MINISTRY
OF ENVIRONMENT AND FORESTRY

FOLU NET SINK:

Indonesia's Climate Actions Towards 2030

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Tropical Forest of Betung Kerihun and Danau Sentarum National Park, home of high biodiversity in West Kalimantan.
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PREFACE

Indonesia's FOLU Net Sink 2030 agenda was developed at the time when the Country was taking a position of High Ambition on Climate Action, embracing 2022 as the year of Indonesia's G20 Presidency. The ambitious target of negative emission for the FOLU sector shows extraordinary but realistic determination, built on the performance for at least seven years in alignment with President Joko Widodo's central message to focus on real work "under promise, over deliver". Now, we have set the milestone for reaching FOLU Net Sink!

The legal basis for Indonesia's FOLU Net Sink 2030 agenda is the Presidential Regulation No. 98 of 2021 on the Implementation of Carbon Pricing to Achieve the Nationally Determined Contribution Target and Control Over Greenhouse Gas Emissions in the National Development, in the Article 3 Paragraph (4).

Guidelines for operation of Indonesia's FOLU Net Sink 2030 agenda are provided in the Operational Plan document stipulated by the Environment and Forestry Ministerial Decree No. 168/2022. The document outlines detailed mitigation programs and activities, spatial approaches-based operational plan, persons in charge of the activities/programs, human resource needs, facilities and infrastructure, budgeting, and national implementation timelines for 2022-2030.

The Operational Plan of Indonesia's FOLU Net Sink 2030 is directed to reach an emission level at minus 140 Mt CO_2e by 2030, and minus 304 Mt CO_2e by 2050, leading to the net emission level for all sectors in the national level of 540 Mt CO_2e or equivalent to 1.6 tonnes CO_2 per capita.

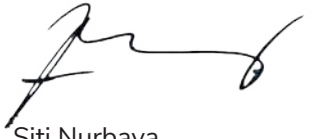
The target will be achieved through a set of strategic measures. Reducing the rate of deforestation and forest degradation is at the heart of the measures. It is coupled with the actions to develop plantation forests, implement sustainable forest management, promote social forestry and forest rehabilitation with and without rotation. Furthermore, peatlands and mangrove forests, two essential ecosystems storing high amounts of carbon stock will be highly protected and restored for those that have been degraded. Other measures include biodiversity and ecosystem conservation, law enforcement, development of various new policy instruments, as well as development of monitoring and evaluation systems.

Indonesia's FOLU Net Sink 2030 Agenda has a consequence that efforts and hard work conducted by all parties must be enhanced and aligned in a measurable and accountable manner. Collaboration and synergy amongst the relevant stakeholders, including central government, local governments, academic society, the private sector, and communities in the grassroots level play an essential role in attaining the ambitious agenda.

Therefore, substantive climate actions carried out on the ground throughout the Country must be properly documented and systematically communicated to the public. This Book of FOLU Net Sink: Indonesia's Climate Actions Towards 2030 constitutes an important documentation, not only for communicating strategic actions to address catastrophic climate change that have been thoroughly carried out by the Country, but also providing open information about the good performance of climate change-related stakeholder collaboration.

It is delighting to see many parties taking parts in supporting Indonesia's FOLU Net Sink Agenda. There is a hope that this publication will become a legacy and reference for all of us in making Indonesia's Climate Action Towards 2030 victorious.

Jakarta, April 2023
Minister of Environment and Forestry



Siti Nurbaya

A landscape in Sebangau National Park, Central Kalimantan, one of the largest peatland ecosystems in Indonesia.
©Rahmat Hidayat

FOLU NET SINK:
Indonesia's Climate Actions Towards 2030

Editor-in-Chief:
Siti Nurbaya

Managing Editor:
Agus Justianto

Associate Editors:
Sri Murniningtyas
Eka Widodo Soegiri
Muhammad Zahrul Muttaqin
Sugiharto Budiman
Mimi Salminah

Creative Team:
Simon Onggo, Juan Samuel

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A flock of birds of itik benjut (Anas gibberifrons) and kuntul kerbau (Bubulcus ibis) live in harmony in Rawa Aopa Watumohai National Park, Southeast Sulawesi. This area is the largest freshwater peat swamp in Sulawesi, as the habitat for diverse water bird species.

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A small dot of mangrove forest located in Karimunjawa National Park, Central Java.
©Hary Susanto

The Laut Bangko Lake, one of natural attractions in Gunung Leuser National Park, Aceh.
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I. INTRODUCTION

The report published by the Intergovernmental Panel on Climate Change (IPCC) in April 2022 revealed an alarming fact that Green House Gas (GHG) emissions have caused the earth's average temperature to rise above 1.5° Celsius. This is critical because the inevitability of global warming may trigger catastrophic climate change-related disasters.

In Indonesia, climate change-associated disasters have frequently occurred. For instance, prolonged flooding in Kalimantan due to extreme rainfall, high intensity of forest and land fires in Sumatra due to hot weather, and the rise of sea level on the north coast of Java.

In addition to natural disasters, climate change also results in failure of food crops and can create an explosion of disease-carrying vectors such as mosquitoes and flies.

In order to curb global GHG emissions, the world acceded to the Paris Agreement in 2015. Every single country, including Indonesia, determined its own target for contributing to GHG emission reduction, in which the target was then set forth in their Nationally Determined Contribution (NDC) document. Indonesia set a target of 29% emission reduction through its own efforts and of 41% with international support.

The climate ambition was enhanced in the Updated NDC by strengthening the commitment, which was implemented through several programs, strategies, and actions in the elements of mitigation, adaptation, transparency framework, and other supportive implementation instruments.

In September 2022, Indonesia submitted the Enhanced NDC to the UNFCCC Secretariat. The document contains the increased target of emission reduction from 29 percent to 31.89 percent unconditionally and from 41 percent to 43.20 percent conditionally. Apart from the Enhanced NDC document, the country submitted the Long-Term Strategy for Low Carbon and Climate Resilience 2050 (LTS-LCCR) document, determining a vision to enhance national climate action ambition. The document further affirms the target of Carbon Neutrality, even more, Carbon Net Sink for the FOLU sector by 2030.

Indonesia's FOLU Net Sink 2030 means that carbon sequestration from the forestry and other land use (FOLU) sector are higher than, or at least equal to its overall emissions by 2030.

Indonesia's FOLU Net Sink affirms that GHG absorption from the forestry sector is targeted to reach minus 140 megatonnes (Mt) CO_2e by 2030 and then continue to decrease to minus 304 Mt CO_2e by 2050.

Indonesia's FOLU Net Sink 2030 serves as the backbone of Indonesia's GHG emission reduction. Referring to the LTS-LCCR, Indonesia's peak GHG emissions are predicted to reach 1,244 million tonnes of CO_2e in 2030 and then decrease to 540 million tonnes of CO_2e in 2050. Indonesia is projected to achieve Net Zero Emissions in 2060, wherein GHG absorption is higher than its emissions.

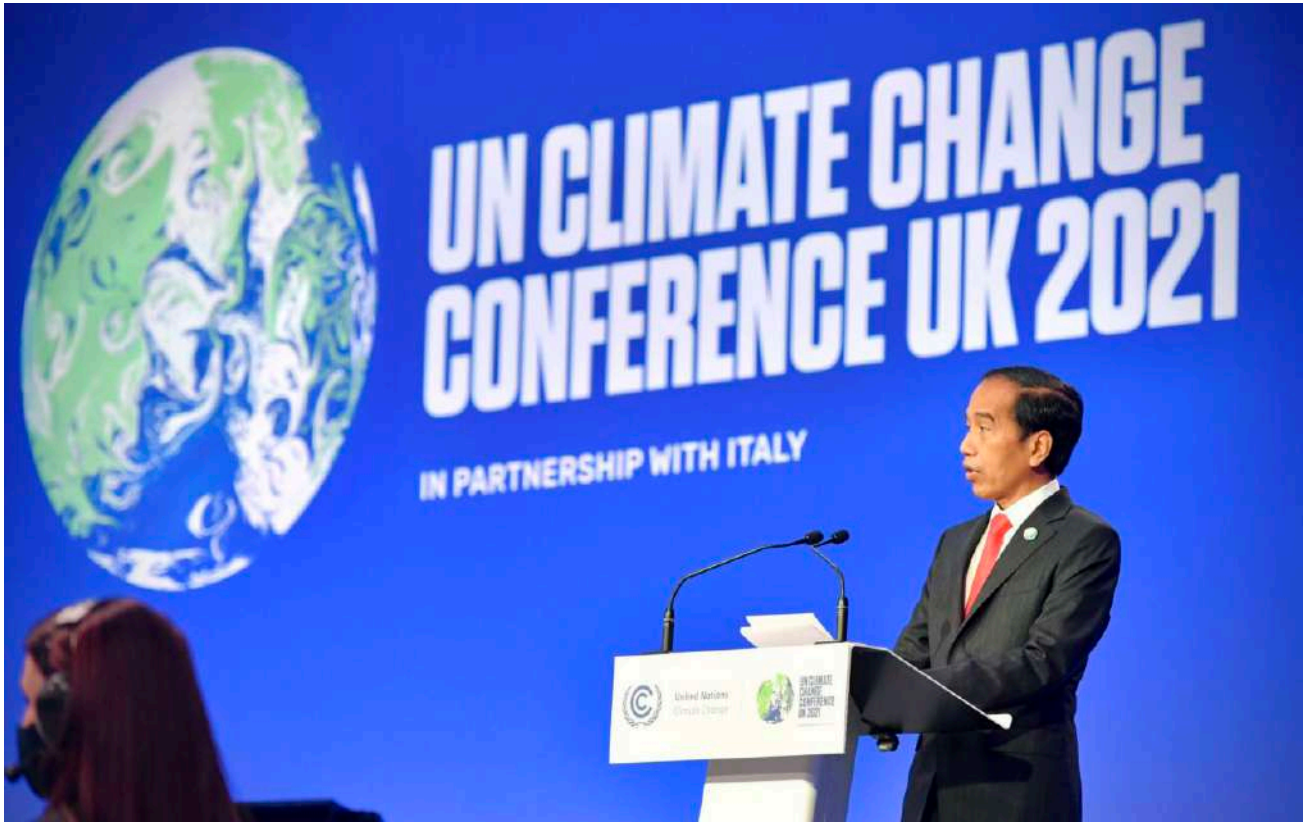
Indonesia's FOLU Net Sink 2030 was first declared to the global community at COP26 to the UNFCCC in Glasgow, the United Kingdom. Through Indonesia's FOLU Net Sink 2030, the Country takes a "leading by example" position in mitigating global climate change.

At the Special Leader's Event: Action on Forests and Land Use, President Joko Widodo conveys undeniable Indonesia's concrete achievements on forestry sector. These include the drop of forest and land fires rate, the reduction of emissions from forestry and other land uses sectors, and significant decrease of deforestation rate.
(Scottish Event Campus, Glasgow, Scotland, 2 November 2021)

After engaging in the series of meetings in G20 Leaders Summit 2021 in Rome from 30 to 31 October 2021, President Joko Widodo leaves Fiumicino Leonardo da Vinci International Airport, heading for Scottish city of Glasgow to join the World Leaders Summit at COP 26 UNFCCC from 1 to 2 November 2021. (Rome, Italy, 31 October 2021)

President Joko Widodo arrives at Glasgow Prestwick Airport, welcomed by Minister Siti Nurbaya and Vice-Minister Alue Dohong. The President gives directives to Minister of Environment and Forestry Siti Nurbaya and Minister of Foreign Affairs Retno Marsudi on Indonesia's position in World Leaders Summit COP 26 UNFCCC. (Glasgow, Scotland, 31 October 2021)

Among 121 Heads of State and Government of the 197 Parties to the UNFCCC, President Joko Widodo engages in the World Leaders Summit COP 26 UNFCCC chaired by the British Prime Minister Boris Johnson and attended by the United Nations Secretary General António Guterres.
(Scottish Event Campus, Glasgow, Scotland, 1 November 2021)



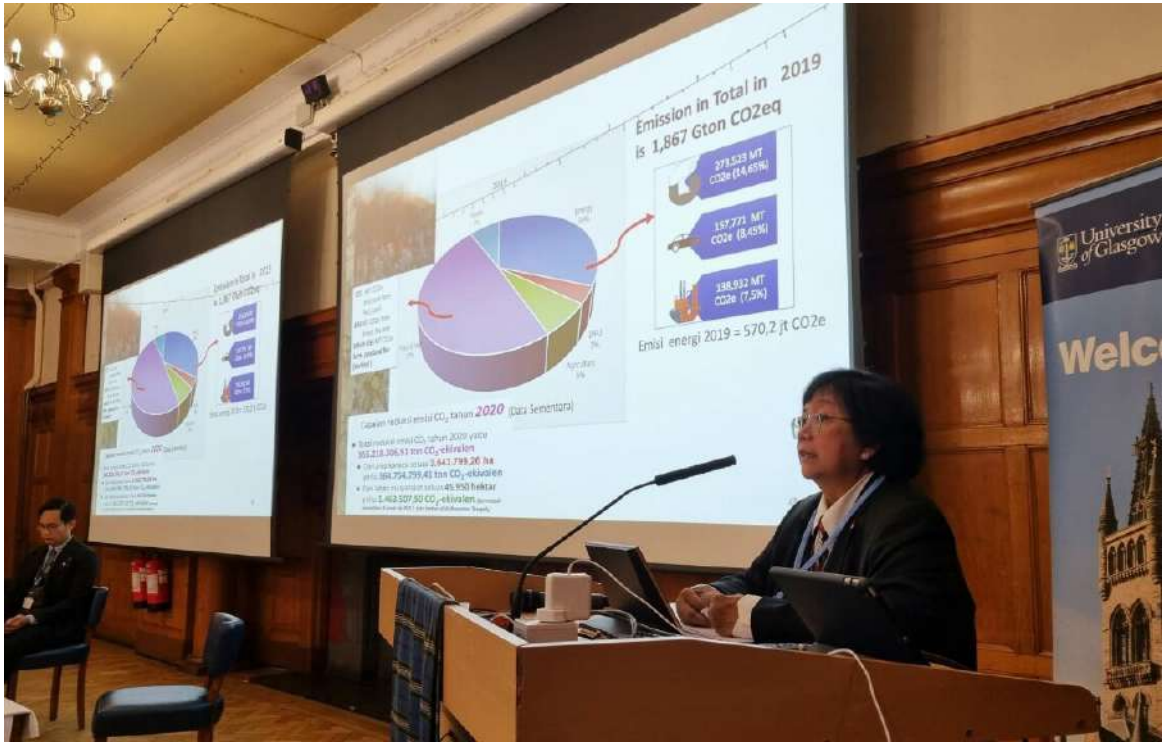
On the national statement, President Joko Widodo emphasizes that solidarity, partnership, cooperation, and global collaboration are keys to address climate change issues. Indonesia continues to contribute to tackling climate change by restoring peatland ecosystems and rehabilitating forests and degraded lands, and developing carbon pricing mechanism. The President also conveys the strategic position of Indonesia in reducing emissions and increasing carbon stocks, and in contributing to carbon market for mobilizing climate finance and innovative financing. (Scottish Event Campus, Glasgow, Scotland, 1 November 2021)

The three speakers at the first part of the Special Leaders' Event Action on Forests and Land Use are the British Prime Minister Boris Johnson, the Columbian President Ivan Duque Marquez , and President Joko Widodo. The Event is moderated by Co-President of the Club of Rome Sandrine Dixson Decleve.
Scottish Event Campus, Glasgow, Scotland, 2 November 2021)

President Joko Widodo gently reminds Heads of State and Government who are present at the COP 26 UNFCCC on the importance of market incentive mechanism for sustainable forest management to support small medium enterprises.
(Scottish Event Campus, Glasgow, Scotland, 2 November 2021)

At the Bilateral Meeting with the United States of America President Joe Biden, President Joko Widodo reaffirms Indonesia's commitment to reduce greenhouse gas emissions, in particular by reducing deforestation rate, reducing forest and land fires rate, as well as rehabilitating mangrove covering 600,000 hectares within three years.
(Scottish Event Campus, Glasgow, Scotland, 1 November 2021)

President Joko Widodo holds a CEOs Forum with some major British investors to accelerate green economy development and energy transition. (Turnberry, Scotland, 1 November 2021)



At the Seminar on Insight Talks on Climate Change Issues hosted by the Indonesian Student Association in Greater Glasgow, Minister Siti Nurbaya elaborates “Indonesia’s Strategy in Achieving Net Zero Emissions”. (University of Glasgow, Scotland, 2 November 2021)

British Minister for Pacific and the Environment at the FCDO and the Department of Environment, Food and Rural Affairs the Rt Hon Lord Goldsmith (third from left side) delivers keynote speech at the “Introducing Indonesia’s FOLU Net Sink 2030: Ambitious Initiative for the World” session.
(Scottish Event Campus, Glasgow, Scotland, 3 November 2021)

II. COMMITMENT OF INDONESIA'S FOLU NET SINK 2030

The Intergovernmental Panel on Climate Change (IPCC) reminds that the only way to prevent climate disasters in a sustainable measure is to reduce emissions while simultaneously reducing GHG concentrations in the atmosphere.

The implementation of the Paris Agreement is therefore unavoidable. The Paris Agreement, adopted by 196 Parties at COP 21 in 2015, aims at restraining global temperature rise in this century to below 2° Celsius while pursuing efforts to limit the increase even further to 1.5° Celsius.

Indonesia has showed strong commitment to reducing the emissions by ratifying the Paris Agreement in Law no. 16/2016. The Paris Agreement requires state parties to define and communicate their post-2020 climate resilience actions in a document that describes climate commitments and actions from a country, referred to as the Nationally Determined Contribution (NDC). The document is communicated to the world through the Secretariat of the United Nations Framework Convention on Climate Change (UNFCCC).

Indonesia's first NDC which sets a target of an emission reduction at 29 percent through own efforts and 41 percent with necessary international assistance by 2030 was submitted in 2016. The country then submitted an updated NDC in November 2021, which showed strengthened commitment through several improved programs, strategies, and actions in the elements of mitigation, adaptation, transparency framework, and other supportive implementation instruments. The target was further increased from 29 percent to 31.89 percent unconditionally and from 41 percent to 43.20 percent conditionally, as documented in the Enhanced NDC that was submitted to the Secretariat of the UNFCCC in September 2022.

Earlier, the country had submitted another document, Long Term Strategy for Low Carbon and Climate Resilience 2050 (LTS-LCCR), which contains a vision to increase the national climate action ambition. The document mentions that the emission will peak at the figure of 1.244 Mt CO_2e by 2030, but then decrease to 540 Mt CO_2e by 2050. It is projected that the country will be able to reach net zero emission in 2060, which depicts an overall balance between greenhouse gas emissions produced and greenhouse gas emissions absorbed, even the GHG absorption can be higher than the GHG production.

The target will be achieved through a set of technological development-relevant activities in various sectors including energy, waste, IPPU, agriculture, forestry, and other relevant sectors. Of the total national emission reduction target, 60% will rely on the Forestry and Other Land Use (FOLU) Sector.

The overarching objective of Indonesia's FOLU Net Sink 2030 is to reach the emission level from the Forestry and Other Land Use Sector at minus 140 Mt CO_2e and further reduce to 340 Mt CO_2e by 2050.

Most of the area in Berbak Sembilang National Park (BSNP) is dominated by wetland ecosystem. As the largest wetland area in South East Asia, BSNP plays a major role as habitat of high biodiversity of flora, fauna and their ecosystem.

At the COP 21 UNFCCC attended by nearly 200 heads of state and government, President Joko Widodo assures that Indonesia contributes to climate change mitigation, particularly in promoting the principle of common but differentiated responsibilities.
(Paris, France, 30 November 2015)

2.1 The Paris Agreement

The Paris Agreement is a historical milestone of the start of a new paradigm in addressing climate change issues that have been an object of international concern for the last 20 to 30 years, after the Earth Summit in 1992 in Rio de Janeiro, Brazil agreed upon the UNFCCC (United Nations Framework Convention on Climate Change) and Kyoto Protocol to the United Nations Framework Convention on Climate Change in 1997.

In 2015, when COP to the UNFCCC was held in Paris, France, a monumental global agreement was reached, the Paris Agreement, which was purposed to keeping a global temperature rise of this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius. In Indonesia's national statement, President Joko Widodo stated that the Paris Agreement must reflect on equality, be fair and take into account national priorities and capabilities, so it must be legally-binding, durable, ambitious, but shall not halt the development of the developing countries.

Then, on 22 April 2016, during the High-Level Signature Ceremony for the Paris Agreement in UN Headquarters, New York, United States of America, there were 175 countries, including Indonesia, signing the Paris Agreement.

Realising the role of the environment in promoting better life for citizens, in accordance with the principles of the 1945 Constitution, Indonesia ratified the Paris Agreement. The Parliament also gave its support on 19 October 2016 by agreeing to endorse the draft Bill on the Paris Agreement. The Law (UU) No. 16 of 2016 on Ratification of the Paris Agreement to the United Nations Framework Convention on Climate Change was later issued on 24 October 2016.

The Agreement entered into force on 4 November 2016, 30 days after the date on which at least 55 Parties to the Convention accounting in total for at least an estimated 55 % of the total global greenhouse gas emissions have deposited their instruments of ratification, acceptance, approval or accession with the Depositary and their Nationally Determined Contribution (NDC).

Based on the Agreement, each country must contribute to the efforts to reduce global greenhouse gas (GHG) emissions, wherein their own target must be set forth in the NDC for the period 2020-2030.

In the enhanced NDC, measures to reduce emissions in Indonesia are focused on five sectors: energy, industry, forestry, agriculture and waste, by which the forestry sector takes the largest contribution. The sector accounts for 17.4 percent of the 31.89 percent unconditional target and 25.4 percent of the 43.20 percent conditional target.

Minister Siti Nurbaya signs the Paris Agreement at the High-level Signature Ceremony for the Paris Agreement at the UN Headquarters.
(New York, The United States of America, 22 April 2016)

Left: Ten fractions of the House of Representatives agree to endorse the draft Bill on Paris Agreement.
(Jakarta, 17 October 2016)

Right: The Bill on Paris Agreement is passed in the House of Representatives. Minister Siti Nurbaya and three speakers of the House: Taufik Kurniawan, Fadli Zon, and Agus Hermanto.
(Jakarta, 19 October 2016)

President Joko Widodo inaugurates the Rumpin Nursery, attended by several Ambassadors based in Indonesia and the World Bank Country Director. This permanent nursery has annual production capacity of 12 million seedlings for regreening and rehabilitation of degraded land programs which will absorb GHG emissions.
(Rumpin, Bogor District, West Java, 10 June 2022)

2.2 Indonesia's FOLU Net Sink 2030 within the Long-Term Strategy for Low Carbon and Climate Resilience

Apart from the Enhanced NDC, Indonesia also submitted a document of the Long-Term Strategy for Low Carbon and Climate Resilience (LTS-LCCR) 2050, which contains a vision to increase the on-going ambition of national climate actions.

The document states that Indonesia's GHG emissions is predicted to peak in 2030, which is 1,244 Mt, and then decrease to 540Mt CO_2e in 2050. Furthermore, it is projected that in 2060 Indonesia will be able to achieve Net Zero Emission, a condition where greenhouse gas emissions produced and greenhouse gas emissions absorbed are equal, even more, the absorption can exceed the emission production.

The target will be achieved through a set of technological development-relevant activities in various sectors which are energy, waste, industrial processes and product use (IPPU), agriculture, forestry, and/or other relevant sectors.

Of these sectors' total emission reduction target, almost 60% will rely on the forestry and land use sector (FOLU). Therefore, Indonesia's FOLU Net Sink 2030 was stipulated, a commitment built to make the FOLU sector reach a net sink condition by 2030.

According to Indonesia's FOLU Net Sink 2030, FOLU sector is targeted to reach emission levels of up to minus 140 Mt CO_2e. The target continues to be increased to negative emission of 304 Mt CO_2e by 2050, a substantively great contribution to global climate change mitigation.

The Permanent Nursery of Rumpin is established under public-private partnership (KPBU) scheme involving the Ministry of Environment and Forestry, the Ministry of Public Works and Public Housing, and APRIL Group. This scheme becomes a model of collaboration in promoting reforestation and rehabilitation of degraded land, which will absorb GHG emissions.
(Rumpin, Bogor District, West Java, 10 June 2022)

The Permanent Nursery of Rumpin produces various seedlings including albasia/sengon, eucalyptus, manglid, teak, and mahagony which will generate income for community. (Rumpin, Bogor, West Java, 10 June 2022)

2.3 The Contribution of FOLU to the National Development and Community Welfare

Achieving Indonesia's FOLU Net Sink 2030 will not neglect national development programs and measures to improve forest and land uses-based community welfare.

In fact, Indonesia still enjoys great opportunity to improve the welfare of its 270 million population which is still growing, while leading the way in reducing GHG emissions as has been demonstrated over the past 5-7 years.

In that period, Indonesia had showed robust evidence in reducing GHG emissions (leading by example) while continuing to spur the economy and welfare of its people.

This can be seen from the efforts of the Government of Indonesia to reduce deforestation to its lowest point in history, which was around 115 thousand ha in 2019. This figure was far below the peak of deforestation that occurred in Indonesia in the late 1990s which reached 3.5 million ha per year. Another performance as evidence is the reduction in the number of forest and land fires to the lowest level in the last decade.

Indonesia has taken the bold step of halting the issuance of new licenses on primary forests and peatlands. This policy covers more than 66 million ha of primary forests and peatlands. In addition, the Government has improved peatland governance including its water management which covers an area of 3.4 million ha.

Leading by example is also carried out by the Government through the efforts of forest and land rehabilitation and sustainable production forest management. On the other hand, to improve community welfare, a social forestry scheme with an agroforestry pattern had been developed and had reached 4.7 million ha by the end of 2021.

In terms of forest protection, the areas included in the High Conservation Value Forest (HCVF) within 2.7 million ha forest concession areas are sustainably maintained. In addition, law enforcement is carried out through tighter supervision and stronger regulation implementation.

These real climate actions aim to ensure that the Government of Indonesia will successfully achieve the commitment of Indonesia's FOLU Net Sink 2030.

One of President Joko Widodo's approaches in his G20 presidency is mangrove diplomacy. President Joko Widodo invites several G20 Leaders and international organization to plant mangrove at Ngurah Rai Grand Forest Park. Planting mangrove is one of concrete actions carried out by Indonesia to combat climate change. With that, President Joko Widodo invite G20 countries to engage in an inclusive green economy development.
(Denpasar, Bali, 16 November 2022)

President Joko Widodo declares that Indonesian Government is aiming to rehabilitate 600,000 hectares of mangroves forest in the country by 2024. While provide income generation to community, the rehabilitation of mangrove is also part of climate mitigation and adaptation action. (Mangrove Forest in Balikpapan, East Kalimantan)

President Joko Widodo inaugurates the second phase of development of an integrated electric battery industry in the Batang Integrated Industrial Area. The electric vehicles have potential to decarbonize public transportation.
(Batang District, Central Java, 8 June 2022)

President Joko Widodo inaugurates the launch of the first Ultra Fast Charging (SPKLU) in Indonesia, held at the ITDC Nusa Dua Central Parking. In developing electric vehicle with low GHG emissions ecosystem, Indonesia has prepared upstream to downstream infrastructures, from battery industries and its components to home charging and SPKLU.
(Badung District, Bali, 25 March 2022)

President Joko Widodo inaugurates Waste-to-Energy Plant of Benowo Landfill in Surabaya. The spirit of the establishment of the facility is to provide low-emission energy while improving solid waste management in metropolitan cities.
(Surabaya, East Java, 6 May 2021)

Indonesia designs permanent solution in forest and land forest fires control by involving local communities through Legal Awareness of Fire Care Community Development (MPA Paralegal).

In order to reduce GHG emissions, Indonesia carries out energy transition using new and renewable energy; one of the transition programs is biomass utilization for co-firing of Tarahan steam power plant (PLTU Tarahan), Lampung, so that coal utilization for energy can be reduced.

Geothermal utilization in Gunung Halimun Salak National park. Geothermal is a low carbon emission energy which can be found in many conservation forests. Geothermal utilization will positively affect Indonesia's GHG emissions reduction target.

The Sidrap I wind power plant (PLTB Sidrap I) is the first commercial wind power plant in Indonesia. The power plant is the manifestation of the government's commitment to achieve new renewable energy mix target. (Sidenreng Rappang, South Sulawesi, 2 September 2019)


COP27
UNITED NATIONS CLIMATE CHANGE CONFERENCE
EGYPT NOVEMBER 2022

III. STRATEGY TO REACH INDONESIA'S FOLU NET SINK 2030

Providing a good environment and sustainably managing natural resources for the nation's welfare is the mandate of the 1945 Constitution. In particular, the mandate is emphasized in the Article 28H of the Constitution that every Indonesian citizen has the right to a decent environment. The article 33 also emphasizes that Indonesia's land and natural resources must be sustainably managed by the government for the prosperity of the people.

In practice, this mandate is further regulated by several implementing regulations including the Law on Environmental Protection and Management, the Law on Forestry, and the Law on Conservation of Natural Resources and Ecosystems.

The mandate leads Indonesia to the Paris Agreement, a global commitment to preventing climate change-associated environmental disasters. Indonesia ratified the Paris Agreement through Law No. 16 of 2016. The heart of the Paris Agreement and the achievement of its long-term goals are contained in a Nationally Determined Contribution (NDC), a non-binding national plan highlighting climate change mitigation.

To meet the commitment, Indonesia has developed an NDC Implementation Strategy and two Road maps on Mitigation and on Adaptation. In 2021 Indonesia updated the NDC, and then submitted the Enhanced NDC in September 2022. Indonesia also designed a Long-Term Strategy for Low Carbon Development and Climate Resilience (LTS-LCCR) 2050.

In the scenario of reducing emission levels, the FOLU sector was projected to contribute to almost 60% of the total national target.

Given the great contribution, the efforts of the forestry sector to control and reduce national emission level play a critical role and deserve to get support from both national and global communities. Indonesia's LTS-LCCR 2050 outlines a design of the FOLU sector which is targeted to have reached net sink since 2030. The design refers to Indonesia's FOLU Net Sink 2030.

FOLU Net Sink represents a condition of carbon neutrality, even more carbon positive which will be reached by reducing emission levels from the forestry and other land use sector.

The scenario was designed based on common performance in implementing corrective action policies in the forestry sector, supported by the deep investigation on the forestry issues that have been going on for a dozen years or more.

Indonesia's FOLU Net Sink 2030 was translated into a detailed operational plan, which serves as a foundation for implementation of emission reducing activities. The operational plan was then also derived into a work guideline or a systematic manual for tackling forest and land uses-related issues such as forest and land fires, deforestation and forest degradation, habitat and biodiversity conservation, as well as peatland and mangrove management.

Vice President Ma'ruf Amin delivers National Statement at the High Level Segment of COP27 UNFCCC. In the occasion, the Vice President explains Indonesia's measures in reducing GHG emissions, among others by implementing Indonesia's FOLU Net Sink 2030.
(Sharm El-Sheikh, Egypt, 7 November 2022)

President Joko Widodo chairs Indonesia Onward Cabinet Limited Meeting discussing instrument policies of carbon economic value or carbon pricing. The regulation is important in reducing GHG emissions and achieving NDC targets. (Jakarta, 6 July 2020)

3.1 Policy Formulation

President Joko Widodo has asserted that Indonesia will reach Net Zero Emission by 2060 or earlier, as the country's contribution to global climate change mitigation.

The statement serves as a directive for the Minister of Environment and Forestry, Siti Nurbaya and all of MoEF officials to formulate implementing policies as a form of guidance of the implementation. Intensive communication with other relevant ministries is built to sharpen the policy formulation, hence the policies are applicable on the ground.

To tackle climate-associated disasters, the Ministry of Environment and Forestry laid out the NDC Implementation Strategy in 2017, which was followed by the preparation of a Road Map on Mitigation in 2019. Thereafter, the existing NDC was updated in 2021. A new document of Enhanced NDC was then submitted to the Secretariat of the UNFCCC in September 2022. Furthermore, Indonesia developed a long-term strategy for low carbon and climate resilience 2050 so called LTS-LCCR 2050.

The document outlines Indonesia's FOLU Net Sink 2030, which highlights a condition of carbon positive in the forestry and land use sector by 2030.

Net sink policy does not mean zero deforestation, but diminishing deforestation to minimum level while conducting reforestation, rehabilitation, and environment recovery towards carbon positive position.

A Ministerial-level meeting discusses on accelerating the implementation of derivative regulations of Presidential Instruction No. 98 of 2021 on Carbon Economic Value to achieve the NDC target, by domestic and international carbon trades, and accelerating green energy or new renewable energy development.
(Jakarta, 11 January 2022)

3.2 Legal Basis of Indonesia's FOLU Net Sink 2030

Indonesia's FOLU Net Sink 2030 is not a lip service. The government will ensure to carry out an array of climate actions to reach FOLU Net Sink 2030, and officially attach the target as part of the Enhanced Nationally Determined Contribution and Long-Term Strategy for Low Carbon and Climate Resilience 2050 (LTS-LCCR) which have been submitted to the secretariat of the UNFCCC.

Moreover, the government prepared Operational Plan of Indonesia's FOLU Net Sink 2030, which was put into force through the Presidential Regulation No. 98/2021 on the Implementation of Carbon Pricing to Achieve the Nationally Determined Contribution Target and Control Over Greenhouse Gas Emissions in the National Development, and its implementing regulation of Environment and Forestry Minister Decree No. 168 of 2022.

The Operational Plan was prepared using spatial analysis-based approaches including analysis of forest quality index, high conservation value, environmental services, as well as biophysical indexes of carbon sequestration and forest and land fires. It also takes into account several modalities such as forest use direction (RKTN) 2011-2030, institutional capacity, and existing social capital on the ground.

FOLU Net Sink 2030 outlines the following 15 mitigation actions:

1. Reducing deforestation rate on dry land forest ecosystems (mineral soil forests)
2. Reducing deforestation rate on peatland and mangrove ecosystems
3. Reducing degradation rate on dry land forest ecosystems
4. Reducing degradation rate on peatland and mangrove ecosystems
5. Establishing plantation forests
6. Managing forests in sustainable manners
7. Rehabilitating degraded land with rotation
8. Rehabilitating degraded land without rotation
9. Restoring peatlands and improving peat water management
10. Implementing mangrove rehabilitation and afforestation within post-mining areas.
11. Implementing biodiversity conservation
12. Developing social forestry
13. Introducing replication of ecosystems, urban green spaces, and eco riparian
14. Enhancing supervision and law enforcement to support forest protection
15. Establishing and enhancing Adat Forests

Minister Siti Nurbaya leads the discussion on the development of Operational Plan of Indonesia's FOLU Net Sink 2030. The document is developed using spatial analysis approach, taking into consideration Forest Areas Utilization Directives/National Forestry Plan (RKTN) 2011-2030, institutional capacity and community's social capital at site level.
(Jakarta, 20 December 2021)

Director General of Sustainable Forest Management Agus Justianto, Director General of Climate Change Laksmi Dhewanthi, Senior Advisor to the Minister of Environment and Forestry Efransjah, and Director General Ad Interim of Forestry Planning and Environmental Governance Ruandha A. Sugardiman elaborate strategies in achieving Indonesia's FOLU Net Sink 2030 at the Indonesia Pavilion COP27 UNFCCC; one of the strategies is Carbon Economic Value Development policy.
(Sharm El-Sheikh, Egypt, 8 November 2022)

3.3 SWOT Analysis

It is admitted that Indonesia's FOLU Net Sink is an ambitious target. Nonetheless, it is achievable, not just a wishful thinking. Indonesia's FOLU Net Sink was constructed based on deep consideration in order to support NDC implementation.

In terms of strength, Indonesia has enough capital to achieve FOLU Net Sink. It includes the reduction in deforestation and in forest and land fires as a result of improvements in forest governance that have been carried out since 2014 under the leadership of President Joko Widodo.

Indonesia's FOLU Net Sink target is measured in a systematic and scientific manner employing spatial analysis-based approaches, such as; Forest Quality Index, High Conservation Value (HCV), environmental services, and bio-geophysical Indexes of carbon sequestration and land and forest fires (IBGF). It also takes into account several modalities such as forest use direction (RKTN) 2011-2030, institutional capacity, and existing social capital on the ground.

As a newly published idea, the FOLU Net Sink must continue to be propagated so that it can be thoroughly understood by all stakeholders, particularly in the grassroots level. It also needs to be understood that science becomes a basis to tackle climate crisis, which sometimes makes terminology employed in the UNFCCC pathways unpopular.

There is still high opportunity to achieve the ambitious target. The government has conducted interactive outreach to all relevant stakeholders including grassroots communities since the target was published to the public. As a result, all relevant stakeholders such as related ministries, scientists, and non-state actors expressed great support and optimism for the implementation of Indonesia's FOLU Net Sink towards carbon positive of 140 Mt CO_2e by 2030. Furthermore, showcases, centers of excellence, and the best practices in the field are developed over all regions to ensure that Indonesia's FOLU Net Sink will be properly understood and implemented in the site level.

Details on the implementation and coordination amongst stakeholders involved could become challenging, which might hinder the accomplishment of Indonesia's FOLU Net Sink target. However, it is countered through the publication of the Operational Plan of Indonesia's FOLU Net Sink 2030 which provides detailed design in spatial approaches-based programs and mitigation actions, responsible persons, human resource needs, facilities and infrastructure, budgeting and implementation timelines for 2022-2030. The Operational Plan is further translated into a detailed work plan at the sub-national level in which the arrangement involves all stakeholders at the Provincial and District levels with assistance from FOReTIKA Academics and the Ministry of Environment and Forestry.

Minister Siti Nurbaya emphasizes the importance of concrete implementation of Indonesia's FOLU Net Sink 2030 through all levels at the 2023 Indonesia's FOLU Net Sink 2030 Activities Plan Working Meeting.
(Jakarta, 13 December 2022)