and their envisaged targets, out of the total thirty-six targets, thirty-one stand fully achieved and adjudged 'highly satisfactory' and the remaining five to be partially achieved and adjudged 'satisfactory'. Therefore, the overall project progress is adjudged as 'highly satisfactory'.
   c) With regards to the proposed MTR log-frame: the project achieved 'highly satisfactory' ratings for all four indicators and targets at the objective level, seven of the eight Outcomes were adjudged 'highly satisfactory', and the one remaining was found to be 'satisfactory'. In terms of the achievement of the Output level indicators and targets, twenty of the twenty-one are adjudged as 'highly satisfactory', and one as 'satisfactory'.

7. The project has been managed, monitored and implemented extremely well by MoEFCC with the support of UNDP.

8. India, a Non-Annex-1 Party to the UNFCCC, submitted its First to Third BURs and its Initial and Second NCs to the UNFCCC and the TNC is under review. The submission of the BURs by India in a timely manner shows the country's commitment towards reporting to the UNFCCC.

9. India's advances in the fields of GHG inventory and reporting to UNFCCC are remarkable as evident from the climbing of the Tier ladder, developing country specific emission factors and activity data for key sectors from INC till TNC.

10. More than 100 studies were undertaken by over 50 institutions to collect, collate and analyse data. The role of PMU, MoEFCC and UNDP in undertaking the gargantuan task of commissioning the studies, and thereafter sieving through the enormous data, results and findings to draft the BURs and TNC is highly appreciable.

11. It is heartening to note that India's progress and enhanced transparency in reporting has been commended by TTE and parties during the ICA process for BURs 1, 2, and 3. The international recognition speaks volumes of the efforts put in by experts, institutions, Government of India, especially MoEFCC, PMU and UNDP in collection of data and drafting of the BURs.

12. Since INC, India has been using actual data for GHG inventorisation and not projections/modelling; this requires continuous flow of scientific data with constant monitoring. In view of the scientific strategic requirements, India has prepared GHG inventories for 2010, 2014, 2016 and 2017-19, which are beyond the envisaged targets of the TNC project. India's contribution to the understanding of Climate Science through projects such as the extant one needs to be continued through future projects. In this context, India has developed the requisite individual and institutional capacities to sustain the scientific rigour for the forthcoming three GEF Trust Funded projects.

13. India announced the 'SATAT' (Sustainable Alternative Towards Affordable Transportation) scheme to reduce the import dependency on oil & gas sector, avoid GHG emissions from burning of fossil fuels in the transport sector, and to address the problem of agriculture residue burning in farmlands. Under SATAT, the country is committed to converting agricultural biomass (residue) into biofuels (Bio-CNG, green Hydrogen and 2G ethanol). It is imperative that in line with such initiative the country further climbs the GHG inventory Tier ladder and develops Country Specific (CS) emission factors for agriculture and renewable energy sectors.

14. Given the size, socio-economic-environmental diversity and developmental needs of India, it is acknowledged that a single project like the extant TNC project will have limited or often unfathomed contribution in affecting or achieving policy changes. It is the considered opinion of the Panel of Experts that reporting by country parties

including India does lead to awareness of the problems/issues and collective actions. For example, at the national level: in 2015, India declared its Intended Nationally Determined Contribution (later adopted as the Nationally Determined Contribution (NDC)) to the UNFCCC vide which the country pledged to cut emission intensity of its GDP by 33-35 per cent by 2030. In August 2022, the country updated the NDC towards achieving long term goal of reaching net-zero by 2070. At the international level: on 30 November 2015, at the 21st session of the Conference of Parties to the UNFCCC (COP-21) held at Paris, France, H.E. Mr. Narendra Modi, the Hon'ble Prime Minister of India and H.E. Mr. Francois Hollande, former Hon'ble President of France, announced the launch of the International Solar Alliance (ISA). Heads of about 120 nations affirmed their participation in the Alliance to dedicate efforts for promotion of solar energy. Further, India championed the Coalition for Disaster Resilient Infrastructure (CDRI), headquartered in Delhi, a partnership of national governments, UN agencies and programmes, multilateral development banks and financing mechanisms, the private sector, and knowledge institutions, that aims to promote the resilience of new and existing infrastructure systems to climate and disaster risks in support of sustainable development.

15. The well-coordinated and directed execution of the extant project saw commissioning of several original studies, collation of data from multiple sources, sheer analysis and it has produced, apart from three BURs, a number of high-quality knowledge products of wider use in climate science. The project has earned meritorious applause not only nationally but also internationally. The project with its deliverable can be used as a role model for future projects.

Measure	TE 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.	Five Performance Indicators have been envisaged to assess the progress towards achievement of the objective of the project. All targets envisaged against each indicator have been achieved and adjudged as 'highly satisfactory'. TNC studies completed and data compiled, collated and analysed. The Chapters of TNC have been drafted and a review process has begun. No further support from the project is required.

Outcome 1: Updated report on India's National Circumstances prepared.	HS.	Four Performance Indicators have been envisaged to assess the progress towards achievement of the outcome. All targets envisaged against each indicator have been achieved and adjudged as 'highly satisfactory'. TNC studies completed and data compiled, collated and analysed. The Chapters of TNC have been drafted and a review process has begun. No further support from the project is required.
Outcome 2: National GHG inventory prepared for the years 2011, 2013 and 2014.	HS.	Six Performance Indicators have been envisaged to assess the progress towards achievement of the outcome. All targets envisaged against five indicators have been achieved and adjudged as 'highly satisfactory'. The last indicator for establishment of the National Inventory Management System (NIMS) was adjudged satisfactory. NIMS has been partially established because of the evolving nature of negotiations under Article 6 of the Paris Agreement. A platform to collect data from industries, especially Medium Small and Micro Enterprises, is being developed by Confederation of Indian Industries (CII) for IPPU sector. The pilot platform is functional.
Outcome 3: Impacts and vulnerability assessments, and adaptation measures.	HS.	Six Performance Indicators have been envisaged to assess the progress towards achievement of the outcome. All targets envisaged against six indicators have been achieved and adjudged as 'highly satisfactory'.
Outcome 4: Measures to mitigate climate change.	HS.	Six Performance Indicators have been envisaged to assess the progress towards achievement of the outcome. All targets envisaged against each indicator have been achieved and adjudged as 'highly satisfactory'.
Outcome 5: Other information relevant for the preparation of the TNC.	HS.	Four Performance Indicators have been envisaged to assess the progress towards achievement of the outcome. Three targets against the four indicators have been achieved and adjudged as 'highly satisfactory'. Indicator (C) for establishment of the National Inventory Management System (NIMS) has been partially established because of the evolving nature of negotiations under Article 6 of the Paris

		Agreement. A platform to collect data from industries, especially Medium Small and Micro Enterprises, is being developed by CII for IPPU sector. The pilot platform is functional.
Outcome 6: Third National Communication Report preparation.	S.	Five Performance Indicators have been envisaged to assess the progress towards achievement of the outcome. Three targets against indicators (A) to (C) have been partially achieved. TNC studies have been completed, data compiled, collated and analysed. The Chapters of TNC have been drafted and a review process has begun. No further support from the project is required. Hence, these indicators (A) to (C) have been adjudged 'satisfactory' and the fourth and fifth indicators regarding technical reports and Final Evaluation are adjudged 'highly satisfactory' because 15 publications (including two books under print) have been brought out by MoEFCC and PMU, and the evaluation was commissioned on time and this report has been submitted to MoEFCC and UNDP.
Outcome 7: Enhanced understanding of domestic mitigation actions and preparation of Biennial Update Reports for submission during 2014, 2016 and 2018.	HS.	Five Performance Indicators have been envisaged to assess the progress towards achievement of the outcome, which have been fully achieved. BURs 1, 2 and 3 have been submitted to UNFCCC. The achievement of the indicators has been adjudged 'highly satisfactory'.
Project Implementation & Adaptive Management		
Management Arrangements and Adaptive Management	HS	The project design provides enough flexibility to MoEFCC and UNDP to adapt to 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 was to use digital medium and other models for submitting the BUR-3 during the ongoing COVID-19 pandemic and completing the studies for TNC.

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 GEF Trust Fund grants were received in December 2013. Accordingly, MoEFCC was to submit the three BURs and TNC by December 2019. India has furnished BUR-1 in January 2016, BUR-2 in 2018 and BUR-3 in 2021. All studies for TNC have been completed and the TNC is under review.
Finance and Co-Finance	HS	The total project cost is estimated at US$35.250 million, of which GEF grant is US$9,010,604 and GoI (in-kind and grant) co-finance is US$26,090,000 and UNDP contribution is US$150,000. 100% utilisation of funds has been ensured. The co-finance documented by the PMU, based on the data provided by more than half the PIs and calculation of MoEFCC (resource and infrastructure), stands at ₹2,587,347,971 and US$47.9 million, US$34 million and US$41.6 million with average currency exchange rate of ₹61 (2014), ₹76 (2022) and ₹62.1 (average rates between 2014-2022) for a US$, respectively. The documented co-finance is about 162.5%, 130.4% and 159.7% of the total committed by GoI i.e., US$26 million with average currency exchange rate of ₹61 (2014), ₹76 (2022) and ₹62.1 (average rates between 2014-2022) for a US$, respectively.
Monitoring and Evaluation Arrangements	HS	The NCs and BURs undergo rigorous review by the relevant information furnishing departments/ministries of GoI. The scrutiny by departments/ministries is followed by review by the Technical Advisory Committee and the National Steering Committee. Finally, the Government of India approves the NCs and BURs. 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. All three BURs have successfully completed the ICA process. Further, the GHG emissions in terms of CH_4

		reported in the BUR-2 were verified by an external agency using air sorties and a consortium of CSOs has calculated emissions from certain sectors, which match the emissions reported in BUR-2.
Stakeholder Engagement	HS	There are no direct stakeholders other than GoI, 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 by 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 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 fifteen publications (including two under print), and helped develop materials for audio-video interactive exhibits for a Science Express train.
Reporting	HS	Internal reporting in the project is established as per the standard practice and norms of 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 were 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 communication system and practice. The PIRs for 2014 to 2021 have been reported by PMU and UNDP in a timely manner and 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.
Communication	HS	Sixteen to eighteen institutions were involved in preparation of the BURs and the internal communication is well established and duly practised. Further, more than 100 studies have been commissioned for various Chapters of TNC. The studies commissioned under the project are reviewed in consultative events/meetings for facilitating cross-learning and getting suggestions for improvements. External communication with all stakeholders has been commendable with release of fifteen publications including two books under print. The publications include books for various stakeholders including the general public (Sustainable Lifestyles – Parampara, Samanvay: Harmonizing Traditions and Modernity, Low Carbon Lifestyles: Right Choices for Our Planet), policy makers (India: Climate Change and the Paris Agreement), and experts/scientists/researchers (Indian Long Term Ecological Observatories).
Sustainability		
Financial sustainability	**Likely**	India has already received a commitment of more than US$10 million for future reporting of NCs, BURs, BTRs and Capacity Building from the GEF Trust Fund.
Socio-economic sustainability	**Likely**	The socio-economic benefits derived from the project go beyond reporting to UNFCC 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: i) notification of the National Policy on Biofuels, 2018, which allows production of ethanol from damaged food grains unfit for human consumption, like wheat and broken rice; ii) meeting electrification of villages through promotion of energy efficient lights and devices at large scale under the UJALA scheme, which has led to cumulative emission reduction of 180.08 $MtCO_2$ from March 2014 to November 2020; and iii) promotion of production of energy through renewable resources with a target of 175 GW by 2022 and 450 GW

		thereafter. The learnings from the BURs and NCs form the basis of the initiatives of the GoI, which not only cater to the industries but also to the common humans.
Institutional framework and governance sustainability	**Likely**	The project has built up 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. Under the new GEF Trust Fund project Capacity-building for establishing an Integrated and Enhanced Transparency Framework for climate actions and support measures referred to as CBIT project, one of the targets is to get 35 Indian experts trained and accredited, on the 'Roster of Experts', to participate actively in the UNFCCC reviews. Further, the PMU is housed in MoEFCC and capacity building of Programme Officers is ensured by offering performance linked incentives. Under the CBIT project, it is proposed to establish: i) a National Institutional Coordination System (NICS) to strengthen not only GHG inventory data processing and storage but also NDC monitoring; and ii) the National Climate Information System (NCIS) to share information among public, civil society and policy planners on GHG emissions and NDCs over time, and progress against mitigation and adaptation strategies. Further, under the 4NC and BUR4 project, it is envisaged to establish a National Inventory Management System (NIMS) for regular collection, analysis and reporting of GHG emissions data. Under the CBIT project, it is envisaged to integrate NICS with National Inventory Management System (NIMS) and other online tracking tools to create a centralised National Climate Information System (NCIS) for disseminating information in the public domain. NCIS

		will also help enhance the capacity to mobilise climate finance.
Environmental sustainability	**Likely**	India is doing more than its fair share of mitigation and is currently acknowledged worldwide to be one of the few countries that are on track to meet its Paris commitments. As per the BUR-3 submitted by India to the UNFCCC, the following are noteworthy: • Between 2005 and 2016, India has decoupled its economic growth (GDP) from greenhouse gas emissions by 24 per cent. Therefore, India is on track to meet its NDC target of reducing the emission intensity of GDP by 20-25 % from 2005 levels by 2020. • India's renewable energy expansion programmes with a target of 175 GW by 2022 and later up to 450 GW are one of the largest in the world. • As per the Forest Survey of India, forest and tree cover have increased by 1.3 million ha between the 2015 and 2019 assessments i.e., a 1.65% increase. • India's climate action is widely acknowledged by independent, international assessments to be among the few that are compatible with the well below 2^{o}C warming target of the Paris Agreement.

5. RECOMMENDATIONS

It is recalled that Parties to the UNFCCC are committed to the submission of National Communications to the Conference of Parties of the UNFCCC on their actions taken in implementing the Convention, as per the Convention, and several relevant decisions adopted by Parties at several COPs over the years. Accordingly, reporting is done by Non-Annex-I Parties through National Communications (NCs) and Biennial Update Reports (BURs). The NCs and BURs are ongoing processes for which GEF is committed to provide US$500,000 for NCs and US$325,000 for BURs. Further, as per the Paris Agreement under the Convention, all Parties have adopted the Enhanced Transparency Framework (ETF), and relevant submissions under the Framework to report on the progress of their relevant commitments, responsibilities and obligations, including their actions defined in their Nationally Determined Contributions (NDCs). The ETF requires the Parties to adopt the 2006 IPCC guidelines with any subsequent version or refinement and submit time series GHG inventory, subject to a technical expert review and facilitative, multilateral consideration of progress. Reporting of BR/BUR under UNFCCC will be superseded by Biennial Transparency Report (BTR) for Parties to the Paris Agreement. Accordingly, final BURs are to be submitted no later than 31 Dec 2024 (1/CP.24, para 38), and First BTR must be submitted by all Parties no later than 31 Dec 2024 (18/CMA.1, para 3). During the technical analysis (TA) of BUR-3, India put on record that the capacity building needs identified during TA of its second BUR and even prior to that (i.e., since 2004) are still relevant and remain mostly unmet and continue to multiply

In the light of the above, the MoEFCC, with relevant support of the UNDP, has developed the following three GoI-GEF-UNDP projects:

1. “Preparation of India’s Fourth National Communication (4NC) and Fourth Biennial Update Report (BUR-4) to the UNFCCC and Strengthening Institutional and Analytical Capacities on Climate Change (4NC project)”.
2. “Preparation of India’s first Biennial Transparency Report” (BTR).
3. “Capacity-building for establishing an Integrated and Enhanced Transparency Framework for climate actions and support measures (CBIT)”.

Based on the aforementioned findings, evaluative questions and understanding of the subject, the Panel of Experts make the following recommendations:

S. No	RECOMMENDATIONS	RESPONSIBLE PARTY	TIME FRAME
1.	Reporting of BR/BUR under UNFCCC will be superseded by Biennial Transparency Report (BTR) for Parties to the Paris Agreement. Accordingly, final BURs are to be submitted no later than 31 Dec 2024 (1/CP.24, para 38),	UNDP and GEF Sec	Within 3 months

	and First BTR must be submitted by all Parties no later than 31 Dec 2024 (18/CMA.1, para 3). During the technical analysis (TA) of BUR-3, India put on record that the capacity building needs identified during TA of its BUR-2 and even prior to that (i.e., since 2004) are still relevant and remain mostly unmet and continue to multiply. **Given that two reports i.e., BUR4 and the first BTR, are to be submitted by 2024, and the needs for capacity building that have remained unmet so far, the CBIT project needs to be initiated immediately.**		
2.	While the studies and all major activities were carried out by MoEFCC, UNDP (India) supported project implementation by: • finance management, including releasing funds as per the authorisation of MoEFCC, financial accounting and auditing; and • administrative support, including, inter alia, engaging staff, procuring services of national and international consultants, procuring equipment, and logistic and boarding support for travel and meetings/conferences. **The support provided by UNDP (India) in the form noted above for project implementation was crucial and must continue for follow-on projects.**	MoEFCC-UNDP	Project period of the three new projects
3.	India is promoting low-carbon growth and development across the economy and utilizing available opportunities and	MoEFCC	

	synergies in various sectors. In particular for low-carbon growth in the transport sector, and addressing GHG emissions from wastes, India is promoting green hydrogen, electric mobility (based on renewable energy) and converting biomass (agriculture and domestic wastes) into biofuels (Bio-CNG, green Hydrogen and 2G ethanol). The country may explore climbing the GHG inventory Tier ladder and develops Country Specific (CS) emission factors for agriculture and renewable energy sectors.		
4.	More than 100 studies were undertaken by over 50 institutions to collect, collate and analyse data. This itself has been a remarkable feat. While, the essential results and findings of these studies may find place in the BURs and TNC, there would be lots of data and findings that may not get reported. Accordingly, the studies may be compiled into reports for dissemination to various stakeholders.	MoEFCC	One year since inception of the new projects

6. LESSONS LEARNED

1. The extant TNC project builds upon the Initial and the Second National Communications to the UNFCCC by identifying the gaps encountered during the preparation and submission of the previous communications to the UNFCCC. This strategy of building on past learnings from projects helps ensure better results/success, continuity, institutionalisation and effective implementation through replication.

2. Retaining the implementation arrangements is imperative, since it helps begin a new project from the point where the last one ended. In the present case, MoEFCC is the nodal ministry for CC in India and is responsible for meeting reporting requirements to UNFCCC. MoEFCC was strengthened by UNDP in project implementation by providing support such as direct release (upon receipt of authorisation from MoEFCC) of payments to experts/institutions for various studies and services, procurement of equipment and services of short-term consultants, travel bookings and arrangements, and financial management and auditing. Accordingly, while the executing as well as the implementing agency is MoEFCC, UNDP is providing support services upon request and authorization of MoEFCC. This arrangement which has been going on since Initial National Communication has been maintained and ensured success of the project and may be continued.

3. Rigorous M&E by project implementation unit and third-party independent evaluators on a continuous and periodical basis is essential for the success of a project. The National Reports undergo rigorous review and scrutiny by various departments/ ministries of the GoI, the Technical Advisory Committee and a National Steering Committee comprising representatives of various Departments/ Ministries concerned with sectors related to GHG or climate change, thereby ensuring the continued multi-level engagement of the GoI. Further, as per the rules of UNFCCC, the BURs are subjected to an international process known as International Consultation and Analysis (ICA). Accordingly, the project outputs were monitored and evaluated at each level.

4. The GEF-GOI-UNDP NATCOM project has enabled the creation of foundational capacities in India for scientific research, that are of paramount value for informing climate policy and action in different sectors. The experience of implementing the project has not only created the outputs envisaged under the project but also developed the standard operating procedures that led to the development of the outputs. The entire protocol of developing the National Communications and the BUR as well as the institutional architecture to support the development of these reports to the UNFCCC has been a contribution of the GEF-GOI-UNDP NATCOM project. Hence, Enabling Activity projects should be used to create and continuously upgrade systemic capacities, and not be envisaged as only focused on creating outputs and deliverables.

5. The creation and strengthening of systemic capacity have important knowledge benefits. For instance, several spin-off outputs that were not originally envisaged under the GEF-GOI-UNDP project have emerged because of the information, experiences and expertise created out of the project. The Long-Term Low Emission Development Strategy of India has been informed by the scientific outputs of this project.

6. The focus on Sustainable Lifestyles and Lifestyles for Environment (LiFE), that has evolved to become a fundamental aspect of India's climate policy, has also been informed by a series of knowledge products commissioned under this project, including 'Parampara' and 'Samanway'. The recommendation from this experience is to allow more country ownership and flexibility in the design and implementation of these projects rather than focus exclusively on the agreed upon deliverables. Such ownership and flexibility would enable much more impactful use of these projects.

7. As a consequence of the funding arrangements, with the funding being obtained from GEF in project mode with substantial co-funding by GoI through multiple channels, the institutional structure of India's preparation of the BURs and NCs is incorrectly described as being in project mode. However, this does not imply that the India's inventory preparation system is ad-hoc or without institutional foundations in Government, whose functioning and processes are administratively and legally recognized. The relevant institutions of the Government of India are provided with sufficient legal and administrative powers and responsibilities to ensure timely collection and preparation of data and their reporting and evaluation are conducted through well-established and officially sanctioned processes, going up to the highest levels of the Government. The current institutional structure of the BUR and NC preparation process is also well aligned with that of other large developing economies, while comparison with developed countries is not relevant in keeping with India's status as a developing country Party to the UNFCCC. Hence, the desirability of a National Inventory Management System (NIMS) and its development may be independently undertaken after due consideration by Government of India, but its establishment is not an immediate requirement as per the current experience. Further, such a NIMS should not become a barrier to the development of appropriate processes and relevant knowledge generation for climate policy making, whose successful contribution has been noted above, and which remains a necessity for India as a developing country.

8. The GEF-GoI-UNDP NATCOM project has done very well as seen by timely submission of BURs, publication of high quality and well received knowledge products, building capacities, and optimal utilisation of experience, available expertise and funds. Success of this project has important indications for future projects of this kind.

REFERENCES AND NOTES

The TE Panel of Experts have relied on the documents and information given below while drafting the report. However, only very relevant references are quoted in the report. Further, certain sections and sub-section of the TERMINAL EVALUATION Report may have reproduced verbatim from the documents given below. The reproduction has been acknowledged wherever found necessary.

1. *Annual Work Plans (2013 to 2021).*
2. *Biennial Update Reports 1, 2 and 3 (BUR-1, BUR-2 and BUR-3).*
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 (2013-2021).*
6. *Letter of GEF CEO along with 'REQUEST FOR CEO ENDORSEMENT' to the Council Members for endorsement of the NATCOM project. (Letter to Council Members).*
7. *Project Document duly signed by the Government, Executing Entity/Implementing Partner and UNDP (ProDoc).*
8. *Project Implementation Review (PIR) submitted to GEF (2014 to 2022).*
9. *Publications prepared under the project.*
10. *Technical Reports of studies commissioned under the project.*
11. *UNDP's "Guidance for conducting TERMINAL EVALUATIONS of UNDP-supported, GEF-financed projects" (2020).*
12. *Guidelines for GEF Agencies in Conducting Terminal Evaluation for Full-sized Projects [GEF Monitoring and Evaluation Policy (2010). Unedited. Approved by the GEF IEO Director on 11th of April 2017).]*
13. *The GEF Evaluation Policy (GEF/ME/C.56/02; May 14, 2019) [56th GEF Council Meeting; June 11th -13, 2019; Washington, D.C.] {accessed - https://www.thegef.org/sites/default/files/council-meeting-documents/EN_GEF.ME_C56_02_GEF_Evaluation_Policy_May_2019_0.pdf on 16 March 2022}.*

CODE OF CONDUCT AGREEMENT FORMS

UNEG Code of Conduct for Evaluators

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 imitations, findings and recommendations.

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

8. Must ensure that independence of judgement is maintained, and that evaluation findings and recommendations are independently presented.

9. Must confirm that they have not been involved in designing, executing or advising on the project being evaluated and did not carry out the project's Mid-Term Review.

Evaluation Consultant Agreement Form

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

Name of Evaluator: **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 **16 December 2021**

Signature: _____

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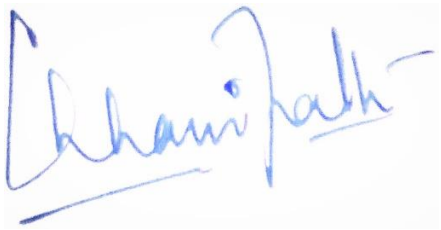

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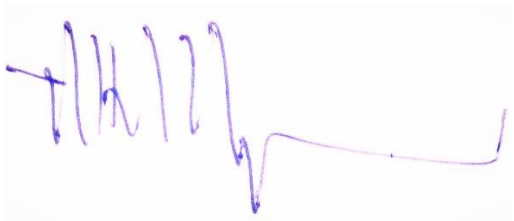

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1. Must present information that is complete and fair in its assessment of strengths and weaknesses so that decisions or actions taken are well founded.

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 imitations, findings and recommendations.

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

8. Must ensure that independence of judgement is maintained, and that evaluation findings and recommendations are independently presented.

9. Must confirm that they have not been involved in designing, executing or advising on the project being evaluated and did not carry out the project's Mid-Term Review.

Evaluation Consultant Agreement Form

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

Name of Evaluator: **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 **16 December 2021**

Signature: _____

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PROJECT STRATEGY	PERFORMANCE INDICATOR	MIDTERM LEVEL & ASSESSMENT	END of PROJECT TARGET	END of PROJECT ASSESSMENT	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.	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.	BUR-3 submitted on 20 Feb 2021 and TNC is under review.	HS. BUR-3 has been submitted to UNFCCC and TNC is in final stages.
	New information required under the aegis of the Convention is submitted.	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.	The studies are under review.	HS.
	Capacity ofkey stakeholders and institutions are equipped to provide information mandated under UNFCCC as per prescribed guidelines.	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 successfully completes ICA process of UNFCCC.	BUR-3 ICA was completed on 21 Jan 2022.	HS. The information may be seen on UNFCCC website.

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	Increased public awareness on Climate Change issues, mitigation and adaptation measures.	**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.**	**15 books/publications have been published under the project.**	HS. The information may be seen in BUR-1, 2 and 3. Copies of the publications are also available on MoEFCC website and with PMU for verification.
Outcome 1: Updated report on India's National Circumstances prepared.	**Updated Information on the prevailing conditions and situations is provided.**	**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.**	**BUR-3 submitted on 20 Feb 2021. TNC is under review.**	**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 the chapter on other information in BUR-1 and BUR-2.**	**Information is provided in BUR-3 and TNC in Chapter on National Circumstances.**	**BUR-3 with the requisite information submitted on 20 Feb 2021, while TNC is under review.**	**HS. The information is available with the PMU.**
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 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 on India's development priorities, policies and programmes at national level along with a comprehensive, but non-exhaustive, reporting of national level policies related to CC has been provided in Chapters 1, 3 and 6 of BUR-3. TNC is under review.	**HS. The information is available with the PMU.**
Collect, collate and compile information on policies and programmes at state level.	Information is provided in Chapter 1 of TNC	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	Each State has prepared their respective State Action Plans for Climate Change adaptation and mitigation including policies and programmes. This information has been presented in Chapter 3 of BUR 3. TNC is under review.	**HS.The information is available with the PMU.**
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 Chapter on National Circumstances.**	**Updated data/ information on state of socio-economic, weather patterns, natural resources are collected, collated from various departments/ministries and is**	**Information is provided in TNC in Chapter on National Circumstances.**	**Updated data/ information on state of socio-economic, weather patterns, natural resources are collected, collated from various departments/ministries and is**	**HS.The information is available with the PMU.**

PROJECT STRATEGY	PERFORMANCE INDICATOR	MIDTERM LEVEL & ASSESSMENT	END of PROJECT TARGET	END of PROJECT ASSESSMENT	ACHIEVEMENT RATING & JUSTIFICATION FOR RATING
		presented in Chapter on National Circumstances in BUR-1 and BUR-2.		**presented in Chapter on National Circumstances in BUR-3. TNC is under review.**	
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.	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/ministries and presented in BUR-2.	Information is provided in TNC in Chapter on National Circumstances.	The data regarding socio-economic, weather patterns and natural resources are presented in BUR-3. TNC is under review.	**HS.The information is available with the PMU.**
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 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.**	**Similar to BUR-1 and 2, information on institutional arrangements is provided in BUR-3 while** TNC is under review.	**HS.The information is available with the PMU.**
Collect, collate and compile information on institutional arrangements.	Reporting of information on institutional arrangements is provided in NCs.	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.	**Information on institutional arrangements is provided in BUR-3 while TNC is under review.**	**HS.The information is available with the PMU.**
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.**	**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.**	**National GHG inventory for all five IPCC categories has been prepared and published for the year 2016 in BUR-3. Tier - 2 methodology was also used for Methane for some sub-categories under Energy sector. TNC is under review.**	**HS. BUR-3 has been submitted to UNFCCC and TNC is in final stages.**
Output 2.1: Information of GHG inventory.	Information is provided and updated in NCs.	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.	**National GHG inventory for all five IPCC categories has been prepared and published for the year 2016 in BUR-3. Tier - 2 methodology was also used for Methane for some sub-categories under Energy sector. TNC is under review.**	**HS. BUR-3 has been submitted to UNFCCC and TNC is in final stages.**
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.	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.	Full GHG Inventory for the year 2016 published in BUR-3 and is available on MoEFCC and UNFCCC websites. TNC with 2017-2019 GHG inventory is under review.	**HS. BUR-3 has been submitted to UNFCCC and TNC is in final stages.**
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.	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.	Chapter on National GHG inventory presented in BUR-3 gives information on EF and AD for key sources.	**HS. BUR-3 has been submitted to UNFCCC and TNC is in final stages.**

PROJECT STRATEGY	PERFORMANCE INDICATOR	MIDTERM LEVEL & ASSESSMENT	END of PROJECT TARGET	END of PROJECT ASSESSMENT	ACHIEVEMENT RATING & JUSTIFICATION FOR RATING
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.**	**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 estimations in BUR-1 and BUR-2**	**Emission factors developed till preparation of BUR-3 and TNC 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. In BUR-3, Tier-II emission factors have been used for a few sub-categories under Energy Sector.**	**HS. BUR-3 has been submitted to UNFCCC and TNC is in final stages.**
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.	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_2O. 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.	GHG inventory is being prepared in line with IPCC guidelines and principles. These methodologies are well documented. In BUR – 3, methodologies used for BUR-2 have been built upon. BUR-3 reporting using Tier -II methodologies have been done for CH_4 for two sub-sectors within energy, namely Manufacturing Industries and Construction, and Transport.	**HS. BUR-3 has been submitted to UNFCCC and TNC is in final stages.**
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.	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.	IPCC GPG and 2006 IPCC guidelines on uncertainty analysis have been applied for quantification of uncertainty in BUR-3.	**HS. BUR-3 has been submitted to UNFCCC and TNC is in final stages.**
Establish Quality Assurance and Quality Control Procedures.	QA/QC procedures are established.	A study on QA/QC procedures for inventory is being conducted at IIMA.	Standard Operating Procedure for QA/QC is prepared and tested.	The study on QA/QC procedures for inventory is complete and used for preparation of TNC.	**HS. The information is available with the PMU.**

PROJECT STRATEGY	PERFORMANCE INDICATOR	MIDTERM LEVEL & ASSESSMENT	END of PROJECT TARGET	END of PROJECT ASSESSMENT	ACHIEVEMENT RATING & JUSTIFICATION FOR RATING
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).**	**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.**	**Fifty-two studies have been commissioned to project future climate, assessing the 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 been published. Efforts are being made to prepare books on CC impacts on other sectors namely agriculture, disaster management, and coastal and marine areas.**	**HS. BUR-3 has been submitted to UNFCCC and TNC is in final stages.**
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 to provide inputs for TNC have been commissioned and are in advance stages of report finalisation.**	**Regional climate change projections are reported in TNC.**	**Studies have been completed and the findings incorporated in the TNC.**	**HS. The information is available with the PMU.**
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.	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.	Studies have been completed and the findings incorporated in the TNC.	
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.**	**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.**	**Studies have been completed and the findings incorporated in the TNC.**	**HS. The information is available with the PMU.**
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.	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.	Studies have been completed and the findings incorporated in the TNC.	
Document socio-economic scenarios (short, medium and long-term) based on reliable assumptions.	SSPs of IPCC will be used for projections.	Study on climate change projections using latest model ensembles has been commissioned and is being conducted at IEG, New Delhi.			
Output 3.3: Improved understanding of projected climate change impacts for all relevant sectors and regions.	**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.**	**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.**	**Impacts of climate change using latest models for different sectors are reported in TNC.**	**Forty studies were undertaken 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. The studies are now complete and the results are incorporated with the PMU.**	**HS. The information is available with the PMU.**

PROJECT STRATEGY	PERFORMANCE INDICATOR	MIDTERM LEVEL & ASSESSMENT	END of PROJECT TARGET	END of PROJECT ASSESSMENT	ACHIEVEMENT RATING & JUSTIFICATION FOR RATING
Document projections and results of impact assessments of climate change (based on multiple GCMs) for different sectors in India.	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.	Studies on impact assessment also improve the models for better projections in different sectors. Three books have been published.	Impacts of climate change using latest models for different sectors are reported in TNC.	Studies on impact assessment also improved the models for better projections in different sectors. Three books have been published.	**HS. The studies awarded are mentioned in the list provided by the PMU. The proposals, final reports and other information are on record. The books are reported on Page 228 of BUR-2.**
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 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.**	**Studies have been completed and the findings incorporated in the TNC.**	**HS. The information is available with the PMU.**
Develop multiple impact assessment models for adoption, including integrated assessment models.	Strengthen Indian models, adopt new models and improvise existing assessment models.	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.	Studies have been completed and the findings incorporated in the TNC.	**HS.The information is available with the PMU.**
Develop vulnerability assessment reports for various sectors.	Vulnerability Assessment reports for key sectors are provided in NC.	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.	Vulnerability for different sectors completed and the findings incorporated in the TNC.	**HS.The information is available with the PMU.**
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.**	**Adaptation Matrix will be prepared as a part of studies commissioned. These studies are in different thematic areas. Studies are being conducted in 13key areas.**	**Adaptation framework, measures and possible projects be reported in TNC**	**Adaptation Matrix studies completed and the findings incorporated in the TNC.**	**HS.The information is available with the PMU.**
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.	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 be reported in TNC.	Vulnerability profiles, adaptation framework and adaptation matrix for different sectors completed and the findings incorporated in the TNC.	HS.The information is available with the PMU.
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.			
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.			

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Outcome 4: Measures to mitigate climate change.	**Increased understanding of GHG mitigation policies and measures at national and state levels.**	**Four studies have been commissioned to assess mitigation potential and progress of existing policies and measures. Status of NAPCC mission has been reported in detail in BUR-1 and BUR-2.**	**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.**	**Four studies commissioned to assess mitigation potential and progress of existing policies and measures are complete. Status of NAPCC mission has been reported in detail in BUR-3.**	HS.The information is available with the PMU.
	Understanding of gaps and constraints pertaining to financial, technical and capacity needs to address climate change.	**Further, SAPCC for each state has been prepared.**	**Understanding of gaps and constraints pertaining to financial, technical and capacity needs to address climate change be reported in BUR-3 and TNC.**	**Further, SAPCC for each state including UT of Ladakh has been prepared.**	
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.**	**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.**	**National Climate Change Mitigation policies have been documented as a part of BUR-3. TNC is under review.**	
Document national climate change mitigation policies	Inventory of national climate change policies to be updated and reported.	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 as per BUR-2 it stands at 21% between 2005 and 2014.	GHG mitigation policies and measures at national and state levels be reported in BUR-3 and TNC.	Mitigation Actions including their effects, both in qualitative and quantitative terms, are reported in BUR-3, and TNC is in final stages of completion.	
Mitigation potential for sectors such as energy and forestry.	Mitigation potential quantified for sectors such as Energy	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.	Results of mitigation potential for different sectors included in the TNC.	**HS.The reports are available with the PMU.**

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National climate change action plan and state level action plans	Updated information on NAPCC and SAPCC to be reported to UNFCCC.	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.	This information collated and compiled in the chapter on national circumstances in BUR-3 and TNC.	**HS. The information is available with the PMU.**
Output 4.2: Increased understanding of gaps and constraints pertaining to financial, technical and capacity needs to address climate change	**Gaps and constraints pertaining to financial, technical and capacity needs to address climate change reported in NCs.**	**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 to address climate change be reported in BUR-3 and TNC.**	**Constraints, gaps and related technical, financial and capacity needs completed and reported in BUR-3 and TNC. TNC is under review.**	**HS. The information may be seen in BUR-3 and is available with the PMU.**
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 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.		**HS. The information may be seen in BUR-3 and is available with the PMU.**
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.	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.	**Information on the financial resources and technical support received from national and international resources have been reported in BUR-3 and TNC.**	**HS. The information may be seen in BUR-3 and is available with the PMU.**
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.	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.	Ten Sectors have been covered in the TNA study at the national level. Preliminary outcomes of the study have been reported in BUR-3. The final results presented in the TNC.	**HS. The information may be seen in BUR-3 and is available with the PMU.**

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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.**	**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.**	**Studies commissioned to IITM, Pune completed and the results incorporated in the TNC.**	**HS. The information is available with the PMU.**
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.**		**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 financial limitations are reported in the TNC.		The status of and need for research on systematic observations, 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.**	**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 launched the Long-Term Ecological Observatories (LTEO) for Climate Change Studies under the 'Climate Change Action Programme' with an outlay of Rs. 400 million. Under the programme, studies have been commissioned to 32 institutions under the overall guidance and supervision of Indian Institute of Science. The LTEO studies are in advanced stage and preiminary results incorporated in the TNC.**	**HS. The studies have been commissioned and results are being compiled into the TNC. Results are available with MoEFCC.**
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.**	**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 ₹250millionis 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**	**The establishment plan of the National Institution along with financial and human resource sustainability is to beput-up for consideration of GoI.**	**The National Inventory Management System (NIMS) has been partially established because of the evolving nature of negotiations under Article 6 of the Paris Agreement. A platform to collect data from industries especially Medium Small and Micro Enterprises is being developed by Confederation of Indian Industries (CII) for IPPU sector. The pilot platform is functional.**	S. The establishment of the institution is incorporated into the forthcoming GEF Trust Fund project.

PROJECT STRATEGY	PERFORMANCE INDICATOR	MIDTERM LEVEL & ASSESSMENT	END of PROJECT TARGET	END of PROJECT ASSESSMENT	ACHIEVEMENT RATING & JUSTIFICATION FOR RATING
		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) IUCCCC under the DST.** **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.**			
Output 6.1: Strategy for a sustainable national communication process	**Institutional arrangements for sustained National Communication process is established.**		**Strategy for sustainable institutional arrangements for National Communication be submitted to GoI for consideration.**	**The establishment of the institution is being addressed through two new GEF Trust Fund projects.**	**S. The establishment of the institution is being addressed through two new GEF Trust Fund projects.**
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		Strategy for sustainable institutional arrangements for National Communication be submitted to GoI for consideration.		
Output 6.2: Strengthened and streamlined national institutional structure for long-term national GHG inventory and the estimation of GHG emissions.	**GHG inventory estimation is institutionalised in a permanent institutional set-up.**	**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**	**National institutional structure for GHG inventory be established.**	**The National Inventory Management System (NIMS) has been partially established because of the evolving nature of negotiations under Article 6 of the Paris Agreement. A platform to collect data from industries especially Medium Small and Micro Enterprises is being developed by Confederation of Indian Industries (CII) for IPPU sector. The pilot platform is functional.**	

PROJECT STRATEGY	PERFORMANCE INDICATOR	MIDTERM LEVEL & ASSESSMENT	END of PROJECT TARGET	END of PROJECT ASSESSMENT	ACHIEVEMENT RATING & JUSTIFICATION FOR RATING
		prepared under the project have been reported in BUR-2.			
Establish National Inventory Management System (NIMS) through sectoral institutions and network of supporting research institutions.	GHG inventory estimation is institutionalised in concerned Government departments/ministries or as a permanent institutional set-up.	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.	Components of National Inventory Management System be identified and established.		S. The establishment of the institution is incorporated into the forthcoming GEF Trust Fund project.
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.**	**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.**	**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, 2 and 3.**	**HS. The information may be seen in BUR-1, 2 and 3.**
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.	**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.	**Eight consultative and review meetings, workshops and training programmes were organised to ensure participation of various stakeholders for BUR-3.**	
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.**	**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 GoI.**	**India has declared NDCs. A roadmap for achieving four NDC goals has been completed and is currently under review.**	**HS. The reports are available with the PMU.**
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.**	**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 GoI.**	**India is required to submit a mid-century, long-term, low carbon development strategy to UNFCCC. This report is under review.**	
		Studies to prepare documents on both the sectors have already been commissioned.			
Development of mid-century long-term low GHG development strategy.	Mid-century long-term low GHG development strategy is prepared.	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.	Two studies commissioned to study GHG Emission scenarios under India's mid-century long-term low carbon strategy on CC have been completed. These will help in mitigation and adaptation planning at national and state levels.	**HS. The reports are available with the PMU.**

PROJECT STRATEGY	PERFORMANCE INDICATOR	MIDTERM LEVEL & ASSESSMENT	END of PROJECT TARGET	END of PROJECT ASSESSMENT	ACHIEVEMENT RATING & JUSTIFICATION FOR RATING
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 GoI.	Four studies commissioned on preparing the NDC implementation roadmap on goals 3, 5, 7 and 8 have been completed. These studies will feed into national and state level mitigation planning.	**HS. The reports are available with the PMU.**
Output 7.2: Information on domestic MRV arrangements.	**Information on domestic MRV arrangements is compiled and reported to UNFCCC.**	**Domestic MRV arrangements have been reported in BUR-1 and BUR-2.**	**Information on domestic MRV arrangements be compiled and reported in BUR-3.**	**Domestic MRV arrangements have been reported in BUR-3.**	**HS. The information may be seen in BUR-3.**
Reports on existing domestic MRV arrangements and future plan.	Information on domestic MRV arrangements is compiled and reported to UNFCCC.	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 MRV arrangement and suggest a structure for future. Based on output of this study and information received form key stakeholders, status of domestic MRV arrangements were reported in BUR-2.	Information on domestic MRV arrangements be compiled and reported in BUR-3.	BUR-3 submitted to UNFCCC.	HS. Information available with the PMU.
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.**	**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.**	**Publication and dissemination of information on CC for general public is enhanced and ensured.**	**Fifteen publications (including two books under print) for various stakeholders on CC related topics/ issues/ sectors have been brought out under the project.**	**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.	**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.** **Technical Analysis of BUR-2 is underway.**	**Successfully complete ICA process of BUR-3.**	**ICA of India's BUR-3 completed successfully in 2021. Technical Analysis report and FSV record are available on UNFCCC website. All the three BURs were internationally acclaimed.**	**HS. The information may be seen on UNFCCC website.**

PROJECT STRATEGY	PERFORMANCE INDICATOR	MIDTERM LEVEL & ASSESSMENT	END of PROJECT TARGET	END of PROJECT ASSESSMENT	ACHIEVEMENT RATING & JUSTIFICATION FOR RATING
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.**	**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.**	**Publication and dissemination of information on CC for stakeholders.**	**Fifteen publications (including two books under print) for various stakeholders on CC related topics/ issues/ sectors have been brought out under the project. The additional three publications since MTR are as follows:** **1. 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.** **2. 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.** **3. 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**	**HS. The information may be seen in BUR-1, BUR-2 and BUR-3, and are given in Annexure - VI. Copies of the publications are available on the Ministry's website and hard copies available with PMU.**
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.				
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.				
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.**	**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.**	**Successful completion of ICA process of BUR-3.**	**ICA of India's BUR-3 completed successfully in 2021. Technical Analysis report and FSV record are available on UNFCCC website. All the three BURs were internationally acclaimed.**	**HS. The information may be seen on UNFCCC website.**
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.	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.	PMU Staff and NATCOM experts from institutions provide regular inputs on agenda items of UNFCCC COP, and 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.	**HS. The information is available on records of MoEFCC.**

PROJECT STRATEGY	PERFORMANCE INDICATOR	MIDTERM LEVEL & ASSESSMENT	END of PROJECT TARGET	END of PROJECT ASSESSMENT	ACHIEVEMENT RATING & JUSTIFICATION FOR RATING
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.	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.	ICA of India's BUR-3 completed successfully in 2021. Technical Analysis report and FSV record are available on UNFCCC website.	**HS. ICA of India's all three BURs is successfully completed, The reports and records 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.	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/ministries is ensured and enhanced.	About eight workshops/ meetings/ training programmes have been organised to review, cross-learn, refine and finalise BUR-3.	**HS. The information may be seen in BUR-3.**
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.	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. Meetings and workshops organised within India are also attended by PMU staff. In addition, experts from network institutions are given an opportunity to participate in UNFCCC, IPCC, APN, WGIA and bilateral events related to national reporting.	National and international level workshops, meetings and training programmes are organised, and participation of experts/staff be ensured.	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. Meetings and workshops organised within India are also attended by PMU staff. In addition, experts from network institutions are given an opportunity to participate in UNFCCC, IPCC, APN, WGIA and bilateral events related to national reporting.	**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.	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. Capacity of network institutions is strengthened by providing opportunities of national and international exposure to their NATCOM project staff.	Number of new staff engaged and/or capacity of existing staff is enhanced and infrastructure created in institutions.	A few PMU staff members have got better opportunities and moved to various national and international organisations. However, their association with the PMU continues.	**HS. Some PMU staff have got better opportunities and have moved to various organisations but their association with the PMU continues.**

CO-FINANCE DOCUMENTATION

S.N.	Institution	Location	Principal Investigator	Title of the Study under the TNC project	Cofinance documented	
					At MTR	At TE
1	BNHS	Mumbai	Dr. Deepak Apte	Temporal changes in the population and behaviour patterns of waterbirds in point Calimere, Tamil Nadu with respect to land use and climate change	1,00,00,000	1,00,00,000
2	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	1,00,00,000	1,00,00,000
3	Centre for Ecological Sciences, IISc	Bengaluru	Prof. R Sukumar	Climate change vulnerability of India's Biodiversity	26,96,000	26,96,000
4	Centre for Urban Equity, CEPT University	Ahmedabad	Dr.Darshini Mahadevia	Inclusive Urban housing as climate change resilience strategy	24,28,749	24,28,749
5	FRLHT-TDU	Bengaluru	Dr DK Ved/ Darshan Shankar	a) Impact of Climate Change on wild populations of medicinal plants of conservation concern (endemic, niche-specific & red listed): A Futuristic Scenario b) Study on phenological response of endemic plants of Western Ghats to climate change: based on herbarium records, historical datasets and ground truthing	26,60,000	26,60,000
6	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	9,86,000	9,86,000
7	IARI,	New Delhi	Dr. Soora Naresh Kumar	Regional assessment on climate change impacts, vulnerability and adaptation for agriculture	27,71,75,350	1,86,06,40,000
8	Indian Institute of Management	Ahmedabad	Prof. Amit Garg	Economic cost of impacts and adaptation to extreme rainfall event induced flooding for selected Indian states	25,36,500	20,67,500
9	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	31,03,300	24,20,000
10	IITM	Pune	Dr. Ashwini Kulkarni	Projected Changes in Weather and Climate Extremes over India	1,87,00,000	1,87,00,000
11	Indian Inst of Forest Management (IIFM),	Bhopal	Dr. Bhaskar Sinha	Developing Adaptation Strategies for Sal and Teak Dominated Landscape of Central India	16,50,000	16,50,000
12	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	1,00,82,400	78,65,600
13	Indian Institute of Science	Bengaluru	Dr. Renee M. Borges	The vulnerability of Pollinators and Pollination Services in India in the Context of Climate Change	27,00,000	27,00,000
14	Indian Institute of Soil Science	Bhopal	Dr. Sangeeta Lenka	Vulnerability and Impact Assessment of Climate Change on soil and Crop production of Madhya Pradesh	11,15,000	4,84,22,000
15	Indian National Trust for Art and Cultural Heritage (INTACH)	New Delhi	Dr. Manu Bhatnagar	A survey of Ramsar sites in India	57,12,000	57,12,000
16	Institute of Home Economics, University of Delhi	New Delhi	Dr. (Mrs.) Savita Aggarwal	Mapping the Vulnerability of women in India to Climate Change at the Sub-National Scale	43,50,000	67,65,000
17	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	16,26,000	16,26,000
18	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	35,43,184	49,52,481
19	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	38,76,000	38,76,000
20	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	25,30,000	25,30,000
21	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	3,25,00,000	3,25,00,000

S.N.	Institution	Location	Principal Investigator	Title of the Study under the TNC project	Cofinance documented	
					At MTR	At TE
22	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	4,69,00,000	4,69,00,000
23	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	1,82,87,500	45,00,000
24	Wildlife Institute of India (WII)	Dehradun	Dr. G.S. Rawat/ Dr. Gautam Talukdar	Assessment of climate change impacts on soil health through microbial and plant communities in alpine ecosystems of the Indian Himalayan Region	2,54,34,500	54,00,000
25	Indian Council for Forestry Research and Education	Dehradun	Shri VRS Rawat	Mitigation Actions in Forestry	10,89,000	10,89,000
26	Indian Institute of Management	Ahmedabad	Prof Amit Garg	Mitigation Actions in Infrastructure	27,83,000	46,68,000
27	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	3,64,50,000	3,64,50,000
28	Indian Institute of Management	Ahmedabad	Prof. Amit Garg	Design and implementation of QA/QC for GHG Inventory	46,18,890	80,84,168
29	Indian Institute of Management	Ahmedabad	Prof. Amit Garg	Coordination of GHG Inventory for Energy Sector	46,44,940	1,01,71,060
30	Indian Institute of Management	Ahmedabad	Prof. Amit Garg	GHG Inventory of Unorganized Sectors	48,28,500	80,89,000
31	Indian Institute of Management	Ahmedabad	Prof. Amit Garg	Scenarios for carbon sequestration potential in India's forest sector		33,40,000
32	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	20,09,88,400	20,09,88,400
33	National Dairy Research Institute	Karnal	Dr. Madhu Mohini/Dr. Gautam Mondal	Up gradation of methane emission factors for Indian Livestock and Preparation of Inventory of Green House Gases (GHGs) from Indian Livestock	90,00,000	4,66,50,000
34	Central Institute of Mining and Fuel Research	Dhanbad	Dr Pinaki Sarkar			3,99,31,135
35	Indian Institute of Technology, Delhi	New Delhi	Dr. Amlendu K. Dubey	Assessing cost of adaptation of climate change for forests in India		2,07,500
36	Central Plantation Crops Research Institute (CPCRI)	Kasaragod	Dr. K.B.Hebbar	Impact of climate change on coconut, arecanut and cocoa and its adaptation startegies		3,95,50,000
37	Center for Study of Science, Technology and Policy (CSTEP)	Bengaluru	Prof. Indu K Murthy	a. GHG Inventory for Third National Communication for LULUCF sector; b. Long term strategy for low carbon development; and c. Study to Develop roadmap for implementation of India's NDC goal 8 regarding technology and capacity building.		11,20,000
38	Institute of Economic Growth (IEG)	New Delhi	Prof. Purnamita Dasgupta	Developing future socioeconomic scenarios for India in the context of climate change, overall economy level study and agriculture sub module		30,52,078
39	IARI	New Delhi	Dr. Arti Bhatia			12,00,000
40	Central Research Institute for Dryland Agriculture (CRIDA)	Hyderabad	Dr. J.V.N.S. Prasad	Mitigation actions in agriculture		33,05,000
41	Bay of Bengal Programme Inter-Governmental Organisation	Chennai	Dr. Yugraj Singh Yadava	Developing Strategies for Adaptation to Climate Change by Coastal and Marine Fishing Communities		31,80,800
42	Birla Institute of Technology & Science (BITS), Pilani	Goa	Dr. Rajiv Kumar Chaturvedi	Scenarios for carbon sequestration potential in India's forest sector in the context of global goals limiting warming below 1.5 C and 2 C and in the context of the Paris Agreement on climate change, and the Bonn Challenge on reclamation of degraded lands		48,68,500
43	Indian Institute of Management	Ahmedabad	Prof. Amit Garg	Knowledge, Communication and Dissemination of Results		73,74,000
	MoEFCC	New Delhi		Human resource and infrastructure provided by MoEFCC	6,00,00,000	7,60,32,000
	Total in Indian Rupee (₹)				**81,49,95,213**	**2,58,73,47,971**
	Total in US$ (Average exchange rate in 2014 ₹61/- to a US$)				**1,50,92,504**	**4,24,15,541**
	Total in US$ (Average exchange rate in 2022 ₹76/- to a US$)				**1,07,23,621**	**3,40,44,052**
	Total in US$ (average exchange rate from 2014 to 2022 ₹62.1/- to a US$)				**1,20,74,003**	**4,16,64,219**

National GHG Inventory		Project Engagement
Sector: Energy		
Indian Institute of Management, Ahmedabad	National Public Institute, Lead	Component 3. Developing GHG Inventory as per 2006 IPCC guidelines or any subsequent version or refinement of the IPCC guidelines.
Central Mining and fuel Research Institute, Dhanbad	National Public Institute, Participating Institution	
Central Road Research Institute, New Delhi	National Public Institute, Participating Institution	
Indian Institute of Petroleum, Dehradun	National Public Institute, Participating Institution	
Cement Manufacture Association, New Delhi	Industry Body, Participating Institution	
Jadavpur University, Kolkata	Education and Research Institution	
The Energy and Resources Institute, New Delhi	Education and Research Institution	
Petroleum Planning and Analysis Cell, New Delhi	National Public Institute, Participating Institution	
Others	Other Participating Institutions	
Sector: IPPU		
Dr. Sukumar Devotta	Eminent Industry Expert, Lead	Component 3. Developing GHG Inventory as per 2006 IPCC guidelines or any subsequent version or refinement of the IPCC guidelines.
National Chemical Laboratory, Pune	National Public Institute, Participating Institution	
The Energy and Resources Institute, New Delhi	Education and Research Institution	
Central Glass and Ceramic Research Institute, Kolkata	National Public Institute, Participating Institution	
Cement Manufacture Association, New Delhi	Industry Body, Participating Institution	
Central Mining and fuel Research Institute, Dhanbad	National Public Institute, Participating Institution	
Confederation of Indian Industry, New Delhi	Industry Body, Participating Institution	
Jadavpur University, Kolkata	Education and Research Institution	
Indian Lead Zinc Development Association, New Delhi	Industry Body, Participating Institution	
National Environmental Engineering Research Institute, Nagpur	Education and Research Institution	
National Metallurgical Laboratory, Jamshedpur	Industry Body, Participating Institution	
Indian Institute of Chemical Technology, Hyderabad	Industry Body, Participating Institution	
Jawaharlal Nehru Aluminium research development and Design Centre, Nagpur	Industry Body, Participating Institution	
C-STEP, Bangalore	Participating institution	
Others	Other Participating Institutions	
Sector: Agriculture		
Central Research Institute for Dryland Agriculture, Hyderabad and Indian Council of Agriculture Research, New Delhi	Education and Research Institution	Component 3. Developing GHG Inventory as per 2006 IPCC guidelines or any subsequent version or refinement of the IPCC guidelines.
Indian Agriculture Research Institute, New Delhi	Education and Research Institution	
Institute of Radio Physics and electronics, Calcutta University	Education and Research Institution	
Regional Research Laboratory, Bhubaneshwar	Education and Research Institution	
Central Leather Research Institute, Chennai	Education and Research Institution	
Indian Grassland and Forest Research Institute, Jhansi	Education and Research Institution	
Indian Veterinary Research Institute, Izatnagar	Education and Research Institution	
Bidhan Chandra Krishi Viswavidyalaya, West Bengal	Education and Research Institution	
National Dairy Research Institute, Karnal	Education and Research Institution	
Indian Grassland and Fodder Research Institute, Jhansi	Education and Research Institution	
National Physical Laboratory, New Delhi	National Public Institute, Participating Institution	
Central Rice Research Institute, Cuttack	Education and Research Institution	
Others	Other Participating Institutions	
Sector: Waste		

National Environmental Engineering Research Institute, Nagpur	Education and Research Institution, Lead	Component 3. Developing GHG Inventory as per 2006 IPCC guidelines or any subsequent version or refinement of the IPCC guidelines.
National Physical Laboratory, New Delhi	Education and Research Institution	
Others	Other Participating Institutions	
Sector: LULUCF		
Indian Institute of Science, Bangalore	National Public Institute	Component 3. Developing GHG Inventory as per 2006 IPCC guidelines or any subsequent version or refinement of the IPCC guidelines.
Forest Survey of India, Dehradun	National, Participating Institution	
National Remote sensing Agency, Hyderabad	National, Participating Institution	
Forest Research Institute, Dehradun	Research Institution	
Indian Council of Forest Research Institute, Dehradun	Education and Research Institution	
Others	Other Participating Institutions	
Impacts and Vulnerability Assessment and Adaptation Measures		
Sector: Climate Scenario		
Indian Institute of Science, Bangalore	National Public Institute	Component 4. Vulnerability, Impact and Adaptation.
Indian Institute of Tropical Metrology, Pune	National Public Institute	
Indian Institute of Technology, Gandhinagar	National Public Institute	
Others	Other Participating Institutions	
Sector: Extreme Events		
Indian Institute of Science, Bangalore	National Public Institute	Component 4. Vulnerability, Impact and Adaptation.
Indian Institute of Tropical Metrology, Pune	National Public Institute	
Others	Other Participating Institutions	
Sector: Socio Economic Scenario		
Indian Institute of Management, Ahmedabad	National Public Institute, Lead	Component 4. Vulnerability, Impact and Adaptation.
Institute of Economic Growth, New Delhi	Education Institution	
Others	Other Participating Institutions	
Sector: Future Emission Projection		
Indian Institute of Management, Ahmedabad	National Public Institute, Lead	Component 4. Vulnerability, Impact and Adaptation.
National Chemical Laboratory, Pune	National Public Institute	
The Energy and Resources Institute, New Delhi	Education and Research Institution	
Integrated Research and Action for Development, New Delhi	Civil Body	
Indian Institute of Science, Bangalore	National Public Institute	
Others	Other Participating Institutions	
Sector: Public Health		
National Institute of Malaria Research, New Delhi	National Public Institute	Component 4. Vulnerability, Impact and Adaptation.
Indian Institute of Tropical Metrology, Pune	National Public Institute	
National Physical Laboratory, New Delhi	National Public Institute	
Indian Institute of Technology, Bombay	National Public Institute	
Others	Other Participating Institutions	
Sector: Coastal		
National Institute of Oceanography, Goa/ Indian Institute of Bombay, Mumbai	National Public Institute, Lead	Component 4. Vulnerability, Impact and Adaptation.
Indian Institute of Technology, Bombay	National Public Institute	
Jadavpur University, Kolkata	Education and Research Institution	
The Energy and Resources Institute, New Delhi	Education and Research Institution	
Others	Other Participating Institutions	
Sector: Forest & Natural Ecosystem		
Indian Institute of Science, Bangalore	National Public Institute, Lead	Component 4. Vulnerability, Impact and Adaptation.

Tamil Nadu Agriculture University, Coimbatore	Education and Research Institution	
Jawaharlal Nehru University, New Delhi	Education and Research Institution	
Jadavpur University, Kolkata	Education and Research Institution	
Forest Survey of India, Dehradun	National, Participating Institution	
The Energy and Resources Institute, New Delhi	Education and Research Institution	
Inspire Network for Environment, New Delhi	Civil Body	
National Institute of Oceanography, Goa	National Public Institute, Lead	
Kerala Forest Research Institute, Peechi	Research Institute	
Others	Other Participating Institutions	
Sector: Infrastructure, Energy, and Industry		
Indian Institute of Management, Ahmedabad	National Public Institute, Lead	Component 4. Vulnerability, Impact and Adaptation.
Central Mining and fuel Research Institute, Dhanbad	National Public Institute	
Maulana Azad National Institute of Technology and School of Planning and Architecture, Bhopal	National Public Institute	
International Management Institute, Kolkata	National Public Institute	
Adani Institute of Infrastructure Management Ahmedabad	Research Institute	
National Council for Cement and Building Materials, Ballabgarh	National Public Institute	
Others	Other Participating Institutions	
Sector: Water Resources		
Indian Institute of Technology, Delhi	National Public Institute	Component 4. Vulnerability, Impact and Adaptation.
Remote sensing Application centre, Lucknow	National Public Institute	
Global Hydrological Solutions, New Delhi	Civil Body	
Indian Institute of Technology, Gandhinagar	National Public Institute	
Jadavpur University, Kolkata	Education and Research Institution	
Development Alternatives, New Delhi	Civil Body	
Jawaharlal Nehru University, New Delhi	Education and Research Institution	
Guru Gobind Indraprastha University, New Delhi	Education and Research Institution	
The Energy and Resources Institute, New Delhi	Education and Research Institution	
Others	Other Participating Institutions	
Sector: Agriculture (Rice & Wheat)		
Indian Council of Agriculture Research, New Delhi	Education and Research Institution	Component 4. Vulnerability, Impact and Adaptation.
Indian Agriculture Research Institute, New Delhi	Education and Research Institution	
Tamil Nadu Agriculture University, Coimbatore	Education and Research Institution	
Central Rice Research Institute, Bhubaneshwar	Education and Research Institution	
University of Agriculture Science, Dharwad	Education and Research Institution	
Others	Other Participating Institutions	
Sector: Agriculture (Dryland & Rainfed)		
Central research Institute for Dryland Agriculture, Hyderabad	National Public Institute	Component 4. Vulnerability, Impact and Adaptation.
Indian Agriculture Research Institute, New Delhi	National Public Institute	
University of Agriculture Science, Dharwad	Education and Research Institution, Lead	
Agriculture universities (As appropriate)	Education and Research Institution, Lead	
Others	Other Participating Institutions	
Integrated Sector: Water - Agriculture- food security - energy - Livelihoods - Adaptation		
Central Research Institute for Dryland Agriculture, Hyderabad	Education and Research Institution, Lead	Component 4. Vulnerability, Impact and Adaptation.
Action for food Production, Udaipur	Civil Body	
Central Soil water Conservation Reaserch and Training Institute, Dehradun	Education and Research Institution	

Institute of Home economics, New Delhi	Education and Research Institution	
Indian Institute of Management, Ahmedabad	National Public Institute	
M. S Swaminathan Research Foundation, Chennai	Education and Research Institution	
Tamil Nadu Agriculture University, Coimbatore	Education and Research Institution	
Others	Other Participating Institutions	
Integrated Sector: Water- Human Health- Livelihoods - Adaptation		
Jadavpur University, Kolkata	Education and Research Institution, Lead	Component 4. Vulnerability, Impact and Adaptation.
National Institute of Malaria Research, New Delhi	National Public Institute	
INRM Consultants, New Delhi	Civil Body	
Others	Other Participating Institutions	
Integrated Sector: Forests - Forest Products-Water- Livelihoods - Adaptation		
Indian Institute of Science, Bangalore	National Public Institute, Lead	Component 4. Vulnerability, Impact and Adaptation.
Inspire Network for Environment, New Delhi	Civil Body	
Others	Other Participating Institutions	
Integrated Sector: Natural - Ecosystems & Livelihoods		
The Energy and Resources Institute, New Delhi	Education and Research Institution, Lead	Component 4. Vulnerability, Impact and Adaptation.
Integrated Research and Action for Development, New Delhi	Civil Body	
Institute of Mineral and Material Technology, Bhubaneshwar	National Public Institute	
Others	Other Participating Institutions	
Integrated Sector: Energy - Infrastructure - Adaptation		
Indian Institute of Management, Ahmedabad	National Public Institute, Lead	Component 4. Vulnerability, Impact and Adaptation.
Maulana Azad National Institute of Technology, Bhopal	National Public Institute	
Others	Other Participating Institutions	
Integrated Sector: Residential- Infrastructure - Water- Adaptation		
Maulana Azad National Institute of Technology, Bhopal		Component 4. Vulnerability, Impact and Adaptation.
Indian Institute of Technology, Bombay	National Public Institute, Lead	
Indian Institute of Management, Ahmedabad	National Public Institute	
Institute of Economic Growth, New Delhi	Education and Research Institute	
Integrated Research and Action for Development, New Delhi	Civil Body	
Others	Other Participating Institutions	
Sector: Low Carbon Society		
Indian Institute of Management, Ahmedabad	National Public Institute, Lead	Component 4. Vulnerability, Impact and Adaptation.
Integrated Research and Action for Development, New Delhi	Civil Body	
Confederation of Indian Industry, New Delhi	Industry Association	
Green Building Council, Hyderabad	National Public Institute	
Centre for Policy Research, New Delhi	National Public Institute	
Indian Institute of Technology Delhi, New Delhi	National Public Institute	
Indian Institute of Tropical Metrology, Pune	National Public Institute	
The Energy and Resources Institute, New Delhi	Education and Research institute	
Maulana Azad National Institute of Technology, Bhopal	National Public Institute	
Madras School of Economics, Chennai	Education and Research institute	
Others	Other Participating Institutions	
India's National Circumstances		
Sector: National Circumstances		
National Remote sensing centre, Hyderbad	National Public Institute	Component 1. Information on national circumstances.

Madras School of economics, Chennai	Education and Research institute	
Indian Institute of Management, Ahmedabad	National Public Institute	
Indian Metrological Development, New Delhi	National Public Institute	
Indian Institute of Science, Bangalore	National Public Institute	
Others	Other Participating Institutions	
Measures to Mitigate Climate Change		
Indian Institute of Management, Ahmedabad	National Public Institute, Lead	Component 5. Mitigation actions and domestic MRV.
Bureau of Energy Efficiency, New Delhi	National Bureau for Energy Efficiency	
Indian Institute of Technology Delhi, New Delhi	National Public Institute	
Indian Institute of Science, Bangalore	National Public Institute	
Integrated Research and Action for Development, New Delhi	Civil Body	
Confederation of Indian Industry, New Delhi	Industry Association	
Green Building Council, Hyderabad	Industry Association	
Centre for Policy Research, New Delhi	Research Institute	
Indian Institute of Technology Delhi, New Delhi	National Public Institute	
Indian Institute of Tropical Metrology, Pune	National Public Institute	
The Energy and Resources Institute, New Delhi	Education and Research Institution	
Maulana Azad National Institute of Technology, and School of Planning and Architecture, Bhopal	National Public Institute	
Madras School of Economics, Chennai	National Public Institute	
Price Waterhouse Coopers, New Delhi	Consulting organization	
Central Research Institute for Dryland Agriculture, Hyderabad	National Public Institute	
Indian Grassland and Forest Research Institute, Jhansi	National Public Institute	
C-STEP, Bangalore	Participating Institution	
Others	Other Participating Institutions	
Other Relevant Information		
Sector: Research & Systematic Observation		
Indian Institute of Science, Bangalore	National Public Institute	Component 3. Developing GHG Inventory as per 2006 IPCC guidelines or any subsequent version or refinement of the IPCC guidelines, Component 4. Vulnerability, Impact and Adaptation and Component 5. Mitigation actions and domestic MRV
Forest Survey of India, Dehradun	National Public Institute	
Geological Survey of India, Kolkata	National Public Institute	
Indian Space Research Organisation, Hyderabad	Government Body	
Botanical survey of India, Kolkata	National Public Institute	
National Institute of Disaster Management, New Delhi	National Public Institute	
Others	Other Participating Institutions	
Sector: Constraints & Gaps		
Indian Institute of Management, Ahmedabad	National Public Institute, Lead Institution	Component 2. Institutional arrangements relevant to the preparation of the national communications (4NC and BUR4), related financial, technical, and capacity needs and other relevant information.
Indian Agricultural Research Institute	National Public Institute	
Indian Institute of Technology, Delhi	National Public Institute	
Indian Institute of Science, Bangalore	National Public Institute	
The Energy and Resources Institute, New Delhi	Education and Research Institution	
Forest Survey of India, Dehradun	National Public Institute	
Indian National Centre for Ocean Information services, Hyderabad	National Public Institute	
Indian Council of Forestry Research & Education, Dehradun	National Public Institute	
National Dairy Research Institute, Karnal	National Public Institute	
Indian Institute of Public Health, Bangalore	National Public Institute	
Others	Other Participating Institutions	

Sector: Education, Research, and Capacity Building		
Centre for Environment Education, Ahmedabad	Education and Research Institution	Component 2. Institutional arrangements relevant to the preparation of the national communications (4NC and BUR4), related financial, technical, and capacity needs and other relevant information.
Others	Other Participating Institutions	
Sector: Steps taken or envisaged to Implement the Convention		
Indian Institute of Technology, Delhi	National Public Institute	
Indian Institute of Technology, Bombay	National Public Institute	
Development Alternatives, New Delhi	Civil Body	
Indian Institute of Management, Ahmedabad	National Public Institute	
Others	Other Participating Institutions	

SNC and BUR-3 comparison of Activity Data and Country Specific Emission Factors.

NOTE: The new and additional Activity Data and Country Specific Emission Factors since SNC are highlighted in yellow.

Type of emission factor and level of methodological Tier employed for GHG estimation

Gas	CO_2		CH_4		N_2O	
Sector/ Category	**Method used**	**Emission Factor**	**Method used**	**Emission Factor**	**Method used**	**Emission Factor**
1. Energy						
A. Fuel combustion activities						
1. Energy industries	T1,T2,T3	D, CS	T1	D	T1	D
2. Manufacturing industries & construction	T1,T2,T3	D, CS	T1,T2	D	T1	D
3. Transport	T1,T2	D, CS	T1, T2	D	T1, T2	D
4. Other sectors	T1,T2	D, CS	T1	D	T1	D
B. Fugitive emission from fuels						
1. Solid fuels	NO		T2,T3	CS	NO	
2. Oil and natural gas	NO		T1	D	NO	
2. Industrial Process						
A. Mineral industry	T1,T2	D, CS	NO		NO	
B. Chemical industry	T1,T2	D, CS	T1	D	T1, T2	D, CS
C. Metal industry	T1,T2	D, CS	T1	D	NO	
D. Non-energy product use	NO		NO		NO	
E. Production of halocarbons	NO		NO		NO	
3. Agriculture						
A. Enteric fermentation	NO		T1,T2	D, CS	NO	
B. Manure management	NO		T1	D	T1	D
C. Rice cultivation	NO		T2	CS		
D. Agricultural soils	NO		NO		T2	CS
F. Field burning of agricultural residues	NO		T1	D	T1	D
4. Land Use, Land-Use Change and Forestry (LULUCF)						
A. Forest land	T2	CS	T2	D, CS	T2	D, CS
B. Cropland	T2	CS		NO		NO
C. Grassland	T2	CS		NO		NO
D. Settlements	T2	CS		NO		NO
E. Wetlands	NE		NE		NE	
F. Other Land	NA		NA		NA	
5. Waste						
A. Solid waste disposal on land	NO		T2	D, CS	NO	
B. Waste-water handling	NO		T1, T2	D, CS	T1, T2	D, CS
Memo item (not accounted in total emissions)						
International bunkers	T1, T2	D	T1, T2	D	T1, T2	D
CO_2 from biomass	T1	D	NO		NO	

DISSEMINATION MATERIAL ON CLIMATE CHANGE

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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, जलवायुपरिवर्तनऔरपेिरसकरार (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.

UNDER PRINT

14. Gupta, A. K. & Bhatt, J. R. (Eds.). (2022, in press). Climate Change and Disaster Risk Management. Ministry of Environment, Forest and Climate Change & National Institute of Disaster Management, Government of India.
15. Parikh, K. & Bhatt, J. R. (Eds.). (2022, in press). Climate Change: India’s Perceptions, Policies and Expectations. Ministry of Environment, Forest and Climate Change, Government of India.

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 - IX

LIST OF EVENTS /CONSULTATIVE MEETINGS HELD FOR BUR-3.

- National Brainstorming Meeting on GHG Inventory at Godavari Conference Hall, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi on 21 February 2019.
- Meeting of the Technical Advisory Committee of National Communications at on 03 April 2019 at Indira Paryavaran Bhawan, New Delhi.
- Symposium on environmental and climate initiatives of Indian Railways at MoEFCC on 28 January 2020.
- Expert Group Meeting of LULUCF Sector Inventory at Satluj Hall, MoEFCC, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi on 07 February 2020.
- Meeting of the Inventory Experts on BUR-3 on 9 March 2020 at MoEFCC, Indira Paryavaran Bhawan, New Delhi.
- Virtual Meeting of the Technical Advisory Committee to India's Third National Communication and BURs to the UNFCCC on 15 October 2020 at Indira Paryavaran Bhawan, New Delhi.
- A virtual meeting to review national GHG inventory for BUR-3 on 7 November 2020.
- Virtual meeting to the National Steering Committee to India's Third National Communication and BURs to the UNFCCC on 11 November 2020.

TE REPORT CLEARANCE FORM

Terminal Evaluation Report for *PREPARATION OF THIRD NATIONAL COMMUNICATION (TNC) AND OTHER NEW INFORMATION TO THE UNFCCC' (NATCOM PROJECT, UNDP PIMS 4603* **Reviewed and Cleared By:**

Commissioning Unit (M&E Focal Point)

Name: Anusha Sharma

Signature: DocuSigned by: Anusha Sharma 971D4B7E92D3489... Date: 10-Mar-2023

Regional Technical Advisor (Nature, Climate and Energy)

Name: Bahtiyar Kurt

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