



Enabling Activity – GEF - 7

Fourth National Communication and 4th Biennial Update Report to the United Nations Framework Convention on Climate Change (UNFCCC)

Part I: Project Information

GEF ID

10441

Project Type

EA

Type of Trust Fund

GET

CBIT☐ CBIT**Project Title**

Fourth National Communication and 4th Biennial Update Report to the United Nations Framework Convention on Climate Change (UNFCCC)

Countries

Indonesia

Agency(ies)

UNDP

Other Executing Partner(s)

Ministry of Environment and Forestry

Executing Partner Type

Government

GEF Focal Area

Climate Change

Taxonomy

Strengthen institutional capacity and decision-making, Influencing models, Transform policy and regulatory environments, Communications, Stakeholders, Public Campaigns, Awareness Raising, Education, Type of Engagement, Information Dissemination, Civil Society, Academia, Gender Mainstreaming, Gender Equality, Sex-disaggregated indicators, Enabling Activities, Capacity, Knowledge and Research, Knowledge Exchange, Capacity Development, Focal Areas, Climate Change, United Nations Framework Convention on Climate Change

Rio Markers**Climate Change Mitigation**

Climate Change Mitigation 2

Climate Change Adaptation

Climate Change Adaptation 1

Duration

48 In Months

Agency Fee(\$)

270,940

Type of Reports	Submission Date	Expected Implementation Start
UNFCCC National Communications (NC)	6/30/2023	7/1/2020
UNFCCC Biennial Update Report (BUR)	6/30/2023	7/1/2020

A. Indicative Focal/Non-Focal Area Elements

Programming Directions	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
CCM-EA	GET	2,852,000	34,186,123
Total Project Cost (\$)		2,852,000	34,186,123

B. Indicative Project description summary

Project Objective

To assist the Government of Indonesia in the preparation of the fourth National Communication (4NC), to design public policies and measures for mitigation and adaptation to climate change and to evaluate the environmental, social and economic impact of the implementation of the obligations under the UNFCCC

Project Component	Project Outcomes	Project Outputs	GEF Amount(\$)	Co-Fin Amount(\$)
A. National GHG Inventory 2000-2022 updated	<p>A1. Established National and local institutional system for developing GHG inventory</p> <p>A2. Improved accuracy of national GHG inventory for 2000-2022 using 2006 IPCC GL</p>	<p>A1.1. Improved guidelines for organizing quality assurance and quality control (QA/QC) of sectoral activity data</p> <p>A1.2. Protocols on process for collecting, organizing and validating activity data, selecting emission factors and methods, and estimating emission in the sectoral ministries at more refined sub-categories</p> <p>A1.3. Improved guidelines for GHG emission estimation and validation (QA/QC)</p> <p>A1.4. Established institutional system for develop</p>	350,000	7,000,000

System for developing GHG Inventory at district and provincial level and its integration with national GHG Inventory system (SIGN)

A1.5. Established institutional arrangement at sectoral ministries for developing GHG Inventory in order to implement the Minister of Environment and Forestry Regulation (Permen KLHK) Number P.73/2017

A1.7. Strengthened institutional mechanism for collecting GHG inventory and CC mitigation data

A2.1. Improve the quality of activity data, i.e. revise coal in industry data; biomass in industry, commercial, and residential data; biofuel in transport and other sub-sectors data; oil-fuel in waterborne t

S in waterborne t
ransport data, pr
oduction/consumption data in I
PPU sector; age
distribution of liv
estock livestock
sub-category; bu
rned area; annuall
y land use transi
tion

A.2.2. Application program for integrating SIGN and sectoral mitigation measures for improving/up-dating the activity data to be used in inventory calculation

A2.3. Developed Local Emission Factors for key categories of forest and other land use (FOLU), particularly peat fire, and peat decomposition

A2.4. Improved database system of local emission factors

A2.5. Methodology for generating higher tier activity data and emission factors

for land cover changes and burned area

A2.6. At least 50 trained technical staffs including at least 30% women from relevant sectors on the development of GHG Inventory, including activity data collections, new local EF establishments, and GHG emissions calculation.

A2.7. At least 50 trained technical staffs including at least 30% women from local governments using SIGN on the development of GHG Inventory including activity data collections and GHG emissions calculation.

A2.8. Updated national GHG inventory for sectors: energy, IPPU, AFOLU and waste for the period 2000-2022, on an annual basis with lower uncertainty using IPCC

2006 and GPGs

A2.9. Published
GHG emissions i
nventory for 200
0 - 2022

B. Assessmen t of the impacts and vulnerabilit y to climate change and evaluation of adaptation policies and measures to address climate change, variability and extreme events in key sectors	B1. Multimod el ensemble climate change and extreme climate events pr ojections at national level produced and accessibl e by public B2. Enhanced local capacity for using climate projection , assessing vulnerabili ty risk and	B1.1. Integrated system for managing historical climate and multi- model ensemble climate change projections over Indonesia in grid based system and accessible by public (1961-2100) B1.2. Improved Information system on Vulnerability Index Data (SIDIK) focused on meso to local scale for defining adaptation actions with the inclusion of historical information on climate extreme events, impacts and responses. B1.3. Developed methodology for projection of extreme climate events in relation to climate change supported by geo-	1,100,000	11,300,000
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climate
change
impact

physical and socio-
economic data and
information

B3. National
and
sectoral
climate
change
impacts,
vulnerability, risk
and
adaptation
assessment

B1.4. At least 50
scientists (at least
30% women) have
been trained on the
use of multimodel
climate change
projections for
extreme climate
events analysis
(output B1.3)

B1.5. Projection of
extreme climate
events at national
level (1961-2100)
using output of
B1.3

B1.6. Development
of web-based
information of
Multimodel
ensemble climate
change and
extreme climate
events projections
at national level by
using output B.1.1
and B1.5

B2.1. Tools and
methods for the
assessment of
vulnerability, risk
and climate change
impact on
vulnerable sectors

(agriculture, fisheries, coastal, water resources, forest, health) using multimodel ensemble climate projection using output B1.1.

B2.2. 50 local scientists (at least 30% women) have been trained on the use of the climate change vulnerability and impact assessment tools from output B2.1

B2.3. Conducted at least 5 case studies on climate change vulnerability, risk and impact assessment on vulnerable sectors agriculture, fisheries, coastal water resources including socio-economics analysis and gender and diffable (differently able) perspective depending on local prioritization with the involvement of

trained local
scientists (output
B2.2)

B2.4. Develop tools
and methods and
guidelines for
monitoring and
evaluation of CCA
(climate change
adaptation) in
specific sectors
related to B2.3.

B3.1. Produced
national
assessment on the
impact of climate
change scenarios
for at least three
vulnerable sectors
(agriculture, water
resources and
health) using
output B1.1 based
on MoEF regulation
number P.72/2017
and its integration
with SIDIK (output
B1.2) for
supporting
adaptation policy
making process.

B3.2. Produced
impact of climate
change on national
economic under
different climate
scenarios and

implication in
achieving NDC
target considering
output B3.1

B3.3. Trained 75
technical
government staffs
including at least
30% women from
sectoral and local
level in using SIDIK
and impact
assessment from
output B3.2 in the
development of
climate change
adaptation policies
and measures

B3.4. Reviewed
sectoral climate
change adaptation
policies and
measures
implemented
during 2011 to
2020 and their
effectiveness on
addressing climate
change impact in
line with NDC.

B3.5. Produced a
portfolio of
prioritized
adaptation options
by sectors
considering output.

C.GHG mitigation policies and measures to address climate change

C1. Updated GHG emissions scenarios under BAU from sources and sinks; and reviewed GHG mitigation policies and measures including their macro economic impacts

C2. Strengthened sectoral and local capacity in measuring the achievement of the implementation of GHG mitigation actions

C1.1. Refined integrated model for NDC in projecting GHG emission under BAU and mitigation scenarios including macroeconomic assessment of GHG mitigation measures

C1.2. Reviewed sectoral mitigation policies and measures implementation in order to contribute to achievement of NDC target

C1.3. At least 50 technical staff (at least 30% women) trained in applying the refined integrated model for developing alternative trajectory emission under the BAU and mitigation scenarios as defined in the NDC.

C1.4. Adjusted trajectory of projection of GHG emissions from sources and sinks under BAU and mitigation

941,190

12,886,123

C3. Measured achievement of the implementation of mitigation policies and measures in the period 2011-2020

scenarios using output C1.1 considering output C1.2 for the period 2010-2050

C1.5. Strengthened capacity of sectoral ministries in adjusting sectoral mitigation policies and measures taking into account output C1.2.

C1.6. Produced a portfolio of prioritized mitigation options by sectors considering output C1.5

C.1.7 Established system for monitoring the financial aspects (budget plan and realization) of mitigation actions.

C2.1. Refined methodologies for defining baseline emission including MRV of the specific GHG mitigation actions

C2.2. Updated protocol for defining baseline and MRV of GHG specific mitigation actions

C2.3. At least 75 technical staff trained at sectoral and local level (at least 30% women) in applying protocol for defining baseline and MRV of the specific GHG mitigation actions using output C1.2 and C2.2.

C2.4. At least 5 government officials and 10 FMU (Forest Management Unit) trained in developing baseline/sub-national FREL (Forest Reference Emission Level)

C2.5 At least 75 technical staff trained at sectoral and local level (at least 30% women) in managing activity data

C2.6. Improved data management system at the sectoral level for handling data and information from various programs related to climate change mitigation, including those from non-Party actors

C.2.7. Integrated data collection and management, which integrates the National Greenhouse Gas Inventory (NGHGI) and mitigation actions and their achievements.

C3.1. Analyzed mitigation policies and measures implemented between 2011 and 2020 by national and local governments to determine their contributions to the NDC target

C3.2. Analyzed financial scheme for the implementation of

the mitigation policies and measures as defined in output C3.1.

C3.3. Developed and updated methodologies for assessing the impact of the implementation of mitigation measures by non-Party actors on the emission reduction based on output C2.6.

D. Description of national circumstances and other relevant information	D1. Updated information for 2010- 2022 on national circumstances and national and regional development priorities, as well as	D1.1. Updated data and information on national circumstances and national and regional development priorities in conjunction with the NDC target. D1.2. Collected and updated data and information on systematic observations and research activities	175,000	1,500,000
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key additional information on the capacity, technology and financial needs

on climate change mitigations and adaptation

D1.3. Designed media campaign and communication strategy for public and youth related to climate change mitigation and adaptation in light of NDC and Paris Target

D1.4. Shared knowledge among national and local stakeholders on lesson learnt from the implementation of climate change adaptation and mitigations

D1.5. At least 20 media campaign and climate change education materials for public and youth

D1.6. Report on needs and constraints for capacity development, technology and financial support by sector to realize the NDC target

D1.7. Report on financial resources and technical support for the preparation of national communications

D1.8. Report on climate change awareness raising and education

E. Publication and dissemination of the 4th National Communication and 4th Biennial Update Report	E1. Submitted Indonesian 4th National Communication and 4th Biennial Update Report to UNFCCC	E.1.1. Disseminated information contained in the 4BUR [in year 2023] and 4NC [in year 2023]. E.1.2. Communicated materials of 4BUR and 4NC and a brief for general public including gender focus E.1.3. English translated 4BUR and 4NC E.1.4. Submitted documents of the 4BUR [in year 2023] and 4th National Communication [in year 2023]	150,000	1,500,000	
			Sub Total (\$)	2,716,190	34,186,123

Project Management Cost (PMC)

	135,810	
Sub Total(\$)	135,810	0
Total Project Cost(\$)	2,852,000	34,186,123

C. Indicative sources of Co-financing for the Project by name and by type

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount(\$)
Government	Ministry of Environment and Forestry	In-kind	Recurrent expenditures	34,186,123
Total Project Cost(\$)				34,186,123

Describe how any "Investment Mobilized" was identified

*The Government of Indonesia is dedicated to put a National Communications as an integral element of a continuous process into the development of climate policy in national level, including the commitment to allocate the in-kind funding to achieve project's objective. The investment mobilized refers to recurrent expenditures which are incurred on a regular basis such as employer contribution and does not result in the creation of fixed assets.

D. GEF Resources Requested by Agency, Trust Fund, Country, Focal Area and the Programming of Funds

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount(\$)	Fee(\$)	Total(\$)
UNDP	GET	Indonesia	Climate Change	CC STAR Allocation	2,000,000	190,000	2,190,000
UNDP	GET	Indonesia	Climate Change	CC Set-Aside	852,000	80,940	932,940
Total GEF Resources(\$)					2,852,000	270,940	3,122,940

Part II. Enabling Activity Justification

A. ENABLING ACTIVITY BACKGROUND AND CONTEXT

Provide brief information about projects implemented since a country became party to the convention and results achieved

Global Environmental Problems, Root Causes and Barriers that Need to be Addressed

Indonesia as a Party to the United Nations Framework Convention on Climate Change (UNFCCC) has the obligation to prepare National Communication Document following the guidelines provided by the Conference of Parties (COP) for non-Annex I countries (Decision 17/CP.8). Preparation of National Communications is an important document not only for fulfilling commitments under the UNFCCC but also as an instrument of great utility to set national policies and strategies to address climate change at national level and sub-national level. The Government of Indonesia (GoI) has successfully submitted the First, Second, and Third National Communications in 1999, 2011 and 2018. The GoI is also committed to submit biennial update reports (BUR) every two years in line with the guidelines for the preparation of BURs from non-Annex I Parties contained in annex III of Decision 2/CP.17. The first BUR was submitted in March 2014, and the second BUR in Dec 2018.

In September 2015, the GoI submitted the Intended Nationally Determined Contribution (INDC) to the UNFCCC Secretariat. The INDC was then reformulated into the First Nationally Determined Contribution (NDC) in October 2, 2016 along with the ratification of the Paris Agreement through Act 16/2016. The Government committed to reduce CO2 emissions unconditionally by 29% and conditionally by at least 38% of the Business-as-Usual (BAU) scenario by 2030. The target will be achieved through mitigation actions from the five sectors: energy, industrial processes and product use (IPPU), agriculture, forestry and other land uses, as well as waste.

In the preparation of the INC, SNC and TNC as well as two BURs, the level of involvement on sectoral agencies has increased significantly. In the INC, the involvement of the related ministries was still limited to the facilitation process of collecting data and information required for the national communication. In the SNC, the sectoral ministries were more involved in the data collection process while the technical work still fully relied on consultants. In the TNC and 2nd BUR, some sectoral ministries such as Ministry of Environment and Forestry, Ministry of Agriculture, and Ministry of Energy and Mineral Resources and Ministry of Industry were already involved not only in the process of data collection but also in some of technical works especially the involvement in estimating emissions and achieving emissions reductions required for the national communication as well as the BUR. New directorates under the Directorate General of Climate Change (DGCC), Ministry of Environment and Forestry with specific mandate to coordinate the implementation of related climate change activities have been established, i.e. Directorate of Mitigation and Monitoring, Directorate of Adaptation, Directorate of GHG Inventory and MRV, and Directorate of Climate Resource Mobilization. The sectoral ministries have supported the DGCC in the process of the development of the TNC and 1st and 2nd BUR, however, the technical work especially in the development of GHG inventory and the collection of data and information required for the TNC and BURs

was still dominated by these directorates. The directorates for some technical works were still very much dependent on support from consultants and experts from universities and research agencies. The process of data collection related to the GHG inventory and climate change mitigation and adaptation within the sectors have also not been fully institutionalized, as well as their technical capacities in evaluating and measuring the impact of the implementation of climate change mitigation and adaptation. The technical capacities of the Directorates under the DGCC still need further enhancement. In addition, the involvement of Non-Party Actors is also very limited.

To ensure the sustainability of the development of the national communications, in the 4NC the main barriers addressed are further enhancement of technical capacity of the sectoral ministries and further development of institutional processes for data collection and management within the sectoral ministries and with the DGCC. Technical capacity in evaluating the progress and the impact of the implementation of mitigation and adaptation on emission reduction and climate resilience need improvement as well as the contribution of Non-Party actors.

The Baseline Scenario

After the submission of the NDC and the ratification of the Paris Agreement, sectoral capacities and the role of non-Party actors have to be improved and enhanced. From the preparation and the development of the TNC, it is clear that a number of gaps related to technical capacities and institutional process still need to be filled. The following describes briefly current condition (baseline) related to the capacity in the development of the national communications and BURs.

1. The GHG Inventory

In the TNC/BUR1/BUR2, the role of each sectoral ministries in developing sectoral GHG inventory was still minimum. Most of the technical work related to the estimation of the sectoral GHG inventory was done by the Directorate of GHG Inventory and MRV with support from some expert. The National GHG Inventory System (SIGN) was developed for the estimation of GHG emission from sources and removal by sink. The sectoral ministries provide support on data collection for the development of the inventory. However, in some sectors, there is a problem of inconsistencies in some of activity data due to overlapping of data between institutions, and also as a result of changes in methodology for data collection. Involvement of National Bureau of Statistics (BPS) is also limited. Similarly, the role of the sectoral Data Center and Information Agency for some sectors in providing activity data in the development of the inventory is also limited, except for the energy sector and industrial sectors. Many of the activity data come from related directorates within the Ministry not from the sectoral data center. In addition, for most cases the activity data was generated using Tier 1 method. From the interview with the GHG Inventory sectoral working group, it is indicated that about 93% of the activity data are Tier 1, 6% Tier 2, and 1% Tier 3. Moreover, QA/QC process on activity data collection are also not documented in some sectors.

In the previous NCs and BURs, land-based sectors especially forestry had significant contributions to the national GHG emissions and followed by energy sector. Peat decomposition, forest land, cropland, and energy industries were the first four key source categories that contribute more than 56% to the total GHG emissions of the inventory. Without inclusion of forestry and other land use including peat fire, the first three main categories were energy industries, transportation, and manufacturing industries and construction, with cumulative emissions as much as 57% of the total emissions. Therefore, more accurate activity data and local emission factors for the key source categories need to be updated, thus adding value to the quality of the national greenhouse gas inventory. The 4NC is intended to estimate emissions and removals based on more accurate activity data, most of which will be obtained from sectoral data centers.

Institutional arrangements within sectoral ministries for the collection of activity data for the inventory has not been established yet. There is no coordination between data owner, data manager and GHG inventory compiler division in the ministries, as mandated by the Presidential Decree No.71/2011. So far, no ministries have issued Ministers Decrees that regulate the institutional arrangement between the divisions in the respective sector. The Minister of Environment and Forestry Regulation Number P.73/2017 already provides guidance for the sectoral ministry for preparing and reporting the sectoral GHG Inventory. Under the decree, each sectoral ministry should be responsible for the preparation of the sectoral GHG inventory. At present, the development of the inventory is the responsibility of the Directorate of GHG Inventory and MRV of the DGCC. The future arrangement is that sectoral working group for the inventory development in each sectoral ministry should be responsible not only for activity data collection but also for the preparation of the inventory. The Directorate of GHG Inventory and MRV will be responsible for compiling the sectoral inventories and conducting the respective quality assurance of the inventory.

Similar to the activity data, the emission factors used for the development of the inventory are mostly IPCC defaults. Good practices suggest that at least for some key categories higher Tier Emission factors are used for improving the accuracy and reliability of the inventory. Some sectors have developed local emission factors, for example emission factor for coal and for land use change and forestry. However, these local emission factors have not been used yet as there is no SOP (Standard Operational Procedure) available for adopting new local EF by the inventory developers.

In the previous inventory reports, GHG emissions are presented at sector level. In order to have more comprehensive information regarding GHG emission level, it is considered necessary to develop inventory at sub-sector, unit or plant categories. In the energy sector inventory, the activity data of fishery, agriculture, construction and mining were lumped and designated as "others" sector. In the upcoming inventory report, the emissions of those activities are to be disaggregated accordingly. Emission from energy use in industry is represented by one figure representing the whole industry sector. In the up-coming inventory report, it is considered necessary to break down the industry category into eight or more industry sub-sectors. In the previous inventory reports, the emissions from power sector were calculated based on type of fuels. To improve the quality of the inventory, in the upcoming inventory the emission from power sector will be calculated based on not only fuel type but also based on power plant technology. Emissions from land transportation are to be broken down into road transport and railway. In the previous inventory report, there is no distinction between fuel consumed for domestic navigation and aviation from those consumed for international navigation and aviation. For future inventory report, the emission from activities in the international navigation and aviation will be excluded from the National GHG Inventory. In order to improve the GHG inventory, it is considered necessary to add sub-categories that has not been covered in

the previous National GHG Inventory. For example, in the energy sector the fugitives category of the oil and gas activities will include GHG emissions from gas processing plant. In the waste sector, emissions from clinical and hazardous waste treatments and emissions from industrial solid waste, industrial sludge, and domestic sludge treatments are to be included in the National GHG Inventory.

In order to implement the above mentioned inventory improvement plan, it is considered necessary to develop and establish protocols on process for collecting, organizing and validating activity data, selecting emission factors and methods, and estimating emission. One of the factor that determine the accuracy of GHG inventory is the quality of the activity data that are used for estimating GHG emissions. In order to improve the accuracy of National GHG Inventory, it is considered necessary to improve the quality of activity data. In the energy sector it is needed to revise data of coal use in industry; biomass use in industry, commercial, and residential; data of biofuel use in transport and other sub-sectors; data of oil-fuels use in waterborne transportation, in the IPPU sector, the production/consumption data needs to be updated.

2. Mitigation

Following the Presidential Regulation 61/2011, all sectors and also provincial government have already been able to prepare their action plans for reducing the emissions called National Action Plan for GHG Mitigation (RAN GRK) and Sub-National Actions Plan for GHG Mitigation (RAD GRK), respectively. Each sector and province have defined its baseline emission. In the Presidential Regulation 61/2011, emission reduction target for each sector have been set up against the baseline emission developed in the SNC. After the submission of the NDC, the new emission reduction target has been set up for each sector with revised baseline emission. The TNC has reported the change of the baseline between the SNC and the TNC, however the implication on the change of the baseline and target on the sectoral mitigation actions are not clearly defined. Only two sectors, i.e. energy and industry, have defined how the change of the baseline and emission reduction target are reflected in the design of their mitigation programs.

Moreover, based on the assessment to the RAD GRK documents and discussion with local government, there is no clear understanding of the local government on the link between the baseline, the emission reduction target and mitigation. Impact of the implementation of mitigation policies and measures on GHG emission shall be reflected by the change of emission estimates in the GHG inventory. The change of the emission from certain source categories will occur when AD and/or EF changes. It is very important to develop understanding how such policies and measures will impact directly or indirectly the AD and EF and how the mitigation policies and measures (PaMs) be defined and developed, taking into account the baseline and emission reduction target as well as the approaches and methods for measuring the mitigation impact. Institutional relationship between divisions in charge of the implementation of mitigation and the GHG inventory developer have also not been established. Based on the assessment conducted for the mitigation policies and measures reported in the TNC, there are 69 PaMs reported in the TNC. Most of PaMs are from energy sector (60%), followed by LUCF (19%), IPPU (9%), Agriculture (9%) and waste (3%). Of the 69 PaMs, it is indicated that mitigation policies may affect less than 20% of the AD and/or EF. Similarly, the mitigation measures may also affect less than 20% of the AD and EF directly or indirectly. Mitigation policies only exist in the forestry and energy sectors, while mitigation measures exist for all sectors.

Due to lack of institutional system for connecting the mitigation and GHG Inventory system at present, mitigation activities which can be captured in the inventory are limited to the activities implemented only by the sectoral ministries at national level. The mitigation activities implemented by local governments and private sectors (Non-Party Stakeholders) are not captured in the inventory yet. It is crucial to have clear policy and regulations on the process of reporting mitigation activities to the DGCC and how it links with the National GHG Inventory System (SIGN). The National Registry (SRN) and the MRV systems which have been set up by the national government are designed to capture mitigation measures implemented by all stakeholders including the Non-Party stakeholders. However, the use of the systems are still limited. The guidelines on the use of the systems have been defined in the Minister of Environment and Forestry regulations Number P.71 and P.72/2017 respectively. The socialization and capacity development for the stakeholders on the use of SRN and the MRV system is required.

3. Climate Vulnerability, Impact and Adaptations

As for mitigation, the national government has developed the National Action Plan for Climate Change Adaptation (RAN API) with the objectives to (i) build economic resilience (food and energy security), (ii) establish livelihood resilience (health, infrastructure and settlements), (iii) maintain environmental service resilience (ecosystem and biodiversity) and (iv) strengthen special areas (e.g. urban, coastal and small islands) resilience, and (v) strengthen supporting systems (e.g. knowledge management, capacity building, planning and budgeting, monitoring and evaluation). These five objectives are expected to lead toward the ultimate goal of achieving sustainable development adaptive to climate change. As mentioned above, in 2017 the Minister of Environment and Forestry issued the regulation number P.72/2017 about MRV Guidelines for Actions and Resources of Climate Change, in which one of the regulation scopes is MRV for climate change adaptation. This regulation defines 6 indicators of adaptation achievement: i.e. climate change adaptation policy, scientific study, planning for climate change adaptation, implementation/activities, evaluation monitoring, and capacity building. So far there is no institutional arrangement for monitoring, collecting, and recording adaptation actions in SRN as well as how adaptation data can be reported in adaptation communication.

A number of adaptation activities to meet the objectives have been identified and implemented by sector and local governments and communities. Nevertheless, the adaptation activities were not supported by the comprehensive assessment of climate change impact on the sectors and the systems. Limited studies on climate change impact are available, but the assessment only employed historical climate and used climate related disasters information to identify the impacts of climate change and their implications to specific sectors. The use of climate projection for assessing the impact is still limited. The available studies have mostly used the climate projection from GCM that have very low resolution.

The TNC has developed climate change projection scenarios (RCP4.5 and RCP 8.5) using regional climate model with high resolution, but only involved one regional climate model. The statistical approach to downscale the GCM into higher resolution (gridded data) has also been performed. It was initially planned that the data would be used for evaluating impacts of climate change on sectors at national level. The results would then be used by the sectors to design the adaptation options. However, this assessment was not conducted due to limited financial resource. Instead, the impact assessment was conducted only for 10 locations focusing on 10 specific sub-sectors or ecosystems. The assessment was used for supporting the local governments in developing the local adaptation action plan (RAD API). As the impact studies were focused only for specific sectors, while the local adaptation options covered many sectors, the development of the RAD API was approached using vulnerability assessment and projection of probability of extreme climate events. The results of the

impact studies were used specifically for designing adaptation pilots in the 10 locations. The DGCC developed Information System for Vulnerability Index Data called SIDIK to support local governments in designing the RAD API. In this regard, the Minister of Environment and Forestry has issued a guidance for the development of adaptation actions through Ministerial Regulation P.33/2016. Nevertheless, guidance for monitoring and evaluating the implementation of adaptation actions and also measuring their impact is not available yet.

Previous Work and Building on Experience

Based on the result of Terminal Evaluation, the concept of the Third National Communication was considered to be well designed and highly relevant. The result was based on sound scientifically measurable data, and in the process train and prepare government staff dealing with greater depth of Climate Change. The project's outcomes were well supported by the outputs as formulated. The 35 expected outputs have been produced and all the 11 expected outcomes have been achieved as planned. Most importantly, the GoI has submitted the Third National Communication to the UNFCCC which was the ultimate objective of this project.

In view of the fact that the Fourth National Communication would entail conforming to a Tier 3 methodological approach, it is highly important to involve within the various technical working groups all stakeholders, including Civil Society actors (women's groups, the Private Sector, selected NGOs, local community representatives, etc.). For this, the proposed project should include training activities to bring their understanding of the issues to a level where they can follow the discussions and provide valuable inputs to the work of the working groups. For any future follow-up project, the Ministry of Environment and Forestry needs to ensure that all government participants involved in any proposed technical working groups, must have a strong competence in the related field.

The Fourth National Communication project follows recommendations from the ICA process that Indonesia went through in 2017, where capacity building needs were identified as follows:

- (a) Development of mitigation strategies, including supporting regulations;
- (b) Application of mitigation technologies;
- (c) Verification of emission reduction for mitigation actions;
- (d) Collection of activity data for international aviation and marine bunker fuels, ozone depleting substances and F-gases;
- (e) Capacity-building support for the compilation of the GHG inventory;
- (f) Capacity-building support for measuring the impact of mitigation policies by the implementation of modelling techniques, in order to separate the impact of the implementation of mitigation policies and measures from the reduction of emissions measured as the difference between the baseline and the actual emissions reported in the GHG inventory;
- (g) Capacity-building support for the development of an MRV system and in particular for verifying the reported emission reduction achievement;

- (h) Capacity-building support for the development of a functional database for mitigation and adaptation actions, which is intended to record and avoid any double counting on emission reduction..

B. ENABLING ACTIVITY GOALS, OBJECTIVES, AND ACTIVITIES

The proposal should briefly justify and describe the project framework. Identify also key stakeholders involved in the project including the private sector, civil society organizations, local and indigenous communities, and their respective roles, as applicable. Describe also how the gender equality and women's empowerment are considered in project design and implementation

The Proposed Alternative Scenario

To further strengthen the Indonesian capacity to meet the convention objectives and to communicate its efforts in addressing climate change, further improvement of the current institutional system and technical capacity is required. Considering the current condition (baseline) as describe above, the proposed activities for the 4BUR^[1] and 4NC will consist of five components as described below.

A. National GHG Inventory.

The first component will encompass 2 outcomes: (1) established National and local institutional system for developing GHG inventory and (2) improved accuracy of national GHG inventory for 2000-2020 using 2006 IPCC GL. The GHG inventory under the previous NCs and BURs that compiled a times series of GHG emission for the period 2000-2016 will be updated, as needed, so that a consistent time series for the 2000-2020 can be reported through the 4BUR and 4NC.

B. Assessment of the impacts and vulnerability to climate change and evaluation of adaptation policies and measures to address climate change, variability and extreme events

This component covers activities that will evaluate the threats of climate change to Indonesia's vulnerability. Multimodel ensemble climate change and extreme climate events projections at national level will be developed and made accessible. Impact assessments will be carried out on agriculture, fisheries, coastal areas, water resources, forests and health. The studies either national and local level will also assess adaptation opportunities to develop adaptation policies and actions.

C. GHG Mitigation Policies and Measures to Address Climate Change

The component of mitigation assessment will focus on updating the GHG emission trajectory toward the NDC target and improvement of sectoral ministries and local government understanding on how emission reduction target in connection with the baseline is translated into mitigation policies and measures. The results will support to develop strategies and policies for achieving the national GHG emission reduction target of the Indonesia NDC. The scope of mitigation assessment will include an analysis of related legislation, policies and programmes, and relationship between mitigation actions as well as the macro-economic impacts of the mitigation options.

D. Description of National Circumstances and Other Relevant Information

This component aims to provide updated information on climate change by Indonesia Government, including the national actions to address climate change and support as well as updated studies, projects and research collaboration developed since 2016. Information on the country characterization in terms of geography, climate, demography, social and cultural aspects, sectoral condition, as well as macroeconomic parameters, employment, income and services will be updated in the preparation of the 4NC/4BUR. This component will also cover the relevant institutional arrangements for the preparation of the 4NC/4BUR.

E. Publication and Dissemination of the 4th National Communication and 4th Biennial Update Report

The last component focuses on the publication and dissemination of the 4NC and 4BUR to local governments and other stakeholders. This will includes dissemination of information contained in the 4NC and 4BUR, development of communicated materials of 4NC and a brief 4BUR for general public including gender focus, and submission of 4NC and 4BUR in English to the UNFCCC.

Stakeholders

The consultation during the identification phase involved mostly the sectoral ministries and the national focal point for the climate change. During the implementation of the 3rd National Communication stakeholder consultation involved local communities, civil society organization and private sectors, while gaps and barriers related to the implementation of activities for meeting the objective of the conventions were partly identified by the related sectors. The improvement of institutional and technical capacities required for ensuring the sustainability production of the national communications as well as the reliability and accuracy of the information have been mapped. The consultation with broader stakeholders was made during the final stage of the identification phase.

In the project preparation, the stakeholder to be engaged include not only government but also non-government agencies as indicated in the Table below.

Table 1. Stakeholders roles and engagement

Stakeholders	Roles	Means of Engagement
Sectoral Ministries and local governments	Sectoral ministries are responsible for making decision and plan of development. They are directly involved in the development of GHG inventory and implementation of mitigation and adaptation policies and measures and monitor the progress and impact of the implementation of the measures.	Engaging in the implementation of mitigation, adaptation activities and the development of GHG Inventory and data collection and management.
Private Sectors	Private sectors are directly involved in the implementation of mitigation and adaptation activities contributing to the achievement of the NDC target	Engaging in capacity building activities and implementation of mitigation, adaptation activities through the social corporate responsibilities and their compliance to the regulations
Local communities and non-government organizations	Local communities and non-government organizations will play roles in implementing pilot and data collection	Engaging in capacity building and the implementation of pilot activities
Academic Institutions and universities	These agencies will play a significant role in the project implementation in designing and implementing capacity building activities for adaptation and mitigation and supporting the implementation of pilots including research for the development of local emission factors	Supporting the implementation of capacity building activities and development of strategies and scenarios for low carbon and climate resilience development

The role of private sector as Non-Party Actors (NPA) in contributing to the achievement of NDC target is crucial. Without involvement of the NPA, it will be very difficult for the governments to meet the NDC target. Awareness raising activities and capacity development for the private sector in integrating climate change issues into their business and CSR activities will be undertaken as well as in developing monitoring system for evaluating the contributions of the private sector in meeting the NDC target.

Gender equality

The 4NC of Indonesia will mainstream gender into the project design and implementation. The project will carry out gender assessment to ensure that men and women participate in activities, address gaps in achieving gender equality, especially in the context of mitigation and adaptation planning, policy making and the implementation.

An initial stocktaking and gender analysis across all areas – and inclusion of stakeholders who understand gender issues in relation to their sectors – will be conducted in course of 4NC/4BUR/ preparation to assess and understand where deeper analysis and action is required to make the overall BUR reports more credible, realistic and sustainable.

The update of the National Circumstances chapter of the 4NC/4BUR will consider gender-disaggregated data where possible in order to better understand how the different roles of men and women in social and economic circumstances may affect Indonesia's ability to deal with climate change.

Project will use following guidance:

- UNFCCC Gender Action Plan[2]
- Guidance to advance gender equality in GEF projects and programs[3]
- Gender Responsive National Communications Toolkit[4]

During the PPG phase, the engagement strategy for women and vulnerable groups will be designed to ensure gender and vulnerable community dimensions are adequately addressed.

Gender analysis will also follow the structure of five priority areas of UNFCCC Gender Action:

- Capacity building, knowledge sharing and communications
- Gender balance, participation and women's leadership
- Coherence
- Gender responsive implementation and means of implementation
- Monitoring and reporting.

The project will ensure that women will gain equal opportunities to engage in the implementation of the project activities starting from the project preparation, implementation and evaluation. At the end of the project, it is expected that women will be more empowered with the knowledge, tools, and skills gained through training and capacity building activities under the 4NC, so that they will benefit themselves as individuals and as community members in addressing the climate change.

[1] The 3BUR will be developed and submitted using state budget since this project will not be able to catch up on the expected date of submission

[2] <https://wedo.org/wp-content/uploads/2017/11/Final-Gender.pdf>

[3] http://www.thegef.org/sites/default/files/council-meeting-documents/EN_GEF.C.54.Inf_.05_Guidance_Gender_0.pdf

[4] <http://www.un-gsp.org/news/gender-responsive-national-communications-toolkit>

C. DESCRIBE THE ENABLING ACTIVITY AND INSTITUTIONAL FRAMEWORK FOR PROJECT IMPLEMENTATION

Discuss the work intended to be undertaken and the output expected from each activity as outlined in Table A

To further strengthen the Indonesian capacity to meet the convention objectives and to communicate its efforts in addressing climate change, further improvement of the current institutional system and technical capacity is required. Considering the current condition (baseline) as describe above, the proposed activities for the 4BUR^[1] and 4NC will consist of five components as described below.

The previous documents on Indonesian National Communications (NCs) were submitted with long time period in between. However, the submissions tend to be faster. Between 1NC and 2NC was 11 years. Between 2NC and 3NC was 7 years. Since the submission will still have to go through PPG and CEO endorsement, it will likely in 2021, that the 4NC project can start its implementation. It is therefore not realistic to expect the 4NC to be completed in 2022. The Government of Indonesia (GoI) is expecting to submit the 4NC document by 2023 (which would mean 5 years after 3NC – considered faster compared to previous subsequent submissions).

With regards to 3BUR, the timeline of final approval of 4NC will mean that the project will start its implementation in 2021, it will therefore be too late to include 3BUR in this project. GoI is planning to develop and submit 3BUR report using state budget and other sources. Referring to document FCCC/SBI/ICA/2019/TASR.2/IDN on 27 August 2019 regarding the Technical Analysis of the Second BUR of Indonesia submitted on 27 December 2018, there are several notes and recommendations from Technical Team of Experts, as references for improvement to be reported in the 3BUR. The details, among others, are as follow:

A. Expected inventories

- Improve inventories for FOLU, agriculture, waste, energy and IPPU
- Develop consistency of the use of tier 1 and 2 methodology consistently for IPPU and agriculture sectors
- In IPPU sector, develop AD for emission from PFCs and SF₆, while HFC will refer to the process under Montreal Protocol for Article 5 countries that will start the inventory of HFCs under Enabling Activities in 2020.
- Strengthen the consistency use of notation keys in the inventories tables, including aviation and marine bunker fuel,
- improve information using GWP values, uncertainties assessment on the methodology used and the underlying assumptions
- Develop disaggregation data on fuel combustion in land transportation into road and rail, also for the manufacturing industries and construction category.

B. Submission date: by December 2021

C. Plan for addressing existing barriers and needs

- Improve understanding of technical sectoral staff to develop methodology, activity data and EF for unreported emission sources, such as energy and mining processes which include coal, precious metals, oil and gas, up-stream, pond technology and flooded areas)
- Improve capacity in data gathering and estimation of non-CO2 emissions in the FOLU sector

A. National GHG Inventory.

The first component will encompass 2 outcomes: (1) established National and local institutional system for developing GHG inventory and (2) improved accuracy of national GHG inventory for 2000-2020 using 2006 IPCC GL. The GHG inventory under the previous NCs and BURs that compiled a times series of GHG emission for the period 2000-2016 will be updated, as needed, so that a consistent time series for the 2000-2020 can be reported through the 4BUR and 4NC.

The first outcome will be focused on activities to improve current national and local institutional system for developing GHG inventory. Improvement of institutional system will focus on setting up working mechanism between division/units responsible for collecting activity data, data managers and GHG inventory developers in each sectoral ministry and on improving coordination between sectoral GHG Inventory division with the Directorate of the GHG Inventory and MRV of the DGCC. Protocols and guidances required for establishing the working relationship within the divisions in the development of the GHG inventory will be developed.

The second outcome will be directed to improve the accuracy of national GHG inventory for the 2000-2022. The previous GHG inventories for the period 2000-2016 will be updated. The 4BUR shall upgrade GHGI and present consistent time series up to 2020 and the 4NC up to 2022 using 2006 IPCC GL for sector of energy, IPPU, AFOLU and waste. The process of GHG Inventory improvement will involve additional activities and procedures. Improvement of GHG accuracy will relate to the enhancement of the technical capacity of the GHG Inventory developers in each sectoral ministry and local governments and improvement of QA/QC in collecting activity data for the inventory and the development of local emission factors for key source category. From these activities, country specific emission factors and activity data for the key source categories will be updated, so that the ministries could establish inventory in the level of sub-sector, unit, or plant categories. For example, sub-category 'others' in energy sector will be broken down into agriculture and fisheries, construction, and mining; 'industry category' in energy sector will be broken down into eight or more sub-sector categories; power categories in energy sector will be calculated base on type of fuels and technologies, land transport in energy sector can be broken down into road and railway, fuel consumptions for international water navigation/civil aviation can be excluded from National Greenhouse Gas Inventory (NGHGI); the ministries could add sub-categories that has not been covered

in previous NGHGI report (i.e. fugitives from oil and gas will include CO₂ from gas processing plant in energy sector, emissions from clinical and hazardous waste treatments, and emissions from industrial solid waste, industrial sludge, and domestic sludge treatments). These add value to the quality of the national greenhouse gas inventory.

For the land base sector, activity data will be derived from remote sensing satellite images taken at higher frequencies for the 2000 - 2022 period, thus obtaining more accurate activity data from the transition matrix of land use categories/subcategories that are built in the previous inventory. This will be carried out in close collaboration with the Directorate General of Forestry Planology and Environmental Planning, MoEF. In line with this, methodology for generating higher tier activity data and emission factors for land cover changes and burned area will be developed. The burned areas will be estimated based on hotspots and fire suppression report supported with visual interpretation of satellite images. Concerning energy sector, the 4NC will be planned to improve activity data for following subsectors: disaggregating data on fuel consumption, construction and manufacturing industries and differentiating them from energy balance data with in close collaboration with the Ministry of Energy and Mineral Resources. In IPPU sector are focused on the improvement of activity data for estimation of emissions from pulp and paper as well as electronics industry. For agriculture, the 4NC will improve data on amount of urea and N fertilizer as well as lime, biomass burning, and age distribution of livestock based on studies implemented by the Ministry of Agriculture. In waste sector, improvement of activity data includes the characteristics of waste (waste composition, dry matter content and DOC), sludge data generated from domestic and industrial wastewater treatment activities, as well as COD inlet/outlet and industrial waste water flow rate.

The GHG Inventory will be also improved by connecting mitigations with GHG Inventory system (SIGN) through an application program that integrating SIGN and mitigation measures from sectoral line ministries and local governments/non-state actors. The application program will be developed, as appropriate, for the preparation of the GHG inventories of the 4NC and 4BUR.

Detailed activities within this output will cover:

- improve guidelines for organizing quality assurance and quality control (QA/QC) of sectoral activity data;
- develop protocols on process for collecting, organizing and validating activity data, selecting emission factors and methods, and estimating emission in the sectoral ministries at more refined sub-categories;
- collect and compile activity data by sectors responsible for GHG inventory including interactions with sectoral data centers for preparation of the the 4NC inventory (2016-2022) according to the 2006 IPCC guidelines for the following sectors: energy, industrial processes, AFOLU and waste;
- improve guidelines for GHG emission estimation and validation (QA/QC);
- establish institutional system for developing GHG Inventory at district and provincial level and its integration with national GHG Inventory system (SIGN);
- establish institutional arrangement at sectoral ministries for developing GHG Inventory in order to implement the Minister of Environment and Forestry Regulation (Permen KLHK) Number P.73/2017;

- strengthen institutional mechanism for collecting GHG inventory and CC mitigation data;
- improve quality of activity data at sub-categories (coal in industry data; biomass in industry, commercial, and residential data; biofuel in transport and other sub-sectors data; oil-fuels in waterborne transport data, production/consumption data; age distribution of livestock sub-category; burned area; annually land use transition}
- develop application program for integrating SIGN and sectoral mitigation measures;
- develop local emission factors for some key categories in forest and other land use ;
- improve database system of local emission factors;
- develop methodology for generating higher tier activity data and emission factors for land cover changes and burned area;
- disaggregate data on fuel consumption in agriculture
- train at least 50 technical staffs including at least 30% women from relevant sectors on the development of GHG Inventory;
- train at least 50 technical staffs including at least 30% women from local governments using SIGN on the development of GHG Inventory;
- training for sectoral and local government staff will be held for very specific targets and focus in cooperation with CBIT implementation to avoid any duplication
- update national GHG inventory for sectors: energy, IPPU, AFOLU and waste from 2000 to 2020 for the 4BUR and from 2000 to 2022 for the 4NC on an annual basis with lower uncertainty using IPCC 2006 and GPGs;
- publish GHG emissions inventory 2000–2020 for the 4BUR and 2000-2022 for the 4NC for sectors: energy, IPPU, AFOLU and waste.

B. Assessment of the impacts and vulnerability to climate change and evaluation of adaptation policies and measures to address climate change, variability and extreme events

This component covers activities that will evaluate the threats of climate change to Indonesia's vulnerability. Multimodel ensemble climate change and extreme climate events projections at national level will be developed and made accessible. Impact assessments will be carried out on agriculture, fisheries, coastal areas, water resources, forests and health. The studies either national and local level will also assess adaptation opportunities to develop adaptation policies and actions.

Under this component, 3 main activities will be carried out to achieve outcomes of this second component. The first main activity is prediction for short term (1961-2035) and climate change projection for long term term (2035-2100) as well as extreme climate events projections. This activity will establish climate change projection database from the TNC and from other sources such as CORDEX, to be accessible for public and be integrated with SIDIK (Information System for Vulnerability Index Data). Outputs of this ensemble climate model outputs should be promoted to be available for supporting the Climate Change Vulnerability studies in Indonesia. It is expected to allow the assessment of climate change impacts, vulnerability and adaptation in district or provincial level

on the basis of finer resolution. This will allow the local governments and other stakeholders to use the multimodel ensemble data for the climate change impact and vulnerability assessment. The second main activity is the enhancement of local capacity in using climate projection, assessing vulnerability and climate change impact and development of the local adaptation action plans through pilots. The assessment will be conducted on vulnerable sectors agriculture, fisheries, coastal water resources including socio-economics analysis and gender and/disabled perspective with the involvement of trained local scientists. It is expected that the studies can support local governments to develop appropriate adaptation policies and actions, and help their communities adapt to the effects of climate change. The third main activity is production of national and sectoral climate change impacts, vulnerability and adaptation assessment. The studies will also assess adaptation opportunities to review sectoral adaptation policies and measures and their effectiveness on addressing climate change impact inline with NDC.

Detailed activities within this output will cover:

- integrate system for managing historical climate and multi-model ensemble climate change prediction (1961-2035) and climate change projections (2035-2100) over Indonesia in grid based system and accessible by public;
- run climate projections at national level;
- improve Information System on Vulnerability Index Data (SIDIK) focused on meso to local scale for defining adaptation actions with the inclusion of historical information on climate extreme events, impacts and responses;
- develop methodology for projection of extreme climate events in relation to climate change supported by geo-physical and socio-economic data and information;
- train at least 50 scientists (at least 30% women) on the use of multimodel climate change projections for extreme climate events analysis;
- determine projection of extreme climate events (1961-2035 and 2035-2100) at national level;
- develop web-based information of Multimodel ensemble climate change and extreme climate events
- develop tools and methods for the assessment of vulnerability, risk and climate change impact on vulnerable sectors (agriculture, fisheries, coastal, water resources, forest, health) using multimodel ensemble climate projection using;
- train 50 local scientists (at least 30% women) on the use of the climate change vulnerability and impact assessment tools;
- conduct at least 5 case studies on climate change vulnerability, risk and impact assessment on vulnerable sectors agriculture, fisheries, coastal water resources including socio-economics analysis and gender and/disabled perspective depending on local prioritization with the involvement of trained local scientists;
- develop tools and methods and guidelines for monitoring and evaluation of CCA (climate change adaptation) in specific sectors;
- produce national assessment on the impact of climate change scenarios for at least three vulnerable sectors (agriculture, water resources and health) based on MoEF regulation number P.72/2017 and its integration with SIDIK for supporting adaptation policy making process;
- produce impact of climate change on national economic under different climate scenarios and implication in achieving NDC target;

- train 75 technical government staffs including at least 30% women in using SIDIK and impact assessment in the development of climate change adaptation policies and measures ;
- reviewe sectoral climate change adaptation policies and measures implemented during 2011 to 2020 and their effectiveness on addressing climate change impact inline with NDC;
- produce a portfolio of prioritized adaptation options by sectors;

C. GHG Mitigation Policies and Measures to Address Climate Change

Under the Nationally Determined Contribution, Indonesia committed to reduce GHG emissions by 29% unconditionally and up to 41% conditionally from the BAU emission by 2030 for all sectors, The report on measures to mitigate climate change and effect is related to achieving the NDC target has been communicated in the 2nd BUR. This reports includes updating on implementation of mitigation policy and measures in all sectors that have been reported in the TNC, especially those implemented in 2015 and 2016 to meet the voluntary reduction target for pre-2020 mandated under the President Regulation No. 61/2011. However, emissions reduction achievements have not been verified, and macro-economic and socio-economic impacts still lack in the analyses, as well as the contribution of the Non Party Stakeholders has not been measured.

The component of mitigation assessment will focus on the updating the GHG emission trajectory toward the NDC target and improvement of sectoral ministries and local government understanding on how emission reduction target in connection with the baseline is translated into mitigation policies and measures. The results will support to develop strategies and policies for achieving the national GHG emission reduction target of the Indonesia NDC. The scope of mitigation assessment will include an analysis of related legislation, policies and programmes, and relationship between mitigation actions as well as the macro-economic impacts of the mitigation options.

This component will also focus on enhancement of the sectoral ministries and local government capacity in measuring the achievement of the implementation of mitigation policy and measures and establishing clear connection between the mitigation and the GHG Inventory as well as measuring the contribution of the Non-Party Stakeholders in meeting the NDC target. MRV Guideline has been promulgated through the Ministry of Environment and Forestry (MoEF) regulation No 72/2017. However, MRV implementation faces several constraints because many mitigation actions implemented by local government or other non-Party actors including impact of mitigation policies on emission reduction cannot be captured or measured well. To ensure that all mitigation activities implemented by the Party Stakeholders and Non-Party Stakeholders (NPS) can be captured and reported, the Government of Indonesia is improving the National Registry System. Contribution of the Non-Party Stakeholders in meeting the NDC emission reduction targets will be included in the next submission of NC and BUR.

The last activity under this component is to assess the progress of the mitigation policies and mitigations achievement implemented between 2016 and 2020 by national and local governments in order determine their contributions to the NDC target.

Detailed activities within this output will cover:

- refine integrated model for NDC in projecting GHG emission under BAU and mitigation scenarios including macroeconomic assessment of GHG mitigation measures;
- review sectoral mitigation policies and measures implementation by considering achievement of NDC target
- train at least 50 technical staff (at least 30% women) in applying the refined integrated model for developing alternative trajectory emission under the BAU and mitigation scenarios as defined in the NDC;
- adjust trajectory of projection of GHG emissions from sources and sinks under BAU and mitigation scenarios for period 2010-2150;
- enhance capacity of sectoral ministries in adjusting sectoral mitigation policies and measures taking into account;
- produce a portfolio of prioritized mitigation options by sectors considering;
- establish a system for monitoring the financial aspects (budget plan and realization) of mitigation actions.
- refine methodologies for defining baseline emission including MRV of the specific GHG mitigation actions'
- update protocol for defining baseline and MRV of GHG specific mitigation actions
- train at least 75 technical staff at sectoral and local level (at least 30% women) in applying protocol for defining baseline and MRV of the specific GHG mitigation actions;
- train at least 5 government officials and 10 FMU (Forest Management Unit) in developing baseline/sub-national FREL (Forest Reference Emission Level) as mandated by Minister of Environment and Forestry Regulation (PermenLHK) number P.70/2017 and mitigation strategy of REDD+ at least 10 FMU;
- train at least 75 technical staff at sectoral and local level (at least 30% women) in managing activity data;
- training for sectoral and local government staff will be held for very specific targets and focus in cooperation with CBIT implementation to avoid any duplication
- improve data management system at the sectoral level for handling data and information from various programs related to climate change mitigation, including those from non-party stakeholders;
- integrate data collection and management, which integrates the National Greenhouse Gas Inventory (NGHGI) and mitigation actions and their achievements
- analyze mitigation policies and measures implemented between 2011 and 2020 by national and local governments to determine their contributions to the NDC target;
- analyze financial scheme for the implementation of the mitigation policies and measures;

- develop and updated methodologies for assessing the impact of the implementation of mitigation measures by non-Party actors on the emission reduction.

D. Description of National Circumstances and Other Relevant Information

This component aims to provide updated information on climate change by Indonesia Government, including the national actions to address climate change and support as well as updated studies, projects and research collaboration developed since 2016. Information on the country characterization in terms of geography, climate, demography, social and cultural aspects, sectoral condition, as well as macroeconomic parameters, employment, income and services will be updated in the preparation of the 4NC/4BUR. This component will also cover the relevant institutional arrangements for the preparation of the 4NC/4BUR.

The component of national circumstances and other relevant information will also assess regional development priorities for 2010-2020, and key additional information on capacity and financial needs for achieving convention objectives. Data and information on systematic observations and research activities on climate change mitigations and adaptation will also be updated as well as media campaign and communication strategy for public and youth related to climate change mitigation and adaptation in the light NDC and Paris Target.

Detailed activity for descriptions of national circumstances and other relevant information include:

- update data and information on national circumstances and national and regional development priorities in conjunction with the NDC target;
- collect and update data and information on systematic observations and research activities on climate change mitigations and adaptation;
- design media campaign and communication strategy for public and youth related to climate change mitigation and adaptation in light of NDC and Paris Target;
- share knowledge among national and local stakeholders on lesson learnt from the implementation of climate change adaptation and mitigations;
- design at least 20 media campaign and climate change education materials for public and youth;
- report on needs and constraints for capacity development, technology and financial support by sector to realize the NDC target;
- report on financial resources and technical support for the preparation of national communications;
- report on climate change awareness rising and education.

E. Publication and Dissemination of the 4th National Communication and 4th Biennial Update Report

The last component focuses on the publication and dissemination of the 4NC and 4BUR to local governments and other stakeholders. This will include dissemination of information contained in the 4NC and 4BUR, development of communicated materials of 4NC and a brief 4BUR for general public including gender focus, and submission of 4NC and 4BUR in English to the UNFCCC.

Based on UNFCCC Decision: 17/CP.8, the 4NC shall communicate information on national and regional development priorities, objectives and circumstances; information on national inventory of anthropogenic emissions by sources and removal by sinks of all GHG, general description of steps taken or envisaged to implement the Convention; other information considered relevant to the achievement of the objective of the convention; and information on constraints and gaps, and related financial, technical and capacity needs. Preparations of the 4NC will be executed by the Directorate General Climate Change under The Ministry of Environment and Forestry, in close collaboration with other relevant ministries and institutions. The 4NC will be submitted to the UNFCCC by mid 2023.

As required by UNFCCC Decision: 2/CP.17 Annex III, the 4BUR will provide: information on national circumstances and institutional arrangements for the preparation of the NC; information on national GHG inventory; information on mitigation actions and their effects including associated methodologies and assumptions; constraints and gaps, and related financial, technical and capacity needs, including a description of support needed and received; information on the level of support received to enable the preparation and submission of biennial update reports; and information on domestic measurement reporting and verification; as well as any other information that the non-Annex I Party considers relevant to the achievement of the objective of the Convention and suitable for inclusion in its biennial update report. To produce a comprehensive and complete 4BUR, a similar procedure that is usually carried out when conducting NCs such as data collection and analysis work, as well as consultation with related institutions will be prepared and carried out in a comprehensive manner.

The 4BUR will be submitted to the UNFCCC by mid 2023. The Second BUR Indonesia has been assessed through ICA in 2019 and based on current information from UNFCCC Secretariat, it is scheduled for FSV in SBI 52 in Bonn, June 2020. Consequently, to allow Indonesia receive comprehensive feedback from the whole process of reporting the BUR, Indonesia plans to submit the 3BUR in 2021. The final biennial update reports for developing countries can be submitted no later than 31 December 2024 and will undergo the last ICA cycle between 2024-2026. Accordingly, the 4BUR will be submitted to the UNFCCC by mid-2023 and will build capacities for a transition to the Enhanced Transparency Framework for the first biennial transparency report (BTR1) and national inventory report, to be submitted, in accordance with the MPGs, at the latest by 31 December 2024.

The project will be executed by the Ministry of Environment and Forestry of the GoI. The MoE&F will be responsible for the technical implementation of the project as a whole, being responsible for preparing BUR and 4NC to the UNFCCC in coordination with other line ministries and the National Council for Climate Change (DNPI) as focal point for climate change. Given the size and complexity of the project, MoE&F will coordinate the project activities through a project management cell. Partnerships between key partners and institutions will be facilitated and new partnerships encouraged, especially in areas not sufficiently addressed by the 3NC.

Project implementation may require support services as a consequence of unavailability of the MoE&F human resources to conduct certain activities related to procurement and recruitment and financial and IT management. At the PPG stage, further analysis will be performed to determine suitable actor to provide these support services.

The project will be implemented under the coordination of the Ministry of Environment and Forestry, i.e. Directorate General of Climate Change (DGCC). The project will create a steering committee and several Technical Working Groups related to GHG Inventory, Mitigation and V&A Assessment for the development of the 4NC representing various sectors and local governments and NGOs. The Steering Committee will be represented by the sectoral ministries, and Local Governments and Business Associations as well as some Civil Society Organizations. The SC will provide guidance and directions for the technical working groups in the implementation of the project activities and synchronizing and synergizing the 4NC activities with other related projects. This is to ensure; the project activities are carried out efficiently and effectively. The coordination meeting between the 4NC with other similar projects will be conducted regularly to strengthen the synergy between the activities and evaluate the progress. A full-time project coordinator will be hired to carry out the project management which will be based at the DGCC.

[1] The 3BUR will be developed and submitted using state budget since this project will not be able to catch up on the expected date of submission

D. DESCRIBE, IF POSSIBLE, THE EXPECTED COST-EFFECTIVENESS OF THE PROJECT

Cost-effectiveness will be realized by aligning the project with other ongoing activities and benefit from synergies in collaborating with these initiatives. Other projects which are relevant to the 4NC include the following:

1. APIK is an adaptation project supported by the USAID focusing on the integration of the climate change adaptation (CCA) with the Disaster Risk Reduction (DRR) into national and sub-national governance framework and on the enhancement of capacity of local communities and the private sectors to address climate change and weather related natural hazards.
2. Development of Climate Resilience Index supported by GIZ
3. FCPF (Forest Carbon Partnership Facilities) supported by the World Bank focusing on the development of capacity of provincial government in the implementation of sub-national REDD+ as well as Governors Climate Forest Task Force (GCF) supported by the Norway Government focusing on the improvement of provincial governments in the implementation of REDD+
4. CBIT (Capacity-Building Initiative for Transparency) is a capacity building project being proposed by the Directorate General Climate Change, Ministry of Environment and Forestry to be financed by the GEF as describe above The implementation of the 4NC/4BUR will be aligned with the Capacity-building Initiative for Transparency (CBIT), another project activity proposed to GEF by the Directorate General of Climate Change (DGCC), the Ministry of Environment and Forestry. As decided in the COP21, the CBIT aims to (i) strengthen national institutions for transparency-related activities in line with national priorities; (ii) provide relevant tools, training and assistance for meeting the provisions stipulated in Article 13 of the Agreement; and (iii) assist in the improvement of transparency over time. The activities proposed under the CBIT consist of four components, namely (i) national institutions strengthening for climate transparency, (ii) development and establishment of robust system for GHG Inventory to MRV emissions in compliance with PA, (iii) strengthening NDC implementation and tracking progress, and (iv) gender equality, knowledge sharing, regional network, monitoring and public awareness. In aligning activities under CBIT component 1 and 2 with the activities under 4NC component A1 and A2, the focus of the implementation of the activities for the CBIT will be at national level (sectoral ministries), while the 4NC will be at local level (provincial and district governments) and non-Party Stakeholders (NPS). A similar approach was taken with regard to the component 3 of the CBIT on the tracking progress (Component 3) and sub-components C2 and C3 of 4NC on measuring impact of mitigation policies and measures. The CBIT will focus on the strengthening the capacity at sectoral ministries while 4NC will be focused on the non-party stakeholders.

From previous National Communication projects, it was found that the sustainability of the results of these projects was likely. E.g. the Third National Communication project was rated to have a likely financial sustainability, a likely socio-economic sustainability and a likely institutional sustainability. Comments in this respect referred to that fact that the MoEF had taken a clear leadership role on climate change issues and that it's well manned by knowledgeable technical staff and excellent managers. Also, the MoEF can manage to bring around the table most other concerned Ministries which are relevant to the National Communications process.

The 4NC project will build on the results of previous projects and will continue to work on the basis of similar institutional strengths, socio-economic commitment in the country and financial commitment of the government of Indonesia. It is therefore expected to be able to continue the likely sustainability of results of the 4NC project and to help Indonesia report to the Convention and the Paris Agreement on a continuous basis.

Successful implementation of the 4NC will ensure the sustainability of the production of national communications and BURs and also provide opportunity to accelerate the human resource development program for climate change. Availability of more trained personnel in developing GHG inventory, mitigation and adaptation can accelerate the implementation of capacity building programs across line ministries, local governments and non-Party actors. In addition, institutional innovation generated by the project from the pilots related to improvement of data collection process and management as well as data sharing across divisions in charge for the implementation of climate change programs, can be adopted by other institutions at national and local level. This accelerates the scaling up process.

E. DESCRIBE, DESCRIBE THE BUDGETED M & E PLAN

Project-level monitoring and evaluation will be undertaken in compliance with UNDP requirements as outlined in the [UNDP POPP](#) and [UNDP Evaluation Policy](#). The UNDP Country Office is responsible for ensuring full compliance with all UNDP project monitoring, quality assurance, risk management, and evaluation requirements.

Additional mandatory GEF-specific M&E requirements will be undertaken in accordance with the [GEF Monitoring Policy](#) and the [GEF Evaluation Policy](#) and other [relevant GEF policies](#)^[1]. An M&E plan will guide the GEF-specific M&E activities to be undertaken by this project.

In addition to these mandatory UNDP and GEF M&E requirements, other M&E activities deemed necessary to support project-level adaptive management will be agreed during the Project Inception Workshop and will be detailed in the Inception Report.

Additional GEF monitoring and reporting requirements:

Inception Workshop and Report: A project inception workshop will be held within 60 days of project CEO endorsement, with the aim to:

- a. Familiarize key stakeholders with the detailed project strategy and discuss any changes that may have taken place in the overall context since the project idea was initially conceptualized that may influence its strategy and implementation.
- b. Discuss the roles and responsibilities of the project team, including reporting lines, stakeholder engagement strategies and conflict resolution mechanisms.
- c. Review the results framework and monitoring plan.
- d. Discuss reporting, monitoring and evaluation roles and responsibilities and finalize the M&E budget; identify national/regional institutes to be involved in project-level M&E; discuss the role of the GEF OFP and other stakeholders in project-level M&E.
- e. Update and review responsibilities for monitoring project strategies, including the risk log; SESP report, Social and Environmental Management Framework and other safeguard requirements; project grievance mechanisms; gender strategy; knowledge management strategy, and other relevant management strategies.
- f. Review financial reporting procedures and budget monitoring and other mandatory requirements and agree on the arrangements for the annual audit.
- g. Plan and schedule Project Board meetings and finalize the first-year annual work plan.
- h. Formally launch the Project.

GEF Project Implementation Report (PIR):

The annual GEF PIR covering the reporting period July (previous year) to June (current year) will be completed for each year of project implementation. Any environmental and social risks and related management plans will be monitored regularly, and progress will be reported in the PIR. The PIR submitted to the GEF will be shared with the Project Board. The quality rating of the previous year's PIR will be used to inform the preparation of the subsequent PIR.

Knowledge management: The project team will ensure extraction and dissemination of lessons learned and good practices to enable adaptive management and upscaling or replication at local and global scales. Results will be disseminated to targeted audiences through relevant information sharing fora and networks. The project will contribute to scientific, policy-based and/or any other networks as appropriate (e.g. by providing content, and/or enabling participation of stakeholders/beneficiaries).

As part of the knowledge management, the 4NC communicates and disseminates a significant amount of information and knowledge related to climate change: GHG inventory; assessment of the impacts, vulnerability and adaptation policies and measures; GHG mitigation policies and measures; and national circumstances and other relevant information. This includes the activities related to workshops, training, FGD, interviews, or tools such as protocol for

collecting activity data emission factor, QA/QC or impact and vulnerability assessment may become a contribution to safeguarding the global climate. The knowledge gained from this project will be key in informing future programming, beyond the life of this project. Component E Publications and dissemination of the 4NC will specifically address knowledge management, presentation, publication, communication, and awareness-raising information contained in 4NC.

Independent Mid-term Review (MTR):

The terms of reference, the review process and the final MTR report will follow the standard templates and guidance prepared by the UNDP IEO for GEF-financed projects available on the [UNDP Evaluation Resource Center](#) (ERC).

The evaluation will be 'independent, impartial and rigorous'. The consultants that will be hired by UNDP evaluation specialists to undertake the assignment will be independent from organizations that were involved in designing, executing or advising on the project to be evaluated. Equally, the consultants should not be in a position where there may be the possibility of future contracts regarding the project under review.

The GEF Operational Focal Point and other stakeholders will be actively involved and consulted during the evaluation process. Additional quality assurance support is available from the UNDP-GEF Directorate.

The final MTR report and MTR TOR will be publicly available in English and will be posted on the UNDP ERC. A management response to MTR recommendations will be posted in the ERC within six weeks of the MTR report's completion.

Terminal Evaluation (TE):

An independent terminal evaluation (TE) will take place upon completion of all major project outputs and activities. The terms of reference, the evaluation process and the final TE report will follow the standard templates and guidance prepared by the UNDP IEO for GEF-financed projects available on the [UNDP Evaluation Resource Center](#).

The evaluation will be 'independent, impartial and rigorous'. The consultants that will be hired by UNDP evaluation specialists to undertake the assignment will be independent from organizations that were involved in designing, executing or advising on the project to be evaluated. Equally, the consultants should not be in a position where there may be the possibility of future contracts regarding the project being evaluated.

The GEF Operational Focal Point and other stakeholders will be actively involved and consulted during the terminal evaluation process. Additional quality assurance support is available from the UNDP-GEF Directorate.

The final TE report and TE TOR will be publicly available in English and posted on the UNDP ERC by *(add date)*. A management response to the TE recommendations will be posted to the ERC within six weeks of the TE report's completion.

Final Report:

The project's terminal GEF PIR along with the terminal evaluation (TE) report and corresponding management response will serve as the final project report package. The final project report package shall be discussed with the Project Board during an end-of-project review meeting to discuss lesson learned and opportunities for scaling up.

Agreement on intellectual property rights and use of logo on the project's deliverables and disclosure of information: To accord proper acknowledgement to the GEF for providing grant funding, the GEF logo will appear together with the UNDP logo on all promotional materials, other written materials like publications developed by the project, and project hardware. Any citation on publications regarding projects funded by the GEF will also accord proper acknowledgement to the GEF. Information will be disclosed in accordance with relevant policies notably the UNDP Disclosure Policy^[1] and the GEF policy on public involvement^[2].

[1] See http://www.undp.org/content/undp/en/home/operations/transparency/information_disclosurepolicy/

[2] See https://www.thegef.org/gef/policies_guidelines

[1] See https://www.thegef.org/gef/policies_guidelines

F. EXPLAIN THE DEVIATIONS FROM TYPICAL COST RANGES (WHERE APPLICABLE)

N/A

Part III: Approval/Endorsement By GEF Operational Focal Point(S) And Gef Agency(ies)

A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S): (Please attach the Operational Focal Point endorsement letter with this template).

Name	Position	Ministry	Date
Laksmi Dhewanthi	GEF Operational Focal Point, Senior Advisor to the Minister for Industry and International Trade,	Ministry of Environment and Forestry	10/9/2019

B. Convention Participation

Convention	Date of Ratification/Accession	National Focal Point
UNFCCC	8/23/1994	Mr. Ruandha Agung Sugardiman, Director General