

CLIMATE AMBITION BEYOND EMISSION NUMBERS

**Taking stock of progress by looking inside
countries and sectors**

INDONESIA

Rizaldi Boer, Ucok Siagian, Annuri Rossita, Lukytawati Anggreni

SEPTEMBER 2021



IDDRI

Copyright © 2021 IDDRI

The Institute for Sustainable Development and International Relations (IDDRI) encourages the reproduction and public communication of its copyright materials, with proper credit (bibliographical reference and/or corresponding URL), for personal, corporate or public policy research, or educational purposes. However, IDDRI's copyrighted materials are not for commercial use or dissemination (print or electronic). Unless expressly stated otherwise, the findings, interpretations and conclusions expressed in this document are those of the various authors and do not necessarily represent those of IDDRI's board.

Citation

Rizaldi Boer, Ucok Siagian, Annuri Rossita, Lukytawati Anggreni (2021). *Climate ambition beyond emission numbers, Taking stock of progress by looking inside countries and sectors, Indonesia*. Deep Decarbonization Pathways (DDP) Initiative-IDDRI. Paris.

Contact

Henri Waisman, henri.waisman@iddri.org

Rizaldi Boer, rizaldiboer@gmail.com

The report is available online:

https://ddpinitiative.org/wp-content/pdf/DDP_AmbitionReport_IDN.pdf

Financial support from

The report "Climate Ambition Beyond Emission Numbers" is made possible thanks to an array of projects supporting in-country capacity on climate mitigation research across the targeted geographies. It is also financially supported by the International Climate Initiative (IKI) of the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) as part of the "Climate Action After Paris" project (nr. 18_I_326) and the French government as part of the programme "investissements d'avenir" under the reference ANR-10- LABX-01.



Federal Ministry
for the Environment, Nature Conservation
and Nuclear Safety

Production: IDDRI.

Editing: Marta Torres Gunfaus, Anna Pérez Català, Lola Vallejo, Henri Waisman.

Layout: Ivan Pharabod.

CLIMATE AMBITION BEYOND EMISSION NUMBERS

Taking stock of progress by looking inside countries and sectors

Rizaldi Boer, Ucok Siagian, Annuri Rossita, Lukytawati Anggreni

<i>How is this document relevant to the Global Stocktake?</i>	2
<i>Foreword</i>	4
Indonesia: Climate Ambition Since The Paris Agreement, After NDC And LTS	5
<i>Domestic discourse</i>	5
<i>National Governance: NDC and LTS preparation and submission</i>	6
<i>Actions and Policies: main advancement after the Paris Agreement</i>	7
<i>Critical blocking points</i>	9

Disclaimer

The results presented in this report are outputs of the academic research conducted under the DDP BIICS project as per the contractual agreement. The academic work does not in any way represent our considered opinion for climate negotiations and also does not reflect the official policy or position of the Government of Indonesia.

How is this document relevant to the Global Stocktake?

This document is part of a collective report that assesses the evolution of climate ambition in 26 countries and 3 hard-to-abate sectors through a granular and context-specific analysis of trends and progress of national and sectoral transformations.¹ This approach allows identifying what hinders and spurs action in countries and sectors, and understanding the conditions that can support enhanced ambition, which could be political, social, economic, governance.

These insights are directly relevant to four overarching functions of the Global Stocktake in support of its desired outcome, i.e. “to inform Parties in updating and enhancing, in a nationally determined manner, their actions and support in accordance with the provisions of the Paris Agreement, as well as enhancing international cooperation for climate action” (Article 14.3 of the Paris Agreement):

- Create the conditions for an open and constructive conversation on global cooperation (on e.g., technology, trade, finance, etc.), based on an in-depth understanding of the international enablers of enhanced country ambition.
- Organize a process for knowledge sharing and collective learning, based on concrete examples of actions already in place or being discussed, including best practices.
- Create space for open dialogues across different stakeholders to support better coordination of actions, based on a detailed understanding of the levers to be activated to enhance ambition in national and sectoral transitions
- Facilitate ownership by decision-makers of the climate challenge and the risks and opportunities of the low-emission and resilient transition, based on context-specific and granular analysis of barriers and enablers.

More specifically, the collective report in general – and this document in particular – can contribute to address some of the key guiding questions for the Global Stocktake², notably:

- What actions have been taken to increase the ability to adapt to the adverse impacts of climate change and foster the climate resilience of people, livelihoods, and ecosystem? To what extent have national adaptation plans and related efforts contributed to these actions (Decision 19/CMA.1, paragraph 36(c))?
- How adequate and effective are current adaptation efforts and support provided for adaptation (Article 7.14 (c) Paris Agreement)?

¹ The full report « Climate ambition beyond emission numbers - Taking stock of progress by looking inside countries and sectors” can be found at: <https://www.iddri.org/en/publications-and-events/report/climate-ambition-beyond-emission-numbers-taking-stock-progress>

² Draft Guiding Questions for the Technical Assessment of GST1 (version 20th October 2021), available at: https://unfccc.int/sites/default/files/resource/Draft%20GST1_TA%20Guiding%20Questions.pdf

- What are the barriers and challenges, including finance, technology development and transfer and capacity-building gaps, faced by developing countries?
- What is the collective progress made towards achieving the long-term vision on the importance of fully realizing technology development and transfer in order to improve resilience to climate change and to reduce greenhouse gas emissions referred in Article 10.1 of the Paris Agreement? What is the state of cooperative action on technology development and transfer?
- What progress been made on enhancing the capacity of developing country Parties to implement the Paris Agreement (Article 11.3 Paris Agreement)?
- To achieve the purpose and long-term goals of the Paris Agreement (mitigation, adaptation, and finance flows and means of implementation, as well as loss and damage, response measures), in the light of equity and the best available science, taking into account the contextual matters in the preambular paragraphs of the Paris Agreement:
 - What are the good practices, barriers and challenges for enhanced action?
 - What is needed to make finance flows consistent with a pathway towards low GHG emissions and climate-resilient development?
 - What are the needs of developing countries related to the ambitious implementation of the Paris Agreement?
- What is needed to enhance national level action and support, as well as to enhance international cooperation for climate action, including in the short term?
- What is the collective progress made by non-Party stakeholders, including indigenous peoples and local communities, to achieve the purpose and long-term goals of the Paris Agreement, and what are the impacts, good practices, potential opportunities, barriers and challenges (Decision 19/CMA.1, paras 36(g) and 37(i))?

Foreword

Henri Waisman, Marta Torres Gunfaus, Anna Perez Catala, IDDRI.

Country commitments as reflected in enhanced Nationally Determined Contributions submitted to the UNFCCC are insufficient to put the world on track to achieve the collective objective of the Paris Agreement to hold temperature increase below 2 °C or 1.5 °C above pre-industrial levels. Furthermore, concrete policies and actions adopted by countries on the ground are often not sufficient to achieve these NDC targets. These conclusions highlight the need to increase ambition and to provide convincing evidence to accelerate action in the immediate and short term to give effect to this ambition. Yet these assessments are not sufficient to effectively guide the progressive increase of ambition, as organized by the cyclical process of the Paris Agreement.

APPROACH

With this imperative in mind, this report adopts a different, complementary, perspective on climate ambition. It seeks to open the box of emission pathways, by considering multiple dimensions of the conditions that will make these pathways possible. These are technical, economic, political, social and governance considerations in need of attention to enable the required far-reaching and systemic transformation towards the long-term goal. On the one hand, the revision of emission targets needs to be directed by an assessment of how drivers of emissions should change to trigger transformation. On the other hand, converting emissions' targets into pertinent concrete implementation requires well-designed policy packages and investment plans that are also informed by a clear and detailed understanding of the starting point, priorities and interplays between the available levers of transformation.

This bottom-up assessment aims at contributing to the process of collective learning in support of the progressive increase of collective ambition, as inserted at the core of the Paris Agreement paradigm. Approaching climate ambition through the lens of underlying transformations calls for reflecting the heterogeneous nature and the multi-faceted aspects

of transitions in different sectors and countries. This forces a move away from a purely global perspective and adopts a more granular approach based on country and individual sector perspectives. Thus, the report explores trends and progress on these transformations, as locally observed over the past years, notably since the Paris Agreement. This 'backwards looking' approach can help identify where developments are going in the right direction, where they should be accelerated and where major tensions remain that should be addressed as a priority to avoid undermining the transition. The picture of the state of the ambition discussion, firmly embedded in the country and sectoral realities, can provide means for reflection and action within the international climate community, particularly to inform focus areas for advancing the collective ambition agenda.

STRUCTURE OF THE REPORT

This country report describes the recent evolutions of domestic discourses on climate ambition, national climate policy, national governance and concrete policies and actions with a significant effect on GHG emissions. The chapter highlights a selection of striking and structurally important elements to advance the transformation towards carbon neutrality from an in-country perspective.

This report is part of a full series of 26 country chapters and three sectoral chapters. The full report includes a "summary for decision-makers" to present 10 cross-cutting messages emerging from the country and sector analysis, as a guide to the selection of priorities for collective action in the post-COP26 period.

You will find the full report at: https://www.iddri.org/sites/default/files/PDF/Publications/Catalogue%20Iddri/Rapport/DDP_beyond%20emissions%20report.pdf



CLIMATE AMBITION SINCE THE PARIS AGREEMENT, AFTER NDC AND LTS

This brief presents some notes concerning the developments and progress of Indonesia in climate actions over the last 5 years, especially in the NDC targets and implementation and preparation of the Long-Term Strategy.

DOMESTIC DISCOURSE

Indonesia's position across the equator brings about high and relatively uniform temperatures. Furthermore, its location between Asia and Australia exposes Indonesia to monsoon storms. Variation in regional temperature is influenced by elevation rather than altitude. In 30 years (1991-2020), various regions in Indonesia have experienced an increase in temperature. The rate of increase in temperature varied across locations, between 0.01°C and 0.06°C per year, with an average of 0.03°C each year. Despite its vulnerability to climate change, only 81% of Indonesia's population is aware of the climate change term, and less than 20% listen to weather forecasts and prepare for extreme weather¹.

Prior to the initial year of NDC implementation, the COVID-19 pandemic has resulted in negative GDP growth and made it harder for Indonesia to maintain the GDP growth to 5-6% as stated in Medium-Term National Development Plan (RPJMN). Under this particular condition, the Government of Indonesia (GoI) has been preparing 89 national strategic projects as part of the green recovery

¹ <https://www.weadapt.org/placemarks/maps/view/953>

process. In addition, Gol has received its first Result Based Payment (RBP) from REDD+ in 2020. Referring to the Ministerial Law of MoEF No.70/2017, people living around the forest will be able to access financing from REDD+. The first priority from the incentive is income generated programs, while the second priority is forest patrol guards for forest protection. The presence of this incentive scheme is expected to increase community trust in Government as to witness the economic benefit from land-based mitigation efforts.

NATIONAL GOVERNANCE: NDC AND LTS PREPARATION AND SUBMISSION

Under the Paris Agreement, each country is required to prepare, communicate, and maintain the successive **nationally determined emission reduction contributions** (NDCs) that it intends to achieve. Parties are expected to implement domestic mitigation measures, with the aim of achieving the objectives of the reduction contributions. NDCs are submitted every five years to the UNFCCC secretariat and are expected to represent a progression in ambition every time. Parties are requested to submit the next round of NDCs (new NDCs or updated NDCs) by 2020 and every five years thereafter (e.g., by 2020, 2025, 2030), regardless of their respective implementation time frames. Before the Paris Agreement and the NDC, in 2010 the Government of Indonesia voluntarily pledged to reduce emissions by 26% on its efforts, and up to 41% with international support, against the business-as-usual scenario by 2020. Indonesia has promulgated relevant legal and policy instruments to the pledge, including the national action plan on GHG emissions reduction as stipulated in Presidential Regulation No. 61/2011 and GHG inventory through Presidential Regulation No. 71/2011.

Post-2020, Indonesia envisions a progression beyond its existing commitment to emission reductions. Based on the country's most recent emissions level assessment, Indonesia has set an unconditional reduction target of 29% and a conditional reduction target of up to 41% of the business-as-usual scenario by 2030. Under the BAU scenario, national emissions would increase from 1334-million-ton CO₂e in 2010, to 2,869-million-ton (Mton) CO₂e in 2030. With NDC mitigation actions, emissions are expected to be low-

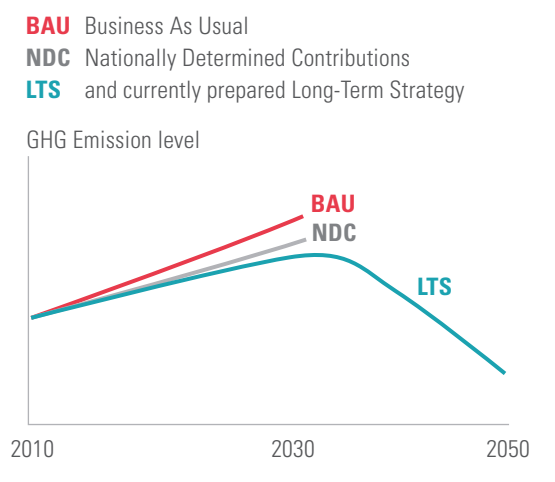
er i.e., 2,034 Mton CO₂e in 2030. With this lower emissions level, Indonesia would have an emissions reduction of 835 Mton CO₂e, which is equivalent to 29% of the BAU emissions in 2030. Of the 835 Mton CO₂e reductions, the energy and the AFOLU sectors are targeted to contribute 314 Mton CO₂e and 506 Mton CO₂e, respectively. With international support, the emissions reduction target becomes 398 Mton CO₂e and 654 Mton CO₂e, respectively.

One of the Indonesian Government activities subsequent to the NDC submission to the UNFCCC was to prepare the plans on how to implement the NDC actions and to achieve its targets. The plans are drafted and formulated in the form of an NDC implementation roadmap. The Ministry of Environment, in consultation with all line ministries and stakeholders, conducted several meetings to prepare the roadmap. Earlier this year, subsequent to the publication of the Initial [NDC Synthesis Report](#), the UN Climate Change urged nations to increase their NDC ambition, to submit stronger, more ambitious national climate action plans in 2021 in order to achieve the [Paris Agreement](#) goal of limiting global temperature rise by 2°C—ideally 1.5°C—by the end of the century. The major emitters are expected to step up with much more ambitious emissions reduction targets for 2030 in their Nationally Determined Contributions well before the November UN Climate Conference in Glasgow.

In response to the UN Climate Change expectation, the Indonesian Ministry of Environment, which is the country's focal point and coordinator for climate change matters, conducted several consultation meetings with line ministries and other stakeholders, to discuss the possibility of increasing its ambition with the submission of an updated NDC. Based on the latest progress of the consultation, the government will not pledge more ambitious mitigation targets. However, there will be some updates in the adaptation section of the NDC.

The government has also recently submitted the country's **Long-Term Strategy** (LTS). In accordance with Article 4, paragraph 19, of the Paris Agreement, all Parties should strive to formulate and communicate long-term low greenhouse gas emission development strategies. The COP, by its decision 1/CP 21, paragraph 35, invited Parties to communicate, by 2020, to the secretariat mid-century, long-term low greenhouse gas emission development strategies.

Figure 1. Illustration of GHG emission level



Indonesia's Long-Term Strategy has been developed through an in-depth participatory process led by the Government of Indonesia and guided by detailed research analysis of transition pathways exploring different technical and socio-economic trajectories from the present to mid-century. In its most ambitious pathway, the LTS describes options for peaking national greenhouse gas emissions in 2030 and reaching 540 MtCO₂e in 2050 (equivalent to 1.61 tCO₂/cap), with the possibility of achieving carbon neutrality in 2060 or sooner.

According to the observation of the authors, although Indonesia has not explicitly expressed the increased ambition in the updated NDC, it has implicitly increased ambition, embedded in the LTS trajectory, as illustrated below in **Figure 1**. As can be seen in the illustration, the emissions level of the LTS in 2030 would be lower than the NDC, implying an increased ambition of the emissions reduction target.

ACTIONS AND POLICIES: MAIN ADVANCEMENT AFTER THE PARIS AGREEMENT

After the Paris Agreement, the Government of Indonesia has made bolder moves towards climate ambition through the establishment of innovative policies, climate budget tagging, the Environmental Fund Management Agency (BPD LH), innovative financial

mechanism, and currently in process of formulating a carbon economic value.

One of the strategic approaches of Indonesia's NDC implementation is mainstreaming the climate agenda into development planning. Recognizing the need to integrate climate change into development and spatial planning and the budgeting process, Indonesia will include key climate change indicators in formulating its development program's targets.

In 2016, the Ministry of Finance made an effort in conducting **climate budget tagging**, of which in the near time, the budget tagging system will also be aimed at SDG-related programs to trace the SDG implementation in a more quantifiable output. The capacity to conduct climate budget tagging needs to be upscaled to funding institutions and project implementers, as it holds an important aspect for funding mobilization and potentially increases the Public-Private Partnership (PPP) funding system.

Referring to the limited mitigation cost covered by the state budget (20%), the majority of the sources (80%) are expected from the non-state actors. Under this condition, Indonesia is in the process of moving from the concentrator paradigm, a paradigm of fully burdening all the funding demand to public funding, to regard environmental services as the prospective business. In supporting this shifting paradigm, Indonesia has developed various instruments for alternative funding, for example, the issuance of Green Bonds/Sukuk as innovative financing to fund green and SDG-related projects.

In addition to that, the Ministry of Finance developed an **Ecological-based Fiscal Transfer Mechanism (TAPE/TAKE)** in 2019. The rationale behind this instrument was to support the green province initiative to strengthen the participation of the cities/districts under the provinces by providing an incentive scheme. As the incentive should be based on a commitment to protect the environment, the implementation of the scheme is to add ecological variables (e.g., forest area) in determining the amount of fund allocation from higher government level (province/district) to lower government level (district/village). To support the fiscal transfer governance, it is necessary to formulate regional regulations to mainstream the planning and regional funding.

As a starting point of the domestic carbon market, the Government of Indonesia is preparing **Presidential Regulation on carbon economic value on carbon**

pricing instrument. The regulation sets four main areas of NDC target achievement, carbon economic instrument, transparency framework, and low carbon development. The regulation will also state the role of the party/PS and non-party stakeholders/NPS (e.g., sub-national government, private sectors, and communities) in NDC implementation. It is expected that the presence of a domestic carbon market will increase NPS participation in low carbon transformation, including its transition process.

Through Presidential Regulation No.77/2018, Gol developed the **Environmental Fund Management Agency (BPDLH)**. BPDLH aims to collect, manage, and distribute environmental funds, under the principles of transparency and accountability to meet international governance standards. The fund is collected from state budget, provincial budget, and others (e.g., tax, retribution fund, international cooperation agreement). BPDLH has the authority to manage the fund through banking instruments and the capital market. The goal is to be able to manage funds more optimally and synergistically, as well as optimize the use of funds and mobilize funding resources from both domestic and international sources.

Environmental funds can be distributed under various mechanisms: carbon markets, loans, grants, endowment fund, etc. Under a grant mechanism, the environment fund for instance can be used as an incentive scheme for a village that conserves and restores degraded peatlands. Compared to grants, loans and endowments are the most sustainable systems, as the funding will afterwards return to BPDLH. BPDLH is now discussing the technical processes related to the endowment fund system (e.g., percentage return according to the activity risk, return year, etc.). It is expected that the endowment fund will be able to accommodate the forestry business under the social forestry scheme.

For the AFOLU sector, the breakthrough policies that have developed since Paris are the forest and peatland moratorium, the multi permit scheme, Indonesia's palm oil certification (ISPO), the sustainable jurisdiction agenda, and the utilization of villages' fund for peatland restoration costs.

The **permanent extension of forest and the peatland moratorium policy** are the supporting policies for Indonesia's REDD+ commitment. While the moratorium policy is aimed at natural forests

outside the concession area, the one located inside the concession area is regulated by a multi permit scheme. The idea of a multi permit scheme is to utilize natural forests for non-timber forest products (NTFP) and environmental services and to reduce the extent of unproductive land under conflict by utilizing the land that is already occupied by the community together with the private sector. In Indonesia, the transaction costs to address tenurial issues in concession areas is still high, leading to a slow planting rate of timber plantations (HTI). It is expected that the multi permit scheme could fasten the planting rate of the HTI while addressing tenurial issues.

In 2011, Gol established ISPO as a **palm oil domestic certification scheme**. To date, ISPO has been improving along with recently published Presidential Regulation No.44/2020 which was ratified in March 2020. The regulation is replacing the previous Ministerial Law of Agriculture No.11/2015, with the main amendment being a more independent ISPO process compared to the previous process, a monitoring process from an independent party, public participation in the certification, and mandatory for all oil palm plantations with a 5-years grace period.

It is expected that the ISPO certification system could be a bridge to sustainable jurisdiction certification, as one of the National Development Planning Agency (BAPPENAS) main agenda. Jurisdictional certification is a collaborative effort by local governments, producers, and civil society organizations, supported by donors and buyers, to meet sustainable and inclusive palm oil standards. In addition, certification at the jurisdictional level will reduce the cost of certification, specifically for smallholder plantations.

In the energy sector, the NDC action plan consist of energy conservation measures, use of renewable in the power sector (hydro, geothermal, biomass, solar PV), use of biofuels in transport and industry, use of clean coal technology (higher efficiency coal power plants), and use of less carbon-emitting fuels (substitute of coal by gas in industry, substitute kerosene by gas for cooking).

The government policy that is used as a reference in formulating the NDC is Government Regulation No. 79/2014 on **National Energy Policy**. This policy set out the ambition to transform, by 2025 and 2050, the primary energy supply mix with shares as follows: (a)

new and renewable energy at least 23% in 2025 and at least 31% in 2050; (b) oil should be less than 25% in 2025 and less than 20% in 2050; (c) coal should be minimum 30% in 2025 and minimum 25% in 2050; and (d) gas should be minimum 22% in 2025 and minimum 24% in 2050.

As the government strives to accelerate the target of net-zero emissions by increasing the new renewable energy mix, support from the private sector plays an important role in realizing the acceleration of this target. One example of collaboration between government and private sector is that on April 22, 2021, the government (Coordinating Ministry for Maritime and Investment Affairs, Ministry of PUPR, Ministry of ESDM, Ministry of ATR/BPN, Ministry of Environment and Forestry, Ministry of Investment/BKPM) together with North Kalimantan Provincial Government and Papua Provincial Government conducted a Joint Statement of Intent with two private companies to develop renewable energy to encourage green industry.

The decarbonization of the energy sector requires the substitution of the use of fossil energy by renewable energy and nuclear energy and the implementation of energy efficiency measures. Implementation of energy efficiency measures, decarbonization of power sector using large renewable and coal+CCS, biofuels in transport will be able to achieve the mitigation targets so that in 2050 the carbon emissions of the energy sector would reach around 550 ton/year in 2050 (which would be compatible with the Paris Agreement).

Green financing is important to support decarbonization in the energy sector, such as renewable energy, energy efficiency, and pollution prevention and control. The Ministry of Finance issued **Green Sukuk Ritel** ST-006 in November 2019. The green Sukuk/bonds showed the commitment for green financing for green energy, sustainable cities and communities, and climate change mitigation and adaptation action. Besides green bonds and green Sukuk, Gol will also invite private and state-owned companies to get involved in green projects and sustainable development. In addition, the International Finance Corporation (IFC) in partnership with the Financial Service Authority (OJK) developed a Sustainable Finance Roadmap, a comprehensive plan to promote sustainable finance. In July 2017, OJK issued a regulation that required banks to develop action plans for sustainable financing and to report their green financing.

CRITICAL BLOCKING POINTS

Despite the improvements that the Gol made since Paris, there are still critical blocking points that need to be tackled urgently, namely:

a. **Low capacity to execute Monitoring, Reporting, and Verifying (MRV)**

At present, there is still a low capacity for the regional government to do the MRV process. Conducting MRV at the regional level will support the alignment of regional government goals with SDGs and climate action. In addition, the MRV process will assist the process for climate budget tagging, under the effort of "greening the budget".

b. **The disparity of climate knowledge across regional government**

After 1999 and during the reformation era, Indonesia is entering a decentralization regime. Decentralization enables the regions to administer and manage their governmental affairs, meaning a transfer of responsibilities and authorities to the regional government. Under this regime, regional governments and their vision are key to the implementation of climate-related policy. Though policies and innovative schemes are developed and available at the national level, the implementation at the regional level is varied, affected by the capacity and knowledge of the government per se.

c. **The role of local governments has not been well developed**

Before, there was no integrated system that provided information regarding climate actions by multiple actors (PS and NPS) at the local level. In this case, the local government was running their programs without acknowledging activities by other actors in their area, hence it led to overlapped programs. This condition also made mitigation activities heavily burdened to the state budget, with low/no Public-Private Partnership (PPP). In 2016, the Ministry of Environment and Forestry, through Ministerial Regulation of MoEF No.84/2016, established Climate Village Program (Proklam). The objective of the program is to increase the participation of the community and other stakeholders to strengthen adaptive capacity and decrease GHG emissions. Under Proklam, PPP is one of the prerequisites for the program, as it is part of the institutional arrangement for Proklam implementation.

d. Food estate program that risks natural forest and peatland ecosystems

During the first year of the covid-19 pandemic, Indonesia's economy experienced a recession. As one of the programs for economic recovery, President Joko Widodo declared food estate as one of the national strategic programs 2020-2024. Food estate projects are located in four provinces, namely North Sumatra, South Sumatra, Central Kalimantan, and Papua. The area utilized for this project is the ex-Mega Rice Project peatland area. Despite rejection from scientists regarding this top-down decision, the program is still running. Deforestation risk from the program is increasing when MOEF released Ministerial Regulation No.24/2020 which allow food estate inside forest area, including production and protected forests. In addition, there is new terminology for the food estate under forests area, namely Food Security Forest Area (KHKP). Whilst communities and private owners are allowed to invest and manage the food estate area, there is a high possibility that the private will be the main target for this program, while communities remain marginalized.

e. Regional execution of Strategic Environmental Assessment far from pleasing

Through Regulation No.46/2016, the GoI provides rules and procedures for National and Sub-national governments in undertaking Strategic Environmental Assessment (KLHS), especially for spatial planning. At present, the implementation of KLHS is still far from satisfying due to unavailable, inaccessible, and inconsistent data as there is a lack of coordination between the regional government and the Agency for Regional Development (BAPPEDA). In addition, climate knowledge at the regional level is also one of the limitations (as mentioned previously). As currently KLHS only accommodates short-term development plans, and in the near future, the KLHS implementation should include land use optimization process, where there is sufficient land for agriculture, forestry, bioenergy and solar cell with a minimum level of ecosystem degradation and declined ecosystem services.

f. Weak cooperation between the government and universities/research centers

Even with a poverty level under 5%, poverty is still the main issue in Indonesia, including nutritious food and high-quality education. One of the main reasons for this is policymaking with poor theoretical

engagement and no peer review and academic freedom. In addition, it is estimated that the government expenditure in research was only 0.2% of its GDP. Without a rigid scientific basis, policymaking is prone to be inconsistent and lead to public confusion and trust issues. Achieving the Paris Agreement objectives require cooperation between government and academics/scientist to enable science-based policymaking.

g. Less harmonized climate programs across ministries and sectors

The achievement of the net-zero emissions target must be in line with the target of increasing industrial sector growth. For this reason, harmonization of the strategic plans of the Ministry of Energy and Mineral Resources and the Ministry of Industry is needed. Currently, most industrial sectors still use fossil energy as raw materials and energy. The industry do not only require electricity but also thermal energy that is difficult to replace by renewable energy. At present, cement, ceramic, chemical, textile raw materials, smelters, and other factories that require high heat use coal and gas. Lower GHG emission intensity for the industry is expected after utilizing CCS in industrial fossil energy systems, electrification of industrial equipment, and use of renewables (especially hydropower in metal industries). However, its realization depends on the carbon content of the electricity supplied by the utilities and the access of the smelter industry to hydropower resources.

h. Stranded assets

Decarbonization of the energy sector requires the substitution of the use of fossil energy by renewable energy and nuclear energy and the implementation of energy efficiency measures. However, this substitution of fossil energy by renewable energy will cause an economic problem since it will leave assets unexploited and left underground, which will become stranded assets. This certainly will have economic implications for countries that are endowed with fossil energy resources.

DDP

The DDP is an initiative of the Institute for Sustainable Development and International Relations (IDDRI). It aims to demonstrate how countries can transform their economies by 2050 to achieve global net zero emissions and national development priorities, consistently with the Paris Agreement.. The DDP initiative is a collaboration of leading research teams currently covering 36 countries. It originated as the Deep Decarbonization Pathways Project (DDPP), which analysed the deep decarbonization of energy systems in 16 countries prior to COP21 (deepdecarbonization.org). Analyses are carried out at the national scale, by national research teams. These analyses adopt a long-term time horizon to 2050 to reveal the necessary short-term conditions and actions to reach carbon neutrality in national contexts. They help governments and non-state actors make choices and contribute to in-country expertise and international scientific knowledge. The aim is to help governments and non-state actors make choices that put economies and societies on track to reach a carbon neutral world by the second half of the century. Finally, national research teams openly share their methods, modelling tools, data and the results of their analyses to share knowledge between partners in a very collaborative manner and to facilitate engagement with sectoral experts and decision-makers.

www.ddpinitiative.org



The institute began as an agricultural school formed by the Dutch colonial regime in the early 20th century. After independence it was part of the University of Indonesia before becoming an independent institute on September 1, 1963. Prof. Dr. Arif Satria, S.P., M.Si. serves as its director.

<https://www.ipb.ac.id>



The Bandung Institute of Technology (Indonesian: Institut Teknologi Bandung, abbreviated as ITB) is a state, coeducational research university located in Bandung, Indonesia. Established in 1920, ITB is the oldest and first technology-oriented university in Indonesia. According to the rector of ITB, ITB had built an eight-storey mining research centre for both national and international research such as research on oil reservoirs, production optimisation, geological exploitation and coal exploitation development worth Rp110 billion (\$12.1 million).

<http://www.itb.ac.id>

IDDRI

The Institute for Sustainable Development and International Relations (IDDRI) is an independent, not-for-profit policy research institute based in Paris. Its objective is to identify the conditions and propose tools to put sustainable development at the heart of international relations and public and private policies. IDDRI is also a multi-stakeholder dialogue platform and supports stakeholders in global governance debates on the major issues of common interest, such as actions to mitigate climate change, protect biodiversity, strengthen food security, and to manage urbanisation. The institute also participates in work to build development trajectories that are compatible with national priorities and the sustainable development goals.

www.iddri.org