



SUMMARY

NATIONALLY DETERMINED CONTRIBUTION (NDC) AND ITS PROGRESS OF IMPLEMENTATION



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I. FOREWORD

Nationally Determined Contribution (NDC) is an essential part of the Paris Agreement, that contains a nation's commitment under the United Nations Framework Convention on Climate Change/ (UNFCCC).

As a follow up to the Indonesia's commitment delivered by the President of Republic of Indonesia at COP-21, Indonesia has ratified the Paris Agreement by Act No. 16 year 2016 on 24th October 2016. In the conjunction of the COP 22 UNFCCC, , Indonesia submitted the Nationally Determined Contribution (NDC) document to the UNFCCC Secretariat, which is an elaboration of and replacing the Intended Nationally Determined Contribution (INDC) document which was submitted to the UNFCCC Secretariat before COP-21.

In accordance with the mandate of the 1945 Constitution, everyone is entitled to a decent and healthy life. The Paris Agreement commitment, therefore, is in accordance with the constitutional mandate. The NDC implementation, which is a part of the Paris Agreement implementation, need to be reported to the UNFCCC Secretariat. This implementation of NDC is in line with NAWACITA (National Development Agenda) which mandated to intensify international cooperation in global problems including climate change. Additionally, Nawacita also mandated to assure that the issue of climate change will not only be an environmental issue but also a national economy issue

This booklet contains a summary of NDC and its progress has been achieved and that have been collected by the Ministry of Environment and Forestry as a UNFCCC National Focal Point (NFP).

Jakarta, July 2017
Minister of Environment
and Forestry

Dr. Siti Nurbaya

II. PARIS AGREEMENT, NDC AND ITS IMPLEMENTATION

Paris Agreement Main Content



PARIS2015
UN CLIMATE CHANGE CONFERENCE
COP21·CMP11

Obligation of each Country to deliver increasing GHG emission reduction contribution through the NDC for every period, and developing countries need to be supported to intensify that ambition (Article 3).

Commitment of the Parties to undertake GHG emission reduction efforts as soon as possible through mitigation actions (Article 4).

Policy approaches and positive incentives for forest sector mitigation activities including REDD+ results based payments (Article 5).

Develop voluntary mitigation cooperation between countries, including through market and non-market mechanisms (Article 6).

Establish global adaptation goals that require international support and cooperation, specifically for developing countries (Article 7).

Recognizing the importance of minimizing and addressing loss and damage associated with the adverse effects of climate change (Article 8).

Obligation of developed countries to provide financial resources to assist developing countries in implementing mitigation-adaptation. Furthermore, other parties may also voluntarily provide support (Article 9).

Improve cooperation action of all countries in developing and transferring technology (Article 10).

The need for cooperation between Parties and obligation of developed countries to strengthen support for capacity building of developing countries (Article 11).

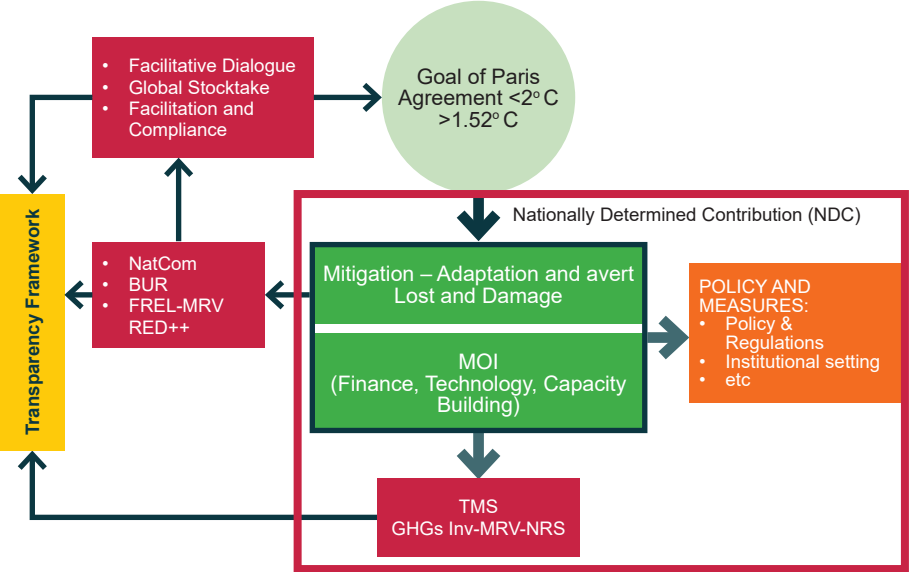
Cooperation of Parties in efforts to strengthen education, training, public awareness, public participation, and public access to information on climate change (Article 12).

Establish and implement transparency framework that is built upon an already existing one under the Convention, covering actions and support with flexibility for developing countries (Article 13).

Periodically take stock of PA implementation to assess the collective progress, starting from 2023 and every five years thereafter (Article 14).

Establish a mechanism to facilitate implementation and promote compliance of the Paris Agreement (Article 15).

Paris Agreement-NDC and Its Implementation in the Global and National Context



A.STRUKTUR NDC

The NDC structure is flexible for all Parties, however it must describe an ambitious GHG emission reduction contribution by 2030 and keep the principle of no-backsliding.



In English and Bahasa Indonesia can be accessed through:
<http://www.ditjenppi.menlhk.go.id>

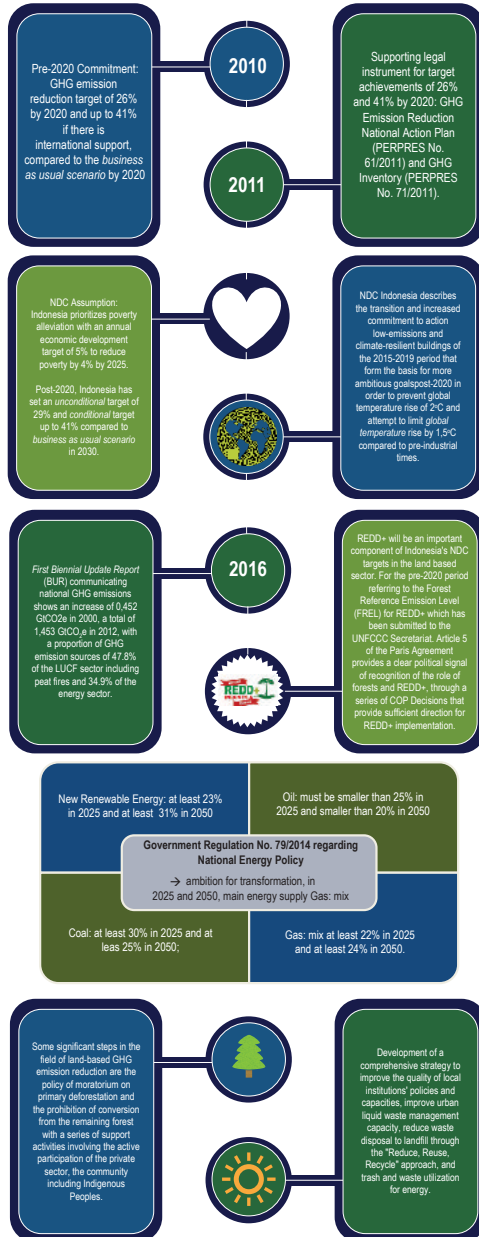


A.1. NATIONAL CONTEXT

Indonesia has set forth its national conditions as contained in the following Graphic.

National Context

One of the mandates of the 1945 Constitution is "everyone is entitled to a decent and healthy life".
Nawa Cita encompasses 9 (nine) development priority actions that is in line with the national commitment leading to low carbon development and climate resilience, with climate change adaptation and mitigation as one of the priorities that is integrated and cross sectoral in Mid Term National Development Plan.



A.2.MITIGATION

The baseline and assumptions used for the 2020-2030 policy projection, BAU and emission reduction projected for GHG emission reduction for *unconditional* (CM1) and *conditional* (CM2) with both scenario's assumptions have been indicated in the following Table and Graphic.

No	Sektor	Tingkat Emisi GRK 2010	Tingkat Emisi GRK 2030			Penurunan Emisi GRK				Rerata Pertumbuhan Tahunan BAU (2010-2030)	Rerata Pertumbuhan 2000-2012*
			(MTon CO ₂ e)			(MTon CO ₂ e)		% of Total BAU			
			MTon CO ₂ e	BaU	CM1	CM2	CM1	CM2	CM1		
1	Energi*	453.2	1,669	1,355	1,271	314	398	11%	14%	6.7%	4.50%
2	Limbah	88	296	285	270	11	26	0.38%	1%	6.3%	4.00%
3	IPPU	36	69.6	66.85	66.35	2.75	3.25	0.10%	0.11%	3.4%	0.10%
4	Pertanian	110.5	119.66	110.39	115.86	9	4	0.32%	0.13%	0.4%	1.30%
5	Kehutanan**	647	714	217	64	497	650	17.2%	23%	0.5%	2.70%
TOTAL		1,334	2,869	2,034	1,787	834	1,081	29%	38%	3.9%	3.20%

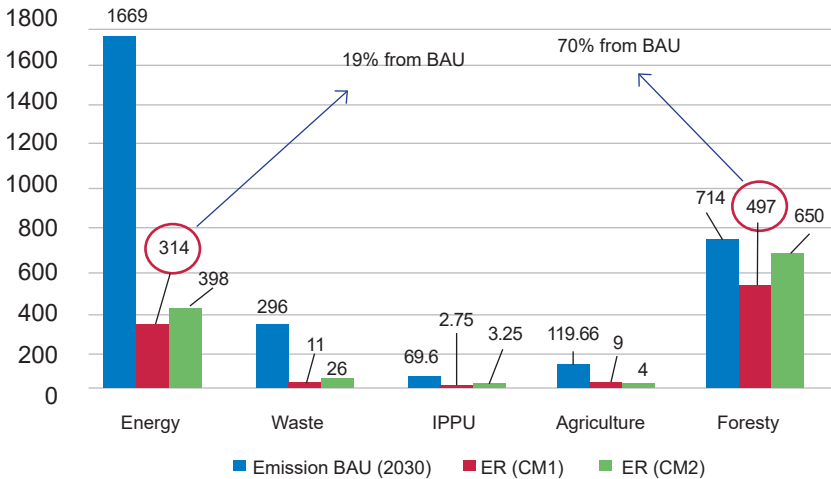
* Termasuk fugitive

**Termasuk kebakaran gambut

Notes: **CM1= Counter Measure 1** (kondisi skenario tanpa persyaratan mitigasi-unconditional)

CM2= Counter Measure 2 (kondisi skenario dengan persyaratan mitigasi-conditional)

BAU SECTOR AND MITIGATION SCENARIO (CM) 1 & 2 IN Million CO₂e AND %



Assumptions Summary that is used in the scenario

Energy



- Final Energy Utilization Efficiency (75% implemented)
- *Clean Coal technology* - CCT Utilization (75% implemented)
- EBT Electricity Production (in accordance with RUPTL)
- Biofuel usage - BBN (Mandatory B30) in Transportation Sector (90% implemented)
- Gas Networks Addition (100% implemented)
- Gas Fuel Refilling Station Addition - SPBG (100 & implemented)

Forestry



- Reduce Deforestation* (< 0,45 ha-0,325 Mha/year by 2030)
- Increased application of sustainable forest management principle, in natural forests (degradation reduction) as well as planted forests*
- Rehabilitation of 12 juta ha degraded land by 2030 or 800,000 ha/year with a 90% survival rate
- Restoration of 2 million ha peatland by 2030 with a 90% success rate

Note: * under the same REDD+ scheme

Agriculture



- Usage of low emission variety in planting fields
- Practice of water efficient field irrigation system
- Utilization of cattle waste for biogas
- Improved feed supplements

Waste



- Solid waste
- Liquid waste industry (qualitative target yet to be determined by Ministry of Industry and MoEF)
- Domestic liquid waste (qualitative target yet to be determined by Ministry of Public Works and Ministry of Health)
- Increase usage of *landfill* gas (LPG) recovery from 2010-2030 in managing *landfills*
- Increase percentage of trash utilization through composting and 3R (paper)
- Increase percentage of PLTSa/RDF (*Refuse Derived Fuel*), compared to total trash pile

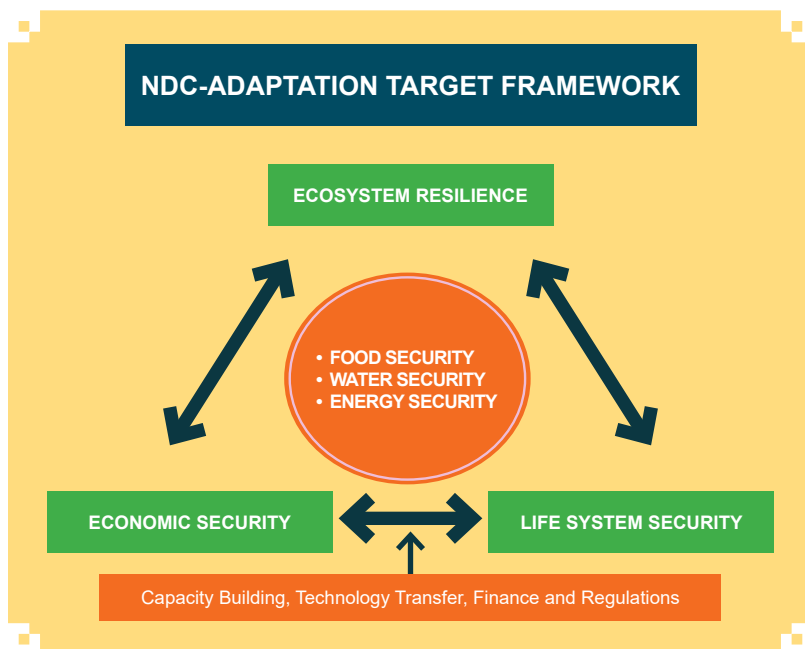
IPPU-Industrial Processes and Product Use



- Cement industry implement mitigation action through reduction of "*dinker to cement ratio*" (blended cement) from 80% in 2010 to 75% in 2030
- Increase efficiency of ammonia industry through optimization of natural gas utilization (*feedstock*) and CO₂ *recovery* on *Primary Reformer*
- Additional other mitigation actions such as CO₂ *recovery, improvement process on smelter*, and utilization of scrap metal from industrial iron and steel and remaining IPPU claim (PFGs) and CDM *aluminium smelter*

A.3. ADAPTATION

Climate change adaptation focuses on improving economic, social and livelihood resilience as well as ecosystems and landscapes with priority in the affected sectors of food, water and energy.



Indonesia's medium term goal of climate change adaptation strategy is to reduce risks to all sectors of development (agriculture, water, energy security, forestry, marine and fisheries, health, public services, infrastructure and urban systems) by 2030 through strengthening local capacity, knowledge management, the convergence of climate change adaptation and disaster risk reduction (API-PRB) policies as well as the adoption of adaptive technologies.

The MoEF Regulation No. P.33/2016 on National and Provincial Adaptation Action Procedures has been issued to support this effort, which provides guidance on integrating adaptation into development planning. This Ministerial Regulation is also one of the guidelines in preparing the *National Adaptation Plan* (NAP) as mandated by the Climate Change Convention. Previously, Indonesia had also prepared a Climate Change Adaptation National Action Plan (RAN-API) in 2014.

A.4. MEANS OF IMPLEMENTATIONS (MoI)

In accordance with the *Paris Agreement* mandate, the commitment of developing countries in climate change needs to be supported through funding, capacity building and technology transfer provided by the international community, for the pre- and post-2029 period.

A.5. TRANSPARENCY FRAMEWORK

As part of the *Paris Agreement* Article 13 implementation, a National Registry System (SRN) has been developed that is complemented by several related systems: National GHG Inventory System (SIGN- SMART), MRV System for mitigation including REDD+, Safeguards Information System for REDD+ (SIS-REDD+), Vulnerability System Information and Data Index, and adaptation-mitigation combined action at the local level through Climate Village Program (PROKLIM).

III. NDC IMPLEMENTATION STRATEGY

The binding commitments set forth in the NDC are new to developing countries including Indonesia. Therefore, there is a need to develop a strategy in its implementation which will be suitable for each country. The NDC implementation strategy contains 9 (nine) programs which covered the preparation phase to the final stage including review and adjustment of NDC. The nine programs are stipulated in the following Chart.

I. OWNERSHIP AND COMMITMENT DEVELOPMENT	<ul style="list-style-type: none"> Ministry/Local Government & Private Institutions, Civil Societies, Financial Institutions
II. CAPACITY BUILDING	<ul style="list-style-type: none"> HR institutional and capacity (elaboration of NDC sector and area, KRP, IGHG, MRV, SRN NDC Implementation)
III. ENABLING ENVIRONMENT	<ul style="list-style-type: none"> Related legislation and policy (Law No. 16/2016 on Paris Agreement Ratification, Gov.Reg. No.46/2016 on KLHS, etc.)
IV. PREPARING FRAMEWORK AND COMMUNICATION NETWORK	<ul style="list-style-type: none"> Coordination and synergy between sectors and areas as well as actors/practitioners
V. ONE GHG DATA POLICY	<ul style="list-style-type: none"> SIGN-SMART : national GHG data inventory SRN (including MRV) : Mitigation, Adaptation action, JMA and Mol (funding, technology, capacity building)
VI. PREPARING INTERVENTION POLICY, PLAN AND PROGRAM (KRP)	<ul style="list-style-type: none"> NDC alignment with development planning in 5 sector categories of sectoral and regional mitigation and adaptation > to ensure budgeting (APBN-APBD) and mobilization of domestic and international resources
VII. PREPARING NDC IMPLEMENTATION UIDELIN	<ul style="list-style-type: none"> Guideline for National and regional (planning, implementation, MRV and NDC review);
VIII. NDC IMPLEMENTATION	<ul style="list-style-type: none"> Based on KRP results preparation as well as NDC implementation plan Coordination with MoEF (related to emission reduction targets and GOI policy) and BAPPENAS (related to national development).
IX. NDC MONITORING AND REVIEW	<ul style="list-style-type: none"> NDC implementation progress monitoring Nearing 2020 an NDC review and adjustment will be conducted if needed (no backsliding)

IV. PROGRESS OF NDC IMPLEMENTATION

The GHG emission reduction target in *unconditional* (CM1) NDC has been followed up by the Ministries by translating it into a mitigation action plan and developing an institutional and mechanism reporting aspect.

A. MITIGATION

Through a series of meetings including an NDC *Kick Off: Translating NDC into Actions* that was conducted on 27th April 2017 in Jakarta, discussions progress regarding NDC has been identified at each Ministry/Agency and related institutions including the private sector and civil society

A.1. FORESTRY SECTOR

The emission reduction target by 2030: 497 million tons of CO₂e from a total GHG emission reduction of 834 million tons of CO₂e.

Mitigation Action	Progress	Responsible institution
Reducing deforestation (< 0,45 ha- 0,325 million ha per year by 2030)	Protecting conservation areas, utilizing ecosystem services,	MoEF
Increasing implementation of sustainable management principles on natural forests and timber plantation/ HTI (reducing degradation)	1. Increase timber production from HTI, to reduce pressure on natural forests 2. Management of ecosystem restoration concessions, incentive system mechanism plan 3. Implement RIL-C, regulation preparation, monitoring mechanism	MoEF, private sector
Rehabilitation of degraded lands 12 million Ha by 2030 or 800 000 ha per year with 90 % survival rate	Rehabilitation of land with 1,1 million Ha area that involves all stakeholders including Ministry/ Agency and local government	MoEF
Peat restoration of 2 million ha by 2030 with 90 % success rate	1. Peat restoration 2. Implement RIL-C peat Rehabilitation in HTI 1 million Ha	MoEF, Peat Restoration Agency /BRG

To support the above mitigation efforts, the involvement of all stakeholders is required.

One of the programs that is expected to ensure the achievement of a reduction in deforestation rates is the REDD+ program and the control of forest and land fires.

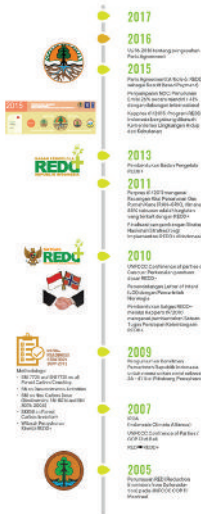
REDD+ IMPLEMENTATION

As a country with natural forests of 113.2 million hectares in 1990 and continues to decline to 91.7 million hectares in 2012 resulting in significant emissions from the forestry sector, efforts to reduce emissions from deforestation and forest degradation are critical to Indonesia. REDD+ is one of the climate change mitigation actions in the forestry sector, and is a policy approach and positive incentive mechanism for reducing emissions from deforestation and forest degradation, the role of conservation, sustainable forest management and carbon stock enhancement.

One of the climate change mitigation actions based on land (LULUCF), REDD+ plays an important role in achieving the national target in NDC, specifically from the forestry sector. REDD+ development in Indonesia has started since the inception of this mechanism (before UNFCCC COP13 in Bali), and Indonesia from time to time are progressing and implements REDD+ *readiness preparation*. The progress leading to REDD+ implementation readiness has been achieved by Indonesia from several REDD+ architectural aspects, from the REDD+ strategy, *Forest Reference Emission Level* (FREL), REDD+ *safeguards* and safeguards information system (SIS), funding mechanisms, to institutional, capacity strengthening, awareness raising aspects.

SEJARAH REDD+ INDONESIA 2005 - 2017

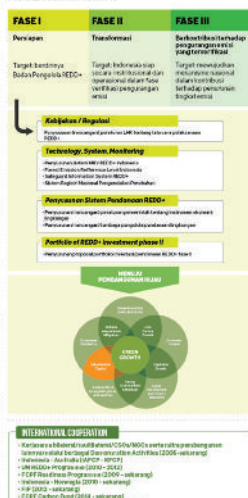
Timeline sejarah proses REDD+ di Indonesia



REDD+

Mengapa kita perlu REDD+? Untuk mencapai tujuan pembangunan berkelanjutan yang berkaitan: **Pemertanian** **emisi** harus sejalan dengan tujuan pembangunan hijau yang dapat meningkatkan masyarakat dan kesejahteraan **kelestarian** hayati dan jasa ekosistem.

FASE REDD+



TUJUAN REDD+

Emisi rendah dan pengembangan ketahanan iklim

Negosiasi di internasional meningkatkan tingkat keadilan dalam fokus pada pemertanian tinggi target, dengan memberikan insentif.



Pendekatan Lintas Sektor di Mungkut, agar pemertanian REDD+ berhasil, perlu keterkaitan, maka pendekatan ini akan lebih baik.

Peningkatan multibak penting, agar pemertanian REDD+ berhasil, maka pendekatan ini akan lebih baik.

Integrasi Di dalam Tata Kelola, agar pemertanian REDD+ berhasil, maka pendekatan ini akan lebih baik.

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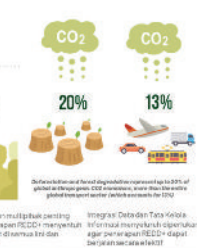
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Forest Reference Emission Level (FREL)

FREL is an important part of the REDD+ implementation in developing countries, including Indonesia. Before the national process, FREL has been discussed in a series of COP negotiations.

Milestones Forest Reference Emission Level dalam negosiasi UNFCCC

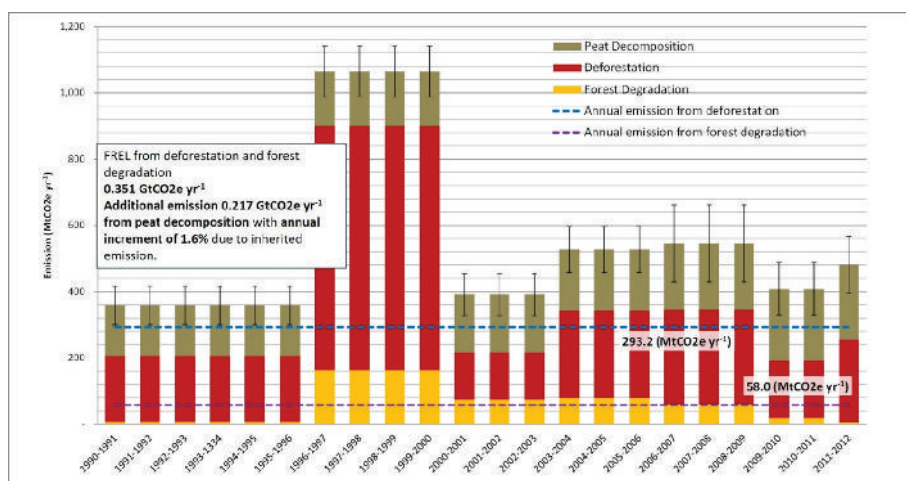
COP 13 Bali	<ul style="list-style-type: none">Rencana Aksi Bali (<i>Bali Action Plan</i>) → peta jalan (<i>road-map</i>) negosiasi strategi iklim global untuk melanjutkan Protokol Kyoto (KP).Bali Action Plan, mengakui peran hutan dalam mengatasi perubahan iklim dan besarnya potensi yang terkandung dalam REDD. Memformulasikan insentif positif dan istilah REDD+.
COP 16 Cancun	<ul style="list-style-type: none">5 aktivitas REDD+, mencakup (a) pengurangan emisi dari deforestasi; (b) pengurangan emisi dari degradasi hutan; (c) Konservasi hutan dan karbon hutan; (d) pengelolaan hutan lestari; dan (e) peningkatan/penambahan karbon hutan/stock;4 elemen utama REDD+, yaitu (i) Strategi Nasional (StraNas) REDD+; (b) Tingkat Rujukan Emisi Hutan (FREL); (c) Sistem Pemantauan Hutan Nasional (National Forest Monitoring System/NFMS); dan (d) Sistem Informasi terkait Safeguards.
COP 17 Durban	<ul style="list-style-type: none">Mengulang undangan COP kepada negara-negara berkembang untuk pengajuan FREL (FREL submission) dengan mengusulkan metodologi tertentu (sesuai IPCC guideline)Meminta SBSTA untuk mengembangkan pedoman prosedur teknis penilaian FREL/FRL dalam bentuk Technical Assessment atau review terhadap FREL yang telah disubmit.
COP 19 Warsaw	<ul style="list-style-type: none">Aturan terkait pengukuran, pelaporan dan verifikasi (MRV) kegiatan REDD+.Lampiran teknis dari Laporan Dua Tahunan (BUR) yang disampaikan secara sukarela oleh negara berkembang dalam kaitannya dengan pembayaran berbasis kinerja (results based payments) akan dinilai melalui proses analisis konsultasi internasional (<i>International Consultation Analysis</i>).

Important points related to FREL in climate change negotiations at UNFCCC

The process of developing FREL for REDD+ in Indonesia has started since 2011. FREL was established as a *benchmark* for measuring and evaluating emission reduction performance from deforestation and forest degradation, and serve as a basis for performance based payment as a result of REDD+ activities. Indonesian national FREL has been submitted to the UNFCCC Secretariat on December 2015 (<http://redd.unfccc.int/submissions.html?country=idn> or <http://ditjenppi.menlhk.go.id/berita-ppi/2655-tingkat-emisi-rujukan-deforestasi-dan-degradasi-hutan-frel>) and has been assessed through the *Technical Assessment* process by the UNFCCC experts team from February to November 2016 (<http://unfccc.int/resource/docs/2016/tar/idn.pdf>).

Principle Transparent, Accurate, Consistent, Complete	Scale/Scope National level All area (peat-non peat) that was forested in 1990	Reference Method IPCC Guideline 2006; Step-wise approach	Reference Period 1990-2012 (1990, 1996, 2000, 2003, 2006, 2009, 2011, 2012)	Submission by Indonesia NATIONAL FOREST REFERENCE EMISSION LEVEL FOR DEFORESTATION AND FOREST DEGRADATION In the Context of Decision 1/CP.16 para 70 UNFCCC (Developing country Parties contribute to mitigation actions in the forest sector) Not Technical Assessment by UNFCCC (The document has been revised after external assessment by UNFCCC)
Calculation Method Historic emissions (mean); Stock-Difference	Activities Deforestation, degradation, Plus peat decomposition	Base Data Land cover maps (MoEF) Peat land maps (MoA)	Land Cover Classification 23 classes with 6 natural forest classes	
Carbon Pool AGB; Soil carbon specific for peat decomposition	Emission Factor National Forest Inventory, IPCC (soil carbon), related research	Focus Gross Deforestation	Annex Fire emission	

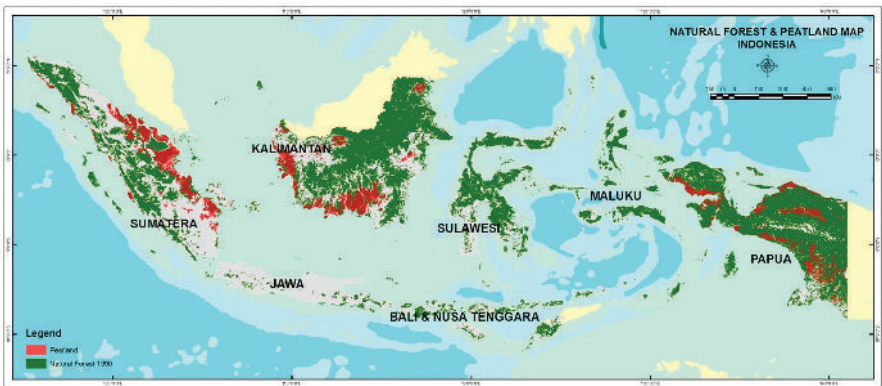
Important issues related to FREL Indonesia formation



The result of the annual FREL – Emission and average historical deforestation and forest degradation, as well as peat decomposition as the effect of forest deforestation and degradation in peat lands (in MtCO_2e per year) in Indonesia from 1990 until 2012.

For the implementation phase of *Result Based Payment for REDD+*, it is necessary to determine FREL area that encompasses “All areas (both mineral land and peat lands) that are closed by natural forest in 1990, with an area of 113.2 million ha or 60% of country land. This area includes primary natural forests and secondary natural forests,

regardless of area status determined by the Ministry of Forestry". This FREL region becomes the basis for all actions related to REDD+ activities in Indonesia.

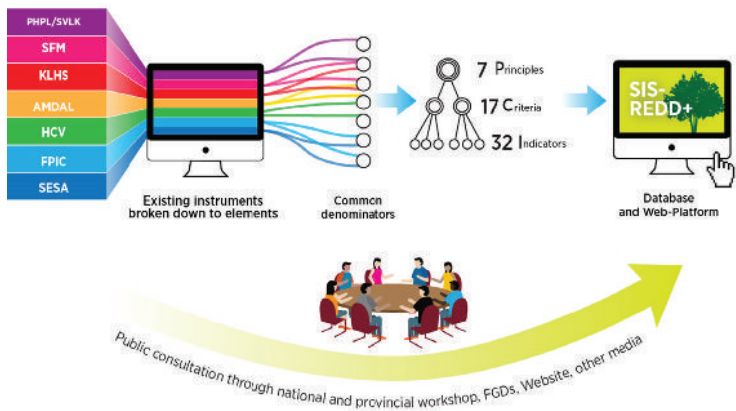


Coverage Area
in FREL

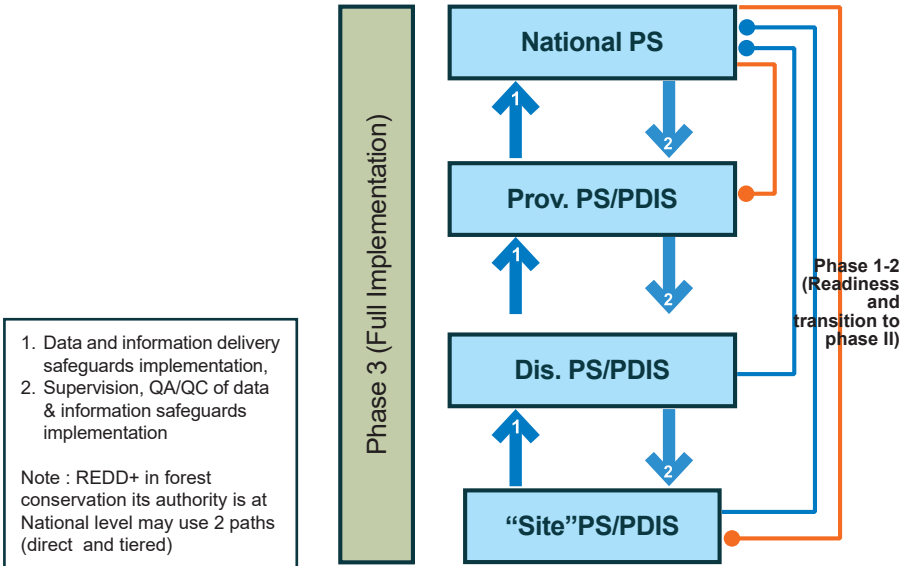
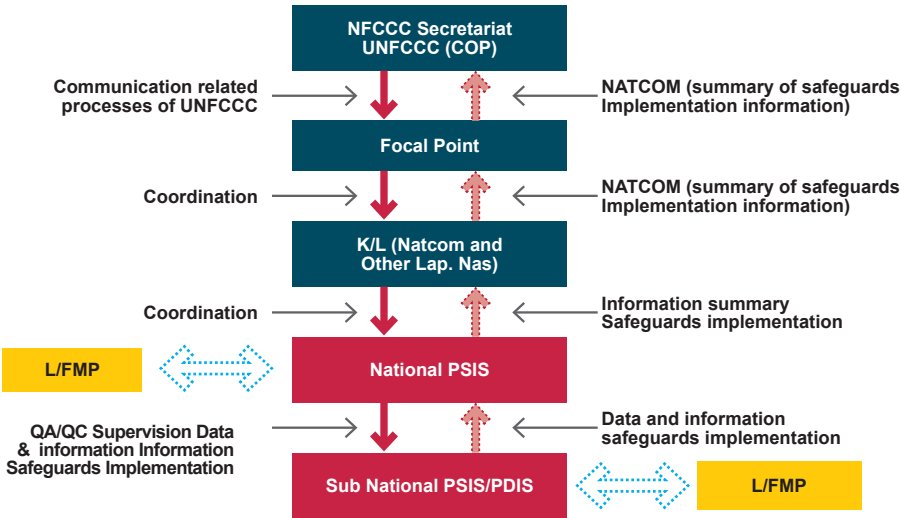
All areas (both in mineral and peat soils), which were covered in natural forests in 1990, were recorded at 113.2 Mha or 60% of the country's total area. This area includes primary natural forests and secondary natural forests, regardless of the status of areas designated by the MoEF

Safeguards Information System for REDD+ (SIS-REDD+) :

In order to translate the UNFCCC COP decision on REDD+ safeguards to national context, since 2011 Indonesia has developed a Safeguards Information Systems (SIS) for REDD+. The system that provides information on how the Cancun REDD+ safeguards are addressed and respected is developed through a series of multi-stakeholders processes.

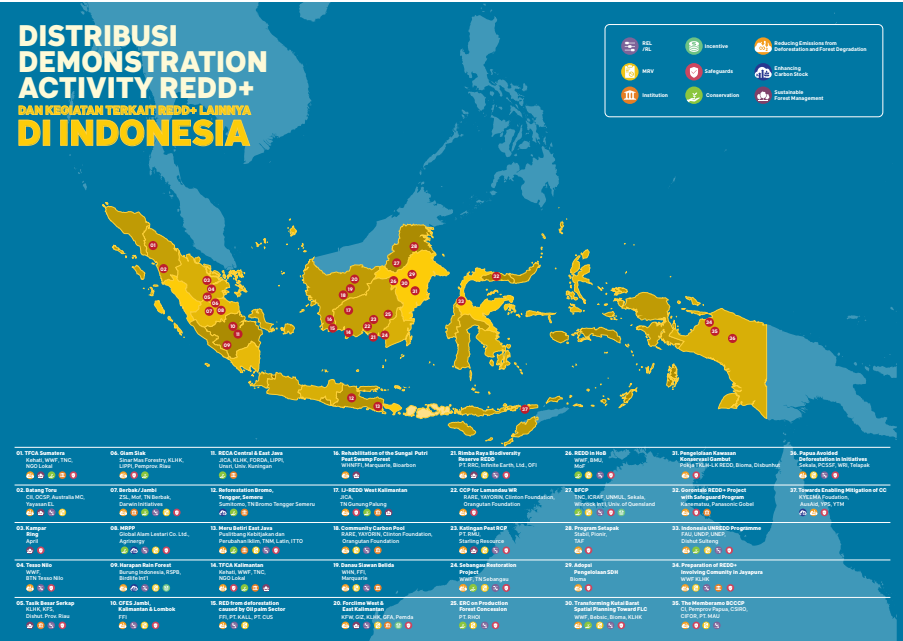


For SIS-REDD+ operations, an institutional structure design has been designed, which is in accordance with the information provision flow of REDD+ safeguards implementation that is in line with the reporting system at the UNFCCC Secretariat.



Demonstration Activities/pilot/project/activities related to REDD+ in Indonesia :

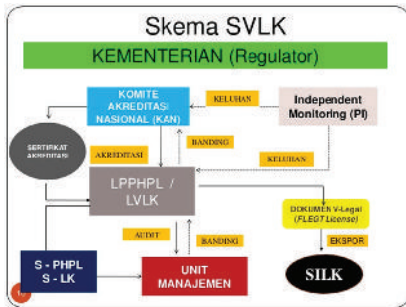
A number of Demonstration Activities/pilots/projects/activities related to REDD+ have been established since 2008 in Indonesia, initiated by various stakeholders, and involve cooperation among stakeholders including with the support of development partners (international partners). These various initiatives contribute lessons learned for the preparation of REDD+ implementation in Indonesia, in terms of both technical, methodology and in capacity building.



Demonstration Activities/pilot/project/activities related to REDD+ in Indonesia (from various sources)

Sustainable Forest Management (SFM) – FLEGT License

Strengthening of law enforcement to combat *illegal logging* and improved forest governance are two of the many efforts undertaken by Indonesia as part of the country's commitment in reducing deforestation and forest degradation. To complement these *law enforcement* efforts, Indonesia developed SVLK (Timber Legality Verification Assurance System/TLAS) through a comprehensive multi stakeholder process since 2003, since the start of the FLEGT-VPA agreement. SVLK provides incentives for timber legality through promoting market access for verifiable legal products and blocking the market of illegal products. SVLK also promotes broader governance reforms, including better information, increased transparency, capacity and community rights.



As part of the Forest Law Enforcement and Governance and Trade Agreement for Forest Products (FLEGT-VPA) between Indonesia and the European Union, starting September 2016 the EU opened a market for Indonesian timber that has obtained a legal timber export license. It has been agreed by Indonesia and the European Union that starting November 15, 2016, Indonesia issues FLEGT License on verified legal products exported to the EU. With this decision, Indonesia became the first country in the world to achieve FLEGT License, thereby strengthening Indonesia's commitment to contribute to global efforts to combat illegal logging and illegal timber trade.

The FLEGT-VPA Agreement involves four Ministries, namely the Ministry of Foreign Affairs, the Ministry of Environment and Forestry, the Ministry of Commerce, and the Ministry of Industry.



Source: MFP3

By providing market incentives for sustainable timber products, SVLK is consistent with the REDD+ approach mechanism, which encourages and provides economic incentives for the implementation of sustainable forest management in order to reduce GHG emissions from forestry.

Peat Rehabilitation and Restoration

Peat rehabilitation and restoration activities in Indonesia are part of an area of activity undertaken in order to achieve a reduction in net emissions in the forestry sector, according to the targets set out in the NDC. As part of this effort, since 2014 the Government of Indonesia has undertaken policy reforms related to peat ecosystem, Government Regulations on peat followed by the establishment of several EF Ministerial Regulations for



Source: MRPP, Forclime

the management of peat ecosystems, including restoration activities. In addition to the policy and regulatory framework, the Government has also improved the involvement of local communities in forest management planning, land rehabilitation and peat restoration, including recognition of customary rights and land allocation for communities living in and around forests.

IMPLEMENTASI PROGRAM PENGENDALIAN KARHUTLA

Emission reduction by 2030: 497 million tons of CO₂e through mitigation actions such as REDD+, forest and land rehabilitation as well as restoration of peat ecosystems will be successful if and only if forest and land fires particularly in peatlands can be prevented, suppressed and controlled. Government through collaboration among Ministries/Agencies, private sector and the community formulate policy and strategy direction in controlling this forest and land fires that fulfill the principle of (1) permanent, (2) cross Sector, (3) integrated, (4) comprehensive, (4) fast and responsive, and (5) on target.

The principles contained in the policy direction are elaborated into five main strategies: (1) Providing economic incentives and disincentives; (2) Strengthening the role of rural communities and/or social institutions by building networks to the site level; (3) Law enforcement, synchronization of legislation and law enforcement in the land based sector; (4) Development of infrastructure in hazard prone areas; and (5) Strengthening *early fire response* up to the site level.

Furthermore, every year the President of Republic of Indonesia provides direction of implementation of such policies and strategies in the field since 2016 and for 2017 is focused through:

1. Establishment of earlier emergency alert status in forest and land fire prone provinces.

2. Increasing community participation in preventing forest and land fire.
3. Increase the preparedness of air operations in the prevention of forest and land fire.
4. Firm law enforcement and quick settlement of forest and land fire cases.
5. Improve forest and land governance, and
6. Improving coordination and synergy of the government from central to regional level.

In some activities at the field level, efforts have been made to anticipate that forest and land fire occurrence will not occur again like in 2015, namely:

1. Establish a new paradigm of prioritizing efforts to prevent early forest and land fire by utilizing human resources, budget and infrastructure in each K/L and Provincial, District/Municipal government.
2. Improving synergy and coordination between the MoEF Manggala Agni, Indonesian Army/TNI, Indonesian Police/Polri, Village Heads, NGO and mass media in preventing forest and land fire at the site/village level in the form of integrated patrols
3. Improving community awareness activities on the threats and dangers of forest and land fire and the efforts that can be undertaken by the community in forest and land fire control activities, through campaign activities, exhibition of forest and land fire control, socialization through print and electronic media, SMS blast and talk shows on television media.
4. Improving human resource capacity, through technical guidance related to forest and land fire control involving Indonesian Army/TNI, Indonesian Police/Polri, the community, and private parties
5. Implement engineering activities to support efforts to prevent forest and land fire through the construction of canal blocks, drilling wells, and retention basins for all stakeholders who manage the forest or land area.
6. Monitoring and early detection using NOAA and MODIS/Tera/aqua satellites
7. Enhance law enforcement efforts against companies that burn forest and land by applying *strict liability* principles to company's license.
8. Increase the range of integrated patrol prevention activities of forest and land fire by involving Indonesian Army/TNI, Indonesian Police/Polri and the community
9. Increasing community involvement in the prevention of forest and land fire at the site level, through the establishment and mentoring of the Fire Aware Community (Masyarakat Peduli Api /MPA)
10. Build and increase the capacity of forest and land fire control brigades in each unit of forest area management (plantation or natural forest, mine, tourism) or land (plantation)
11. In order to strengthen ASEAN cooperation in the field of forest and land fire control, the Government of Indonesia initiated to host the *ASEAN Coordinating Centre for Transboundary Haze Pollution Control*.

Other continuous efforts is the regulation of forest governance, particularly peat and other preventive measures such as hot spot monitoring and law enforcement. In 2016 there were smoke disruptions in some fire prone provinces so that in 2017 and in the future efforts will continually be made to prevent fires.

In 2016, smoke did not cause ecological, social, cultural, defense and security disruption nationally as in 2015 and regionally no smoke crossing over borders was reported. There was a significant decline in the forest and land fire area, in 2015 there was a forest and land fire area of 2.6 million hectares and fell significantly in 2016 to only 0.43 million hectares. Meanwhile the area of forest and land fires in 2017 (period of Jan-Jun 2017) the fire area was only 20,290 Ha (decline dramatically compared to 2015 and 2016).

B. INDONESIA

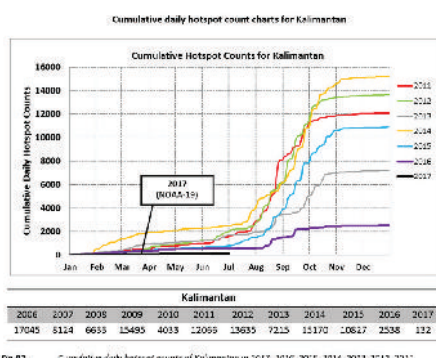
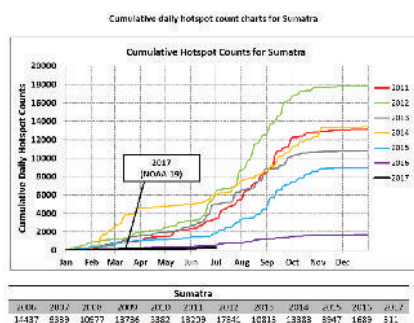


Fig. 82 Cumulative daily hotspot counts of Kalimantan in 2017, 2016, 2015, 2014, 2013, 2012, 2011

The number of hotspots up to July 16, 2017 618 spots was detected throughout Indonesia (NOAA 19 satellite detection) and 157 spots (TERRA/AQUA satellite detection 80% confidence). In comparison to 2015 conditions in the same period 3,653 spots (NOAA satellite) and 1896 spots (TERRA/AQUA NASA satellite) were detected for 2016, 1,075 spots (NOAA satellite) and 2,070 (TERRA/AQUA NASA satellites). From that number there was a decrease of hotspots from NOAA-18/19 satellite namely 42,51% compared to 2016 and 83,08% compared to 2015; meanwhile based on NASA's TERRA/AQUA satellite (Confidence 80%) down 91.72% compared to 2016 and down 92.271% compared to 2015.

A.2. ENERGY SECTOR

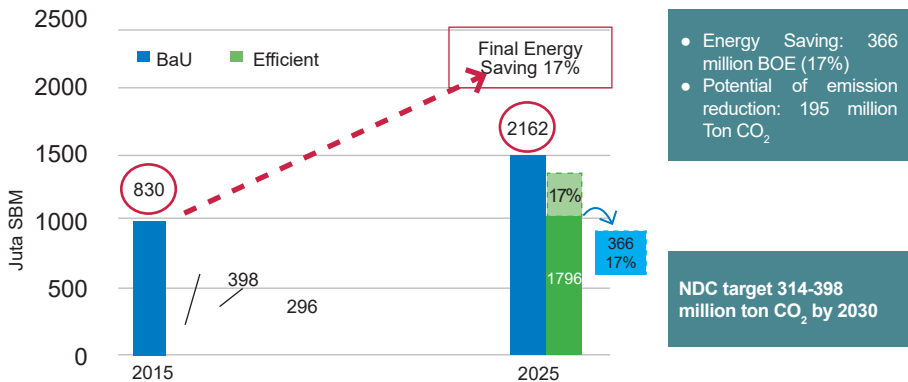
The Ministry of (Energy and Mineral Resources) has established a policy on energy mix that contributes directly to the reduction of GHG emissions. The figure below shows energy conservation targets and renewable energy development targets by 2025.

Target of Energy Conservation by 2025

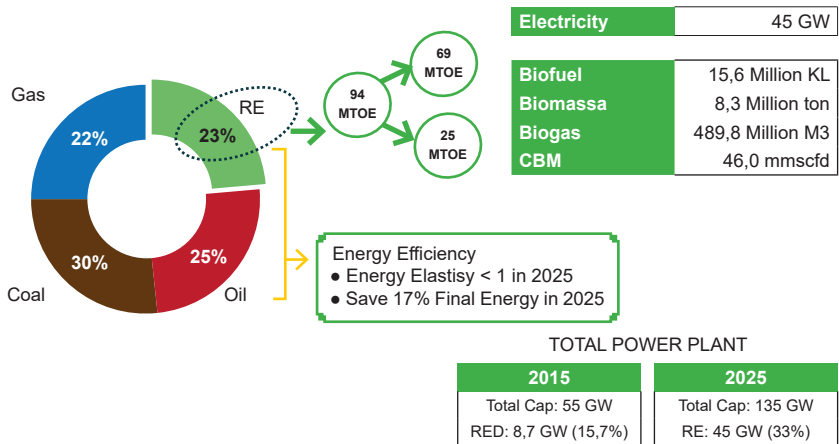
Energy Conservation Target:

- To achieve energy elasticity less than one in 2025;
- To reduce energy intenisty 1% per year until 2025;
- To achieve final energy saving 17% in 2025

Final Energy Consumption



Target of Energy Development by 2025



For the transportation sub-sector, the Ministry of Transportation has established a climate change policy that is directly related to energy consumption as contained in the following graphic:

CLIMATE CHANGE AND NATIONAL ENERGY POLICY IN THE TRANSPORTATION SECTOR

Increasing efficiency in energy utilization

Increasing usage of electrical energy, gas fuel, biofuels

Application of an efficient urban transportation system by instituting limited private vehicle usage as well as a mode of transportation that is energy efficient and environmentally clean

Several mitigation actions that have been identified to support the achievement of NDC target are as follows:

NDC Potential Support: Transportation Sector General National Energy Plan (RUEN)

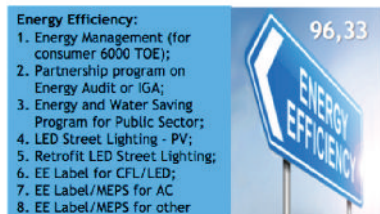
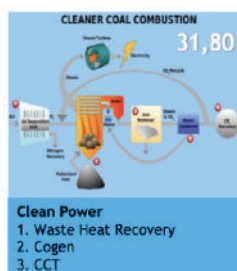
- Solar energy source utilization for transportation
- Accelerated mass transport development and private vehicles using gas
- Accelerated electricity usage for transportation (2,200 units of 4 wheel vehicles and 2,1 million 2 wheel vehicles)
- Develop mass public transport system (Rail and bus) -> Share 30 %
- National Railway path development plan, MRT, Tram, Airport Train in RTRW (spatial plan) (13 Cities)
- ITS in 24 cities and ATCS at 50 locations
- Implement Eco airport at 15 airports
- Develop a sea Toll system by providing 150 ships and develop a green sea-port
- Prepare an integrated coal harbor development master plan

Mitigation actions currently identified as able to contribute directly to GHG emissions as contained in the following table and graphic:

Mitigation Action	Progress	Responsible
General	GHG emission reduction policy in 2016 RUEN and energy mix in 2016 RUPTL	ESDM Ministry
Final/Fuel Energy Consumption Efficiency	<ol style="list-style-type: none"> 1. Energy management, energy audit, energy and water conservation programs, LED for PJU, EE label 2. Transportation efficient policies and activities 3. Environmentally friendly buildings (Total emission reduction target 96,33 million Ton CO ₂ e)	ESDM Ministry, Ministry of Transportation, PUPR (Public Works and Housing) Ministry
Implementation of clean coal technology (CCT) in power plants	<ol style="list-style-type: none"> 4. Implementing clean power technology: PLTSa, cogen for PLTG/PLTU BBM 5. Development plan for <i>ultra-super critical</i> (USC) and <i>integrated gasification combined cycle</i> (IGCC) power plants (Total target emission reduction target 31,80 million Ton CO ₂ e)	ESDM Ministry
Use of EBT in power plants	Implementation of water power, geothermal, bio energy, solar power/solar PV, air power	ESDM Ministry
Use of biofuel (BBN) (Mandatory B30) in the transportation sector	Development of BBN use for the transportation sector (Total emission reduction target of 170,42 million CO ₂ e Ton)	ESDM Ministry, Ministry of Transportation
Addition of gas network	Development of gas network for housing and transportation and the transfer of kerosene to LPG (Total emission reduction target of 10,02 million CO ₂ e Ton)	ESDM Ministry
Addition of Gas Filling Station (SPBG)		
Reclamation of mining land (*)		

(*) will be recorded and reported in forestry sector

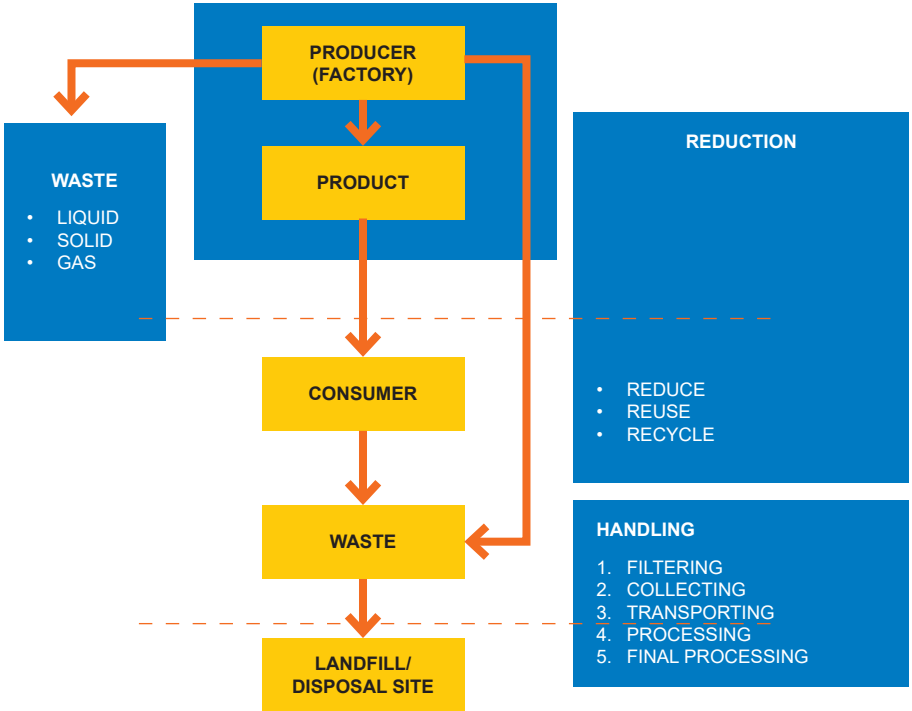
Activity NDC Energy Sector



A.3. WASTE SECTOR

GHG emission reduction in the waste sector comprises of liquid waste and solid waste sub-sectors based on several policies as follows:

WASTE MANAGEMENT POLICY ACCORDING TO LAW No. 18/2008



National Waste Management Policy Target - Greenhouse Gas Emission Reduction

- Focus of policy and program that can reduce Greenhouse Gas emission
 - Waste Bank
 - Physical Intervention : Facilitate building facilities and infrastructure, i.e. : Waste Recycling Center, Compost House, Landfill Methane Gas Capture and Utilization Installation
 - Adipura Program

Climate Change Mitigation Strategy

Minister Regulation PU No. 11/PRT/M/2012

Encourage the adoption of environmentally friendly waste and trash technology and management

2012-2014 Sub Targets	2015-2020 Sub Targets
<ul style="list-style-type: none"> • Development of revitalization model of final waste processing site through landfill mining, reusable landfill, semi-aerobic landfill and development of 3R integrated solid waste technology in urban areas • Assessment of TPAS performance and 3R implementation in support efforts for (<i>Clean Development Mechanism</i>) CDM concept • Application of wastewater treatment technology with biodigester system 	<ul style="list-style-type: none"> • Facilitate the development of CDM clean development mechanisms for waste management, especially for the development of waste disposal sites (TPAS) to reduce the production of carbon and methane emissions • Facilitation in improving the management of TPAS offerings from open dumping to controlled landfills and sanitary landfills • Application of wastewater treatment technology with the system

Encourage the application of wastewater treatment technology with gas trap or methane capture

2012-2014 Sub Targets	2015-2020 Sub Targets
<ul style="list-style-type: none"> • Replicate the community based sanitation program (SANIMAS) with Decentralized Wastewater Treatment System (DEWATS) technology 	<ul style="list-style-type: none"> • Replicate the community based sanitation program (SANIMAS) with Decentralized Wastewater Treatment System/DEWATS technology (sustainable)

Encourage the application of wastewater treatment technology with gas trap

2012-2014 Sub Targets	2015-2020 Sub Targets
<ul style="list-style-type: none"> • Research and compilation of MRV methods within activities related to climate change in urban areas 	<ul style="list-style-type: none"> • Capacity building and facilitation of MRV implementation of climate change related activities to the local government

Infrastructure Development Contribution on Reducing Potential GHG Emission

Domestic Tribute Sub Area

Improvement of Final Waste Disposal Facility

- a) Rehabilitation/development of Open Dumping Landfill becoming Sanitary Landfill (with Landfill gas management)
- b) Open Dumping Landfill operations becoming Controlled Landfill (with Landfill gas management)
- c) Anaerobic landfill Operations and Landfill Gas Management

Integrated Waste Management Reduce, Reuse and Recycle (3R) Composting and Waste Bank

- a) Construction and Operation of Integrated Waste Disposal 3R/Composting
- b) Establish and Operate Waste Bank

Domestic Wastewater Sub Area

Construction of centralized/off-site wastewater treatment facilities

- a) Construction of city scale IPLT and/or IPAL (Aerobic, or Anaerobic system with methane gas benefits)

Construction of on-site wastewater treatment facilities

- a) Construction and Operations of Sanimas in the MCK++ category (MCK complemented with waste treatment and methane gas utilization (*biodigester*))
- b) Communal IPAL complemented with methane gas utilization

The reduction of GHG emissions from industrial liquid waste is carried out as a co-benefit of pollution control efforts undertaken by the company particularly through the Environmental Performance Management Rating Program or PROPER, based on the LH Regulation No. 3/2014: :

CLIMATE CHANGE ISSUE IN THE CRITERIA OF PROPER PROGRAMME (Environment Performance Management Rating Program)

LH Regulation No. 3/2014 regarding Environment Performance Management Rating Program: Procedures for Obedience Assessment and Performance Appraisal Exceeding Obedience

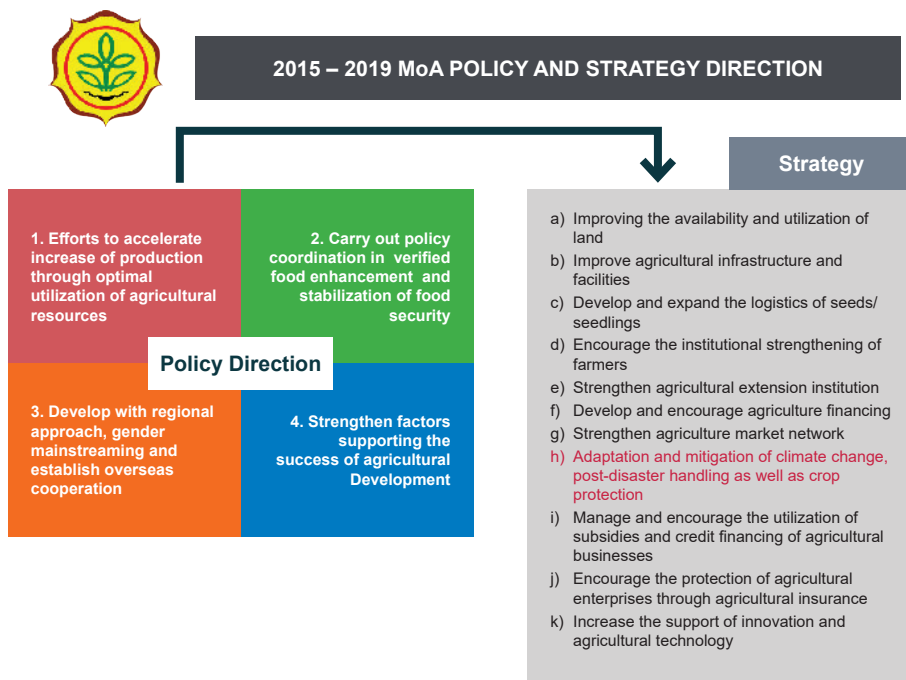
No.	ASSESSMENT COMPONENT	Score
1	Summary of Environmental Management Document	150
2	Sistem Manajemen Lingkungan	100
3	Resource Utilization <ul style="list-style-type: none"> a) Energy efficiency b) Reduction in emission and greenhouse gas c) Waste 3R d) Diversity 	100
4	Community development <ul style="list-style-type: none"> a) Green assessment level b) Gold assessment level 	100

The progress achieved in the solid waste NDC is listed in the following table:

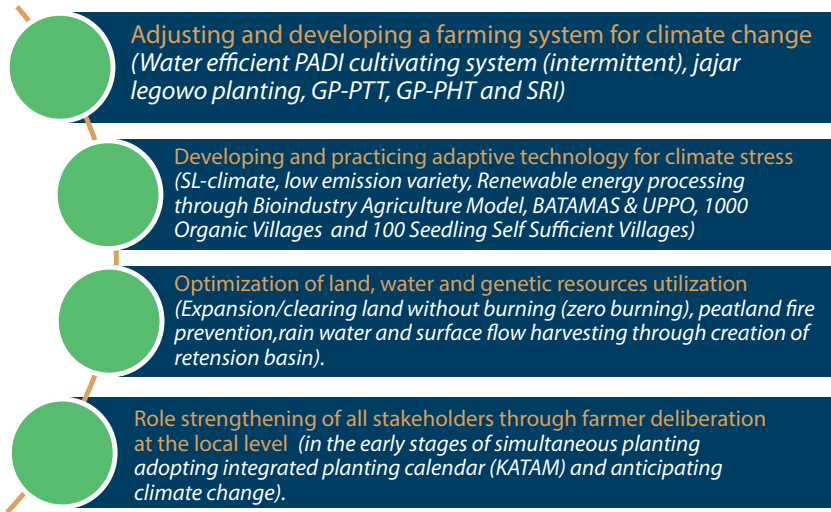
Mitigation Action	Progress	Responsible
Increase of <i>landfill gas</i> (LFG) <i>Recovery practice</i> from 2010 to 2030 in waste management	LFG <i>Recovery</i> development plan	MoEF, MoPWH
Increase in waste utilization through composting and 3R paper	Compost: 100.612 3R paper: 6.314 (in CO ₂ e Ton/year)	MoEF, MoPWH
Increase of PLTSa/ <i>refused derived fuel</i> (RDF) compared with total waste generation	177.585 (in CO ₂ e Ton/year)	MoEF
Management of domestic wastewater for 3,732,084 people and management of river water pollution	1. Reduce river pollution load 2. Application of wastewater treatment technology	MoPWH
Management of industrial wastewater	75.663.410 (in CO ₂ e Ton/year)	MoEF

A.3. AGRICULTURE SECTOR

The policy of the Ministry of Agriculture related to climate change mitigation of the agriculture sector in 2015-2019 which became the basis of NDC implementation is illustrated as follows:



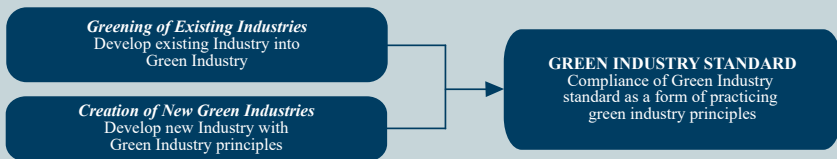
Mitigation action which currently will be undertaken are as follows:

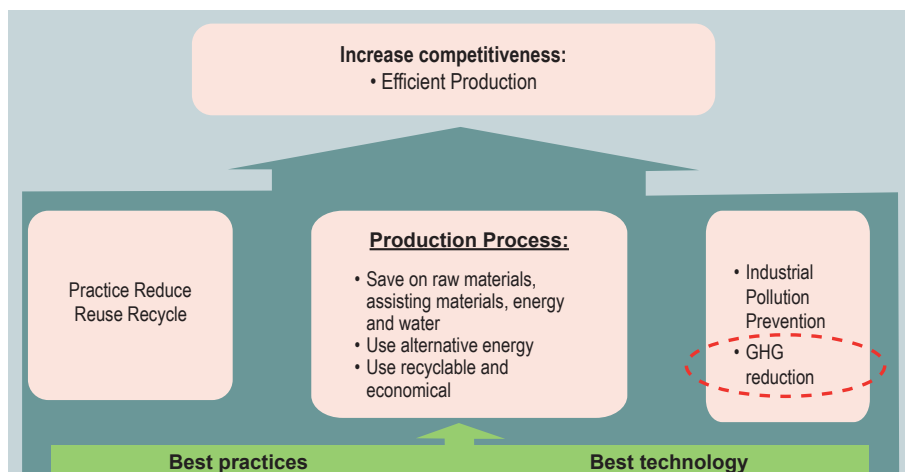


A.4. INDUSTRIAL SECTOR PROCESSES AND PRODUCT USE (IPPU)

GHG emission reduction in the IPPU sector in general is based on Law No. 3/2014 regarding Industry Articles 77-83 as illustrated as follows:

- Legal Basis :
Law No 3/2014 regarding Industry Articles 77-83
- Definition of Green Industry :
Industries which in the production process prioritize efforts for efficiency and effectiveness of resource use in a sustainable manner so as to harmonize industrial development with the sustainability of environmental functions and can provide benefits for the community
- Green Industry Strategy:





The progress of NDC implementation of IPPU sector is outlined in the following table:

Mitigation Action	Progress	Responsible
General	1. Establish regulations relevant to GHG emission reduction 2. Establish standard and technical guidance, technical instructions for implementation of GHG emission reduction	Ministry of Industry
Reduce clinker to cement ratio	Reduce clinker in cement ratio gradually, reduce heat consumption, substitute fossil fuel	Ministry of Industry, businesses
Increase efficiency of the ammonia industry	Utilization <i>waste heat boiler</i> , <i>recovery</i> condensate, optimization unit of <i>reformer</i> , development of CO plant	
CO ₂ recovery, improvement process of smelter, utilization of scrap steel	Utilization of scrap steel, improved smelter process	
Remaining IPPU claims (PFCs) from smelter aluminium CDM	Recalculation of GHG emission reduction on smelter aluminium	

Several regulations and policies that have been, currently and proposed to be undertaken in supporting the implementation of NDC are as follows:

Already Done	Ongoing	To be done
<ul style="list-style-type: none"> • Technical Guide for Energy Conservation and GHG Emission Reduction in Fertilizer, Ceramic, Chemical, Textile, Agrochemical, Food and Beverage Industry, • Guide For Carbon Calculation in Steel Industry and paper Pulp Industry • Technical Instruction for Calculating and Reporting Cement Industry CO₂ Emission • MRV Guide for Cement Industry Sector • Standard and Criteria Guide for Refused Derived Fuel (RDF) • Establishment of 8 Green Industry Standards for powder milk processing industry, , fertilizer, rubber curing, Portland cement, ceramic tiles, , and textiles • [pilot project] GHG emission intensity reduction specified at 12.65 Kg CO₂/ton cementitious in the cement industry subsector in 2015 • Human Resources Capacity Building on Energy Management 	<ul style="list-style-type: none"> • Prepare Ministerial Regulation of Ministry of Industry regarding Technical Instruction Guidance for Calculation and Reporting of Cement Industry CO₂ Emission, Cement Industry MRV Guidance and RDF Standard and Criteria for Cement Industry • Develop online information system and monitoring activity data for GHG emission source in industry sector; • Technical guidance for GHG emission calculations for Industry Sector via online • <i>Energy Management System Pilot Project</i> (EnMS) in Industry Sector cooperation with <i>Energy Conservation Center Japan</i> in 9 Industry Companies • “Green Industry” Award • Prepare and Establish Green Industry Standard • Green Industry Certification 	<ul style="list-style-type: none"> • Preparing GHG Emission Baseline for IPPU, Energy, and Waste in Cement, Fertilizer, and Paper <i>Pulp</i> Sub Sectors • Prepare <i>Nationally Appropriate Mitigation Action</i> (NAMAs) for Fertilizer Industry

B. ADAPTATION

Compared with mitigation, adaptation action is still in its very early stages of implementation. Therefore at the NDC *Kick Off* event on 27 April 2017, it was recommended several follow-up as follows :

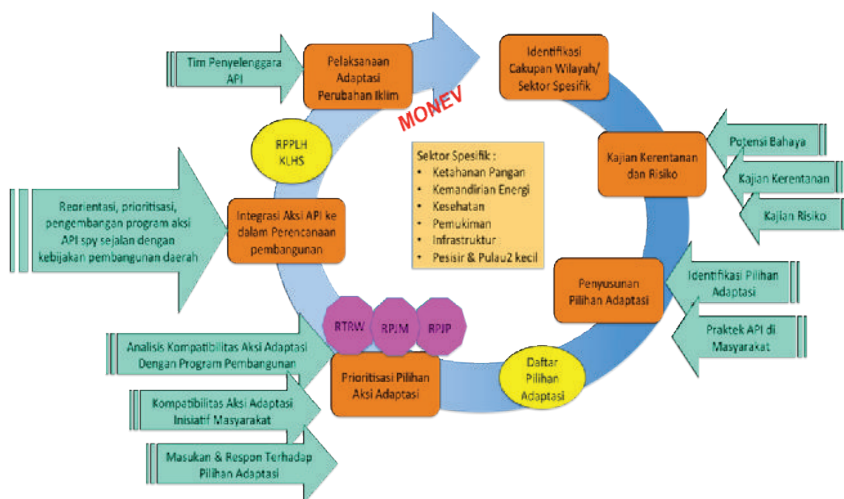
1. Determine the *baseline* for adaptation, with 2010 recommendations
2. Data needs, whereby the data guardian related to climate change is MoEF and can be accessed
3. Proposal to establish a working group at the national level
4. Conduct an analysis of the risk status based on existing parameters in NDC.

B.1. IMPLEMENTATION OF REGULATION of EF MINISTER NO. 33/2016

The National Action Plan on Climate Change Adaptation (RAN-API) issued by BAPPENAS (2014) is designed to contribute to the RPJMN (National Medium Term Development Plan) ever since the 2015-2019 RPJMN has become part of a cross-sectoral program.

In accordance with current national and international development, MoEF issued Regulation No: P.33/2016 as a technical guidance on adaptation integration in development planning which is covering the issue of vulnerability, risk and impact assessment in strategic areas/sectors. Implementation process of MoEF Regulation No. P.33/2016 can be illustrated in the following Figure.

MoEF Regulation No. P.33/2016 Implementation Process



Implementation of MoEF Regulation No. P.33/2016 is conducted through Capacity Building (CB) of Local Governments (provincial and district/Municipal) by utilizing the SIDIK System as basic information of vulnerability level of the village/Ward.

The following is an example of a proposed adaptation action strategy result from CB "Adaptation Strategy of one Village with the concept of integration of development.

SIDIK has been utilized since 2012 for **Capacity Building** for local governments (Provinces and Districts) in developing and utilizing vulnerability indicators to develop adaptation strategy plans for development, climate change adaptation linked to forest and land fire risk in some districts in Sumatra and Kalimantan, by utilizing Data and Vulnerability Information related to forest and land fires FRS (**Fire Risk System**).

SIDIK has also been utilized the APIK – USAID project location selection in 3 Provinces of East Java, Southeast Sulawesi and Maluku; The TNC pilot project in 10 location (Bandung District, Pangandaran District, Karawang District, Indramayu District, Malang District, Singkarak Lake Solok District, Banatimurung-Bulusaraung National Park South Sulawesi, Wakatobi National Park Southeast Sulawesi, Tana Toraja District North Sumatera and Honey Bees Ecosystem in Sumbawa).

B.3. PROKLIM

ProKlim is national climate change **joint adaptation and mitigation** movement at the community level. ProKlim is also one of the instruments of collecting data and information on good practices at the community level that runs continuously and provides benefits to climate change adaptation and mitigation efforts. The collected data and information can be utilized by the government and all stakeholders (including businesses) to develop policies and programs/activities for strengthening local action on adaptation and mitigation of climate change.

The objective of the ProKlim implementation is to improve understanding of climate change and its impacts and to encourage the active participation of all stakeholders to implement climate change adaptation and mitigation activities so as to increase community resilience to climate change impacts and contribute to reducing greenhouse gas emissions. The scope and stages of the implementation of ProKlim can be explained in the following Figure.





Scope and Stages of ProKlim Implementation

The Climate Village Program can be implemented in the villages as well as the cities, by considering the region topography such as highlands and low lands, the coast and small islands. The Climate Village Program covers the overview of activity implementation and aspects as shown in the following Graphic.

PROKLIM Components

Kegiatan Adaptasi-Mitigasi Perubahan iklim



- Pengendalian kekeringan, banjir, dan longsor
- Peningkatan ketahanan pangan
- Pengendalian penyakit terkait iklim
- Penanganan atau antisipasi kenaikan muka laut, rob, intrusi air laut, abrasi, abrasi atau erosi akibat angin, gelombang tinggi
- Pengelolaan sampah, limbah padat dan cair
- Penggunaan energi baru terbarukan, konservasi dan penghematan energi
- Budidaya pertanian rendah emisi GRK
- Peningkatan tutupan vegetasi
- Pencegahan dan penanggulangan kebakaran hutan dan lahan

Kelembagaan dan Dukungan Keberlanjutan

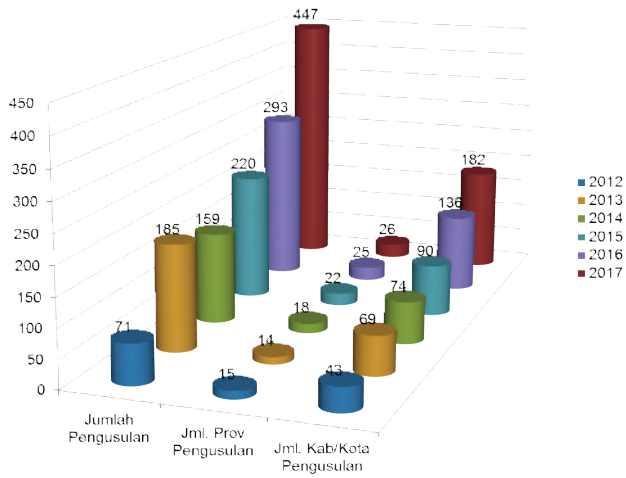


- Kelompok masyarakat
- Dukungan kebijakan
- Dinamika kemasyarakatan
- Kapasitas masyarakat
- Keterlibatan pihak eksternal
- Pengembangan kegiatan
- Manfaat sosial, ekonomi, lingkungan dan pengurangan risiko bencana iklim

Climate Village Program (ProKlim) Components

The legal basis for the implementation of ProKlim is the Regulation of the State Minister of Environment and Forestry No.84/MENLHK-SETJEN/KUM.1.11/2016 Regarding ProKlim. By 2016, ProKlim has been established as a strategic program of the national movement for community-based climate change actions. Implementation of ProKlim is strengthening its implementation, not only limited to awarding but also covering assistance activities in developing climate villages. As a follow up, a Regulation of Dirjen No. P.1/PPI/SET/KUM.1/2/2017 Regarding The Guidelines of ProKlim Implementation.

Since 2012-2017, there have been 1375 ProKlim locations has been registered, which spread over 27 provinces in Indonesia. Field verification of ProKlim is carried out at sites that meet the criteria for further checking, with a view to identifying climate change adaptation and mitigation activities, community groups as well as the aspect of sustainability at the site.



Proposed ProKlim Development 2012-2017



The implementation of ProKlim has received support from the Provincial/District/Municipal Government through the implementation of socialization activities, awareness and capacity building of local stakeholders as well as technical guidance. Some regions have issued regulations for the implementation of ProKlim. Furthermore, some companies also provide support for the development of adaptation and mitigation actions of climate change in proposed locations to follow ProKlim.

C. TRANSPARENCY FRAMEWORK

As part of the implementation of transparency framework under the *Paris Agreement* in the national context, a National Registry System on Climate Change (SRN PPI) has been established, complemented by other systems namely MRV (*Measuring, Reporting and Verifying*), and The National GHG Inventory System - Simple, Easy, Accurate, Compact, Transparent (SIGN-SMART). The already built is a modality for the *implementation* of the *transparency framework*.

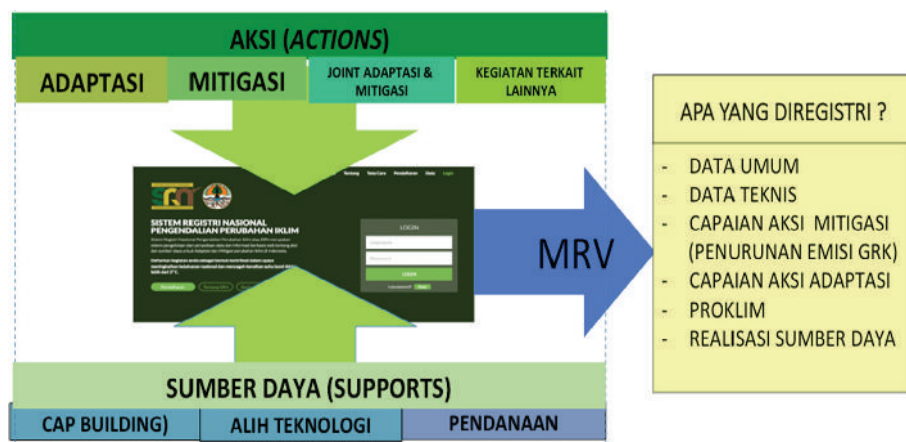
C.1. NATIONAL REGISTRY SYSTEM ON CLIMATE CHANGE

The a National Registry System on Climate Change (SRN PPI) is a system for managing and providing web based data and information about action and resources for Climate Change Adaptation and Mitigation in Indonesia.

The National Registry System was developed with the following objectives:

1. Documenting climate change Adaptation and Mitigation actions and resources in Indonesia.
2. Government recognition of the contribution of various parties to efforts to control climate change in Indonesia.
3. Provision of data and information to the public on action and resources climate change Adaptation and Mitigation action and resources and its achievements.
4. Avoid double counting of climate change Adaptation and Mitigation action and resources as part of the implementation of the clarity, transparency and understanding (CTU) principle.

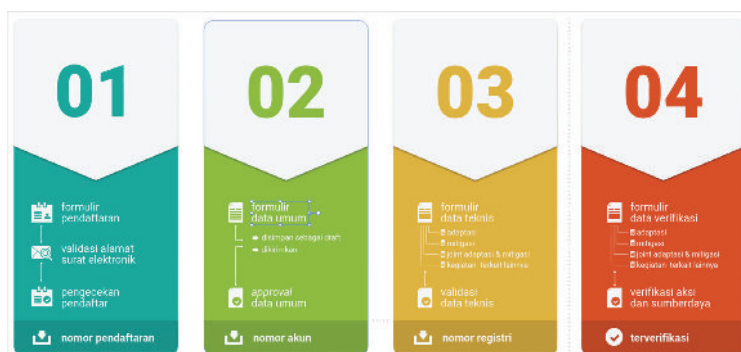
SRN PPI will be a vessel for data and information management of action and resources of climate change Adaptation and Mitigation in Indonesia to reduce data problems that have occurred such as low data accuracy, redundant, non-up-to-date and data inconsistency.



SRN PPI data and information processing flow

SRN PPI is prepared to accommodate every data and information from various climate change control initiatives initiated by various parties/schemes from government, business actors, REDD+ schemes and other initiatives.

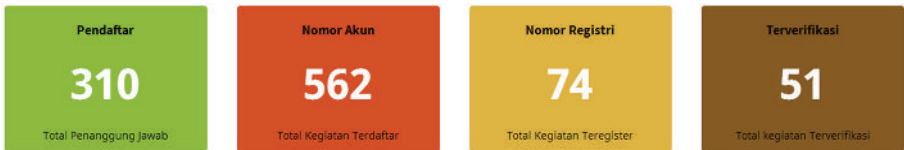
Every implementer of the activities (hereinafter referred to as the responsible person of the activity) of climate change control registering at SRN will be through four stages starting from registration, data entry, validation and verification.



Stages of data processing of climate change control activities in SRN PPI

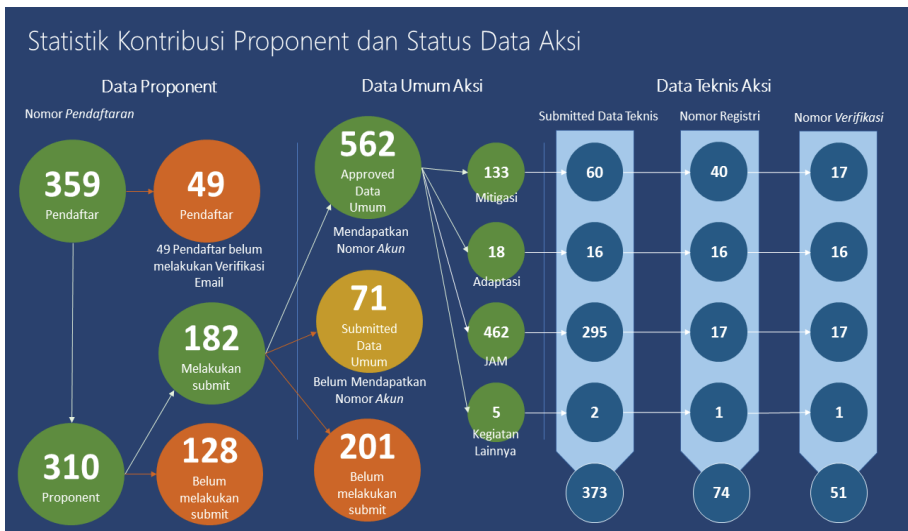


Since the launch of the PPI SRN on 1 November, 2016, registrant growth until July 2017 was 310 proponents, with an average monthly increase of +34 proponents.



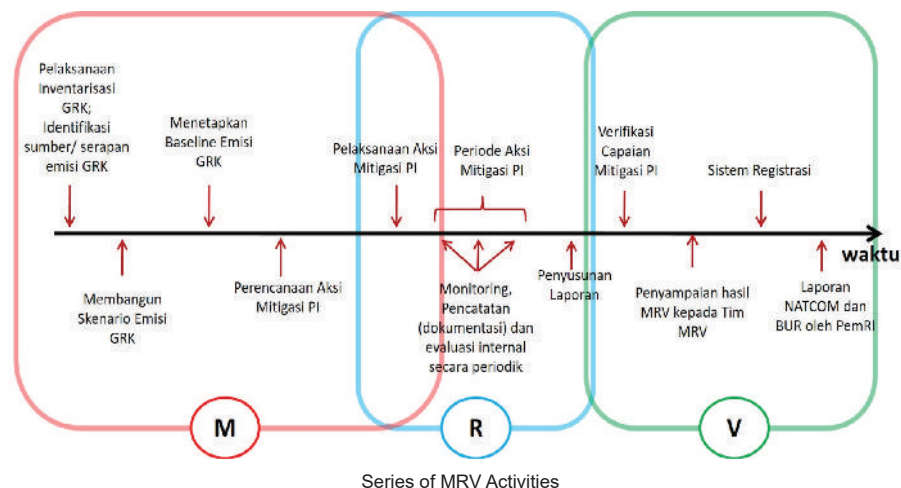
Of the **310** registrants, which have inputted general data to obtain an account number with **562** actions. Of these **74** have continued to fill out technical data and 51 actions have been verified.

The status of action data already registered in SRN PPI is presented as follows.

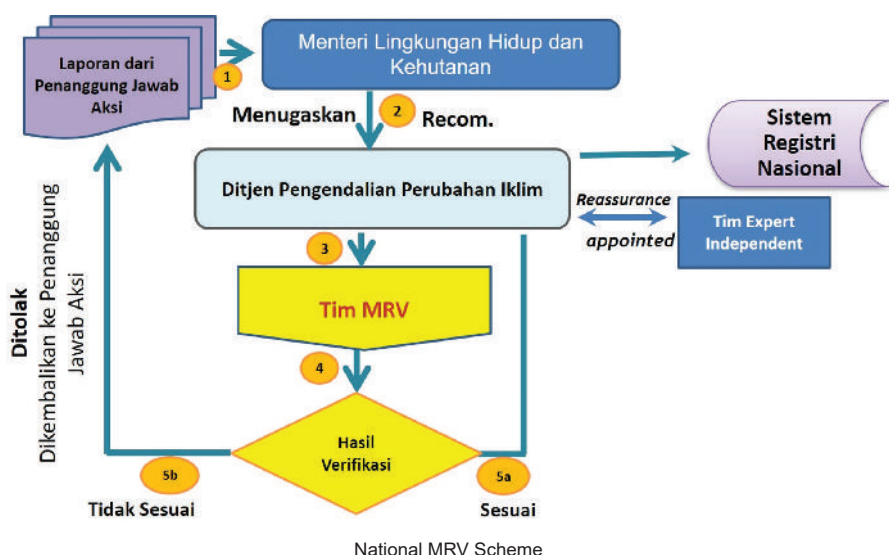


C.2. MEASURING-REPORTING-VERIFYING (MRV)

The Transparency Framework essentially is an important part of various issues/themes discussed in international negotiations. Series of MRV for each M (*Measuring*), R (*Reporting*) and V (*Verifying*) activities, specifically domestic MRV covers elements as seen in the following Figure:



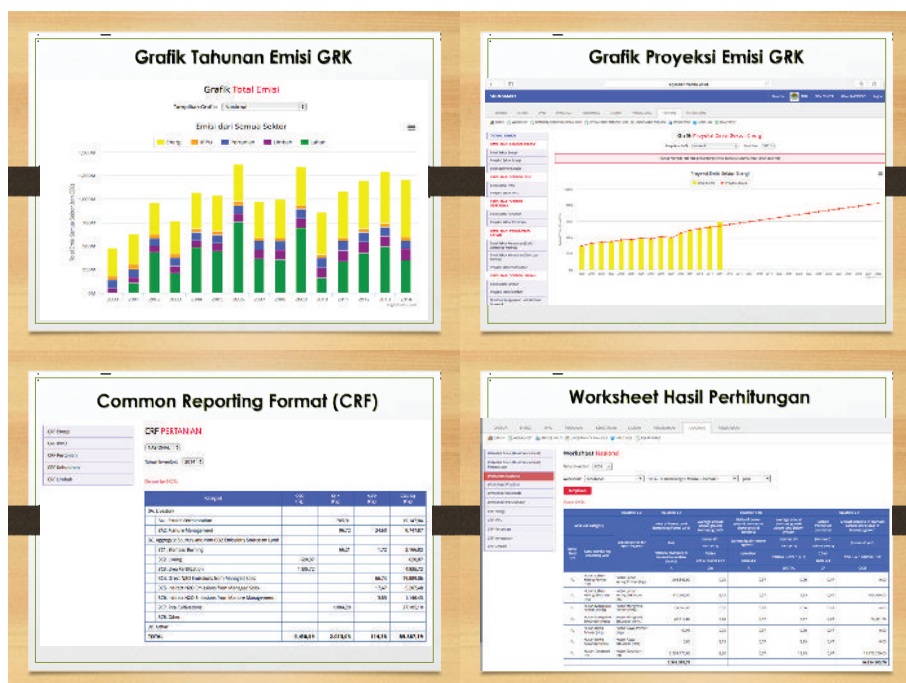
Domestic MRV is adjusted for *national circumstances* from the relevant country. Play a role as Domestic MRV in Indonesia, a National MRV scheme has been prepared and can be seen in the following Figure:



C.3. SIGN-SMART

The National GHG Inventory System - Simple, Easy, Accurate, Compact, Transparent (SIGN-SMART) is implemented to improve the effectiveness of data management and GHG emissions estimation with integrated database systems. SIGN-SMART is designed to meet the principles of *Transparency, Accuracy, Completeness, Comparability, and Consistency* (TACCC), based on electronic-online and information technology (IT). SIGN-SMART is widely accessible both nationally and internationally through the website <http://signsmart.menlhk.go.id/>.

SIGN-SMART produces information on the levels, status and trends of GHG emissions and uptake at national, sector (energy, industrial and product use, agriculture, forestry and land use change, and waste), provincial and district levels. The SIGN-SMART output includes annual GHG emission and uptake information presented in graphical form, GHG emission and uptake summary table (*common reporting format/SRF*), Calculation Result *Worksheet*, *Key Category Analysis*, *Uncertainty Analysis*, Input Status, Input Log, and Input Recap as seen in the following Figure (a) - (d).

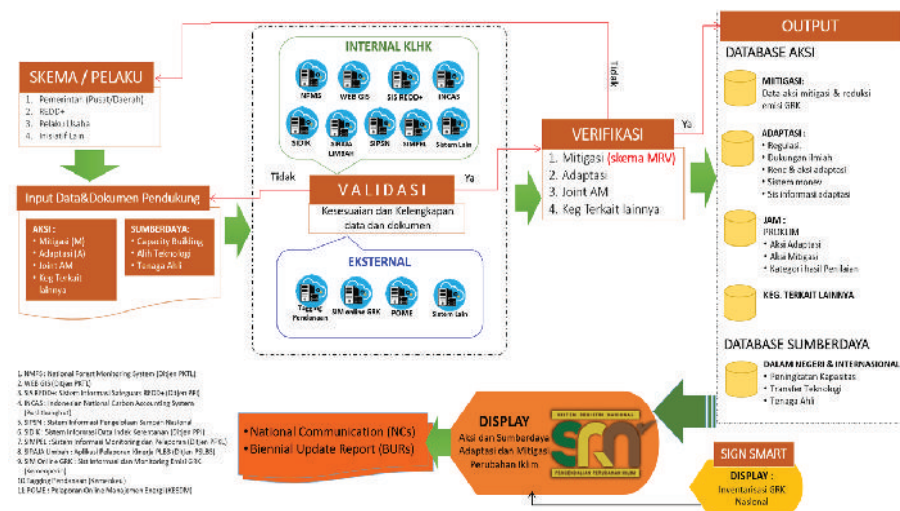


SIGN-SMART has also presented the *Emission Factor Database* (EFDB) with the Online Application system through the website http://signsmart.menlhk.go.id/signsmart_new/efdb/. EFDB data input on SIGN-SMART to date is 140 data for land and non-land sectors.

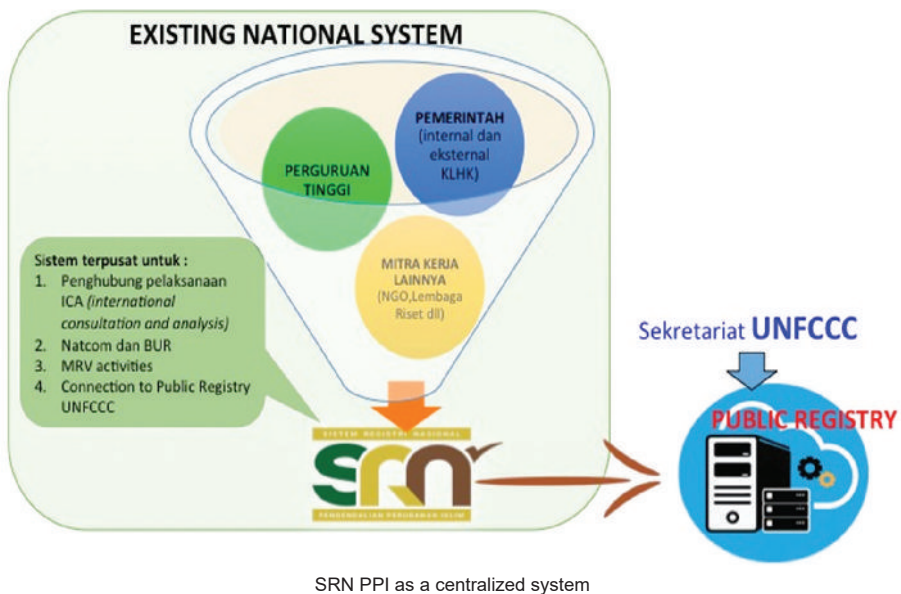
C.4. EXISTING NATIONAL SYSTEM

The data recorded in the SRN shall refer to an agreed upon and internationally accepted methodology of accounting. This is important, as in turn the achievement of Indonesia's commitment will be accumulated with the achievements of the other Parties to obtain a global achievement picture as part of the *global stocktaking* process.

To support the implementation of the NDC, many systems have been built so far at the national level that can be integrated with mutually reinforcing purposes and build synergies to a credible system. Integrating the system is one of the key concepts that are crucial to strengthening the SRN PPI. With the *existing national system* integration step, SRN PPI serves as a centralized system that becomes the main door of the *clearing mechanism* of all data related to action and resources of adaptation and mitigation of climate change.



Initial Thinking of Existing Nasional System Integration



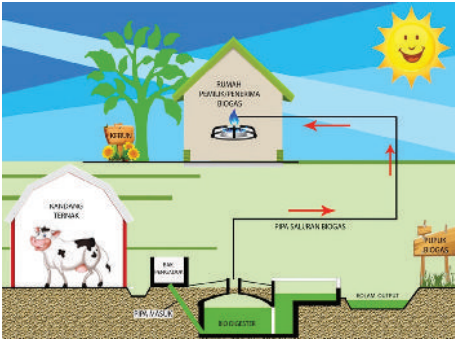
SRN PPI as a centralized system

With the full operationalization of SRN and the creation of a link/synergy it is expected to result in a credible system, as a centralized system which will play as a link to *ICA (International Consultation and Analysis)*, *Reporting of National Communication and Biennial Update Report (BUR)*, *MRV activities* and *Connection to Public Registry UNFCCC*.

D. MEANS OF IMPLEMENTATIONS (MOI)

The main elements of *Means of Implementation* – funding, development and technology transfer, as well as capacity building – becomes an integral part of the *Paris Agreement*. The *Paris Agreement* underlines a clear commitment for increase of funding, technology transfer and capacity building efforts to fulfill the need for mitigation and adaptation action implementation. The three elements also is needed to establish an *enabling environment* for the creation of low carbon development and communities.

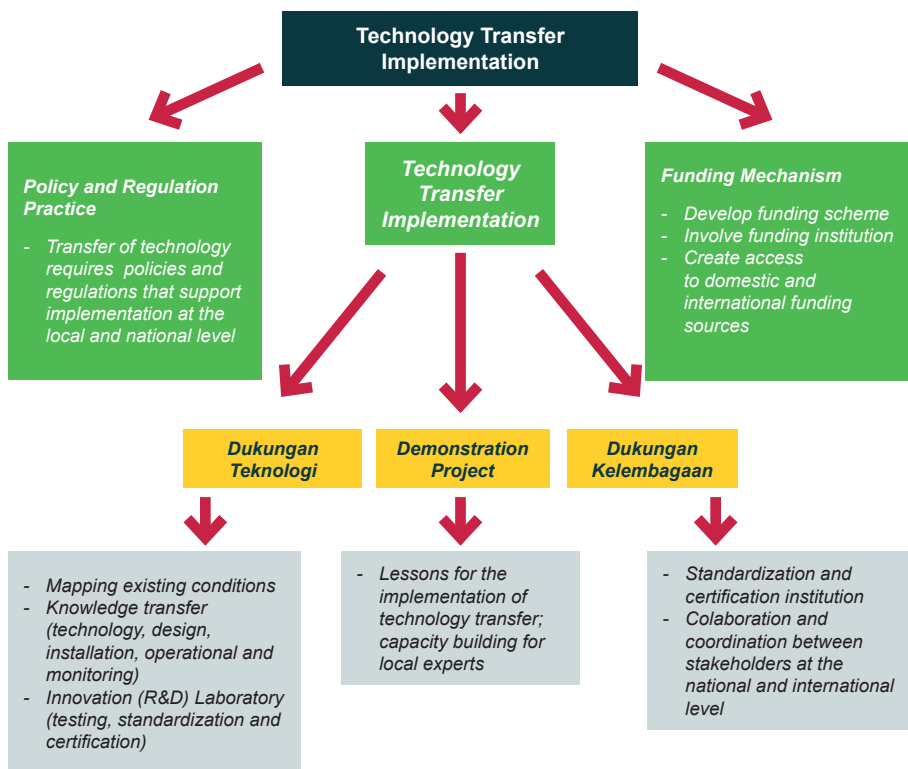
D.1. TECHNOLOGY TRANSFER AND DEVELOPMENT



Example of low carbon technology application

After 2020, Indonesia has a vision of becoming a formidable island nation as a result of comprehensive adaptation and mitigation programs, as well as the implementation of disaster risk reduction strategies. Indonesia sets ambitious targets for sustainable production and consumption of food, water and energy. All of these targets and greenhouse gas emission reduction targets in key sectors as set out in NDC Indonesia can only be achieved through the adoption of low carbon technologies and lifestyles and adequate funding support.

The technology transfer strategy is crucial to achieving low carbon development. The following chart is a general overview of technology transfer implementation strategies.



Low Carbon Technology Transfer Application Strategy

As implementation of paragraphs 4.5 and 4.7 of the Convention, developing countries are requested to identify technological needs for climate change mitigation and adaptation action, in the form of *Technology Needs Assessment/TNA*), as the basis for the application of technology transfer from developed countries to developing countries. In 2010, Indonesia issued a TNA document for mitigation. The objectives of the TNA in 2010 are as follows:

- Identify current potential green house gas emissions for various sectors
- Identify technologies for green house gas emission mitigation in various sectors
- Prioritization of technology required by Indonesia for various sectors
- Calculate the potential green house gas emission reduction through application of the selected technology
- Estimate investment costs of each technology and technology transfer applied in each sector
- Identify obstacles and challenges

In 2012, Indonesia renewed TNA 2010 for mitigation, prepared the TNA document for adaptation and Technology Action Plans/TAPs, and proposed projects. This document also summarized and renewed the dynamic national outlook related to the issue of technology transfer. The purpose of Technology Needs Assessment (TNA) and Technology Action Plans (TAPs) mitigation documents are to identify and analyze the technology priority needs, which will be a basis for technology transfer in the form of projects and environmentally sound technology (EST) program for Indonesia.

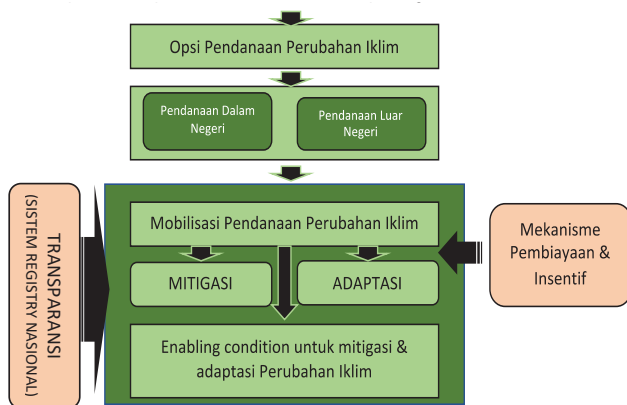
In 2017, Indonesia was in the process of renewing the TNA document, which would be combined with capacity building needs, becoming the Capacity Building and Technology Needs Assessment (CBTNA) document.

D.2. CAPACITY BUILDING

Capacity building activities have been undertaken by the Government of Indonesia, with different types of activities, themes, depth of material, actors and audiences. Capacity building has grown beyond more than one way training initiated by the government, into a variety of creative activities managed by various stakeholders. This is in line with the Paris Agreement which directs six types of capacity building activities, namely education, training, community awareness, access to information, public participation and international cooperation.

D.3. FUNDING

To support the achievement of NDC targets in reducing GHG emissions and increasing resilience to climate change by 2030, the mobilization of required funding resources is essential. Climate change financing resources may come from domestic (public and private) financing and international financing (public and private through bilateral or multilateral cooperation). Transparent climate finance mobilization can be done directly by the government or through partnerships/cooperation, both bilaterally and multilaterally. The following chart explains in general the mobilization of climate change funding to achieve NDC targets.

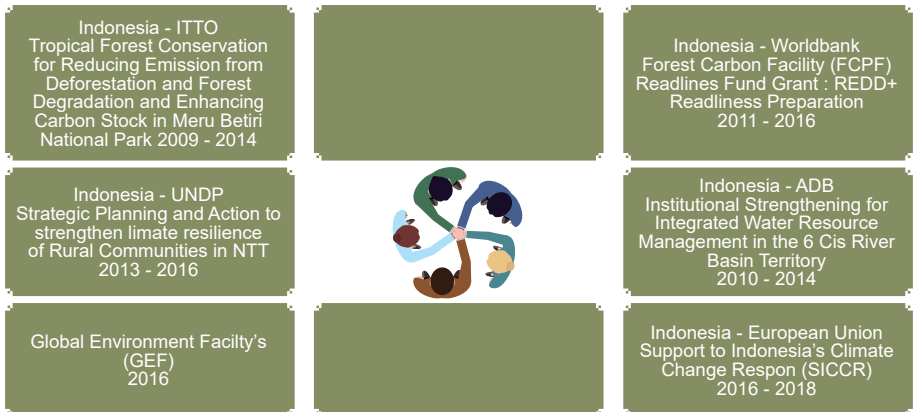


Mobilization of Climate Change Funding

Currently, existing cooperation in the climate covers bilateral cooperation with several parties/Countries and multilateral cooperation through multilateral funding operating entities under the UNFCCC framework. The following charts (a) and (b) are past/current cooperation in Indonesia that have been identified by the Ministry as NFP-UNFCCC.

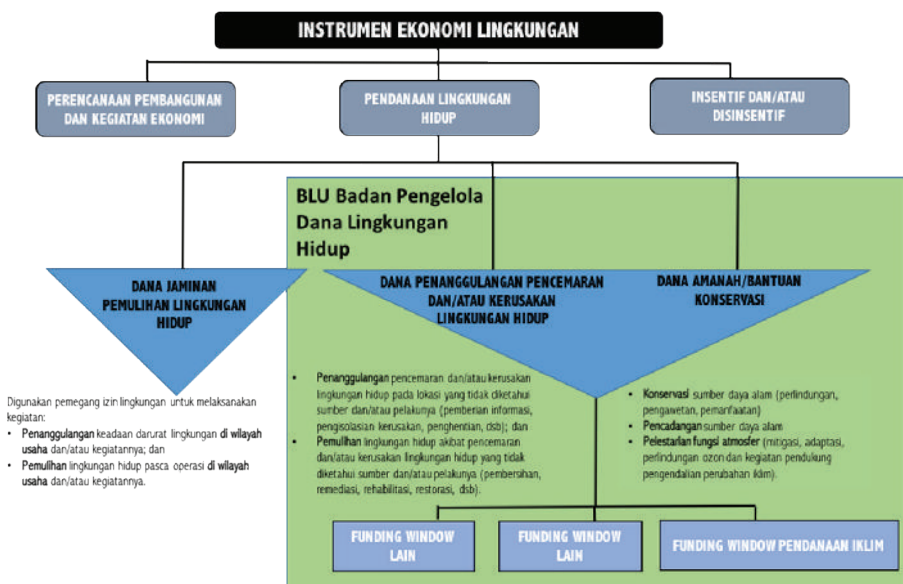


(a) Some Multilateral Cooperation/Partnerships in Climate Change Control



(b) Some Multilateral Cooperation/Partnerships in Climate Change Control

Institutionalization of climate change funding is one of the instruments to mobilize climate change funding. Currently an institutional environmental funding in the form of a Public Services Bureau (BLU) whereby one of the climate change funding windows is a part of the Environmental funding (mandate of Law No. 32/2009). The financing mechanism that has been prepared under the Climate Change Funding windows is the REDD+ financing mechanism. The following chart illustrates the BLU in general with several windows underneath, where one of them is the climate change funding window.



Environmental Fund Management Agency with one of the Climate Change Funding windows

REDD+ Funding Instruments

REDD+ funding is part of the climate change under the Climate Change Funding, based on Law No. 32/2009, environment funding is one of the Economic Instruments.

Considering the readiness of Indonesian REDD+ infrastructure which has been developed for quite some time, therefore to accelerate the full REDD+ implementation with 'performance based payments', in parallel with developing a climate change funding instrument, currently a funding instrument for REDD+ is being developed, which hopefully will be ready for execution once the Environmental Fund Management Agency (BPD LH) is operational.

D.4. SCIENCE/THINK TANK SUPPORT

The scientific community is an important component in implementing mitigation and adaptation actions at the subnational, national, and global level. The role of this group can be observed in almost all elements of the action activity, starting from scientific inputs, scientific mentoring of the stakeholders, identifying *gaps* and *needs assessment*, formulating an action plan, implementing capacity building, and up to evaluating the adaptation and mitigation action activities. The scientific community comprises of experts related to climate change in universities, experts associations, practitioners, research institutions, as well as government institutions.

Currently there are not many universities in Indonesia that have a specific climate change department, however the substance regarding climate and climate change is already part of the studies in many universities with a broad field of disciplines. University of Indonesia (UI) has a Center for Environmental Studies (PSIL) which covers climate change. The Bandung Institute of Technology (ITB) established a Climate Change Center that studies the climate and climate change phenomena including energy utilization which is the highest emission contributor sector in Indonesia. *Centre for Climate Risk and Opportunity Management in Southeast Asia Pacific* (CCROM SEAP), which is located at Bogor Institute of Agriculture (IPB) is a research institution focused on improving the capability of the community to better understand climate change and its effects including risk management for improving the welfare of humans and the environment. This institution is active in supporting the government in executing its duties in formulating climate change control policies in Indonesia.

Indonesian climate change experts are quite active at the global level, among others involved in *Intergovernmental Panel on Climate Change* (IPCC) activities. IPCC is an international institution that was created to provide scientific input in global climate change policies. Currently there are 32 (thirty two) experts related to Indonesian climate change from various fields involved in preparing IPCC Report No. VI.



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