

Contribution of the United States, England, and Norway in the Indonesian Net Sink FOLU Program

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ABSTRACT

To address environmental issues arising from greenhouse gas (GHG) emissions, Indonesia has developed a strategy aligned with the Paris Agreement, which emphasizes long-term plans for low-carbon development and climate resilience. This strategy includes collaborative programs with the US, UK, and Norway through the "Indonesia's Forest and Other Land Use (FOLU) Net Sink 2030" initiative, aimed at reducing GHG emissions in the forestry and land use sectors. Therefore, this article aims to analyze and explain the specific contributions of the US, UK, and Norway as partner countries in supporting the implementation of Indonesia's FOLU Net Sink program. It is a qualitative research that employs a literature review as the data collection method and applies qualitative analysis techniques to process and interpret the obtained data. The results indicate that the UK, Norway, and the US support Indonesia's FOLU Net Sink 2030 program through financial assistance. US has provided funding amounting to USD 50 million over a period of 5 years, UK has offered a guarantee of USD 1 billion for World Bank loans, and Norway has contributed USD 56 million to support Indonesia's reduction of 17 MtCO2e in emissions between 2016-2017. The authors contend that the US, UK and Norway plays a critical role in this program by advancing forest conservation, augmenting financial resources, enhancing monitoring capabilities, and reinforcing international partnerships. With this support, Indonesia has been able to undertake various actions in the Folu Net Sink 2030 program for environmental protection.

Keywords: Environment Protection, FOLU Net Sink, GHG, Climate Resilience

INTRODUCTION

Environmental problems have become a new threat in the era of globalization, this is because the advancement of science and technology also has an impact on economic, social inequality, and environmental problems. Then, destructive human actions cause environmental damage that harms the survival of all living things on earth. Environmental damage carried out by humans can result in global warming which produces greenhouse gases (GHG). The increase in Carbon Dioxide (CO2) compounds in the atmosphere has a greenhouse gas effect, in the period 2016-2020 there has been an increase in the earth's surface temperature of 1,02°C (Syahiib & Safe'i, 2024). The impact of climate change can risk causing various disasters such as severe droughts, heat waves, and high rainfall (United Nations Climate Change, 2020). Climate change is an environmental issue that is being discussed internationally, so that state actors and nongovernmental organizations (NGOs) are trying to find ways to preserve the environment.



Climate change is a global problem that needs to be addressed together by all countries. A global commitment to addressing global climate change was formed on December 10, 1997, known as the Kyoto Protocol, where the Conference of Parties (COP) formed a rule in the form of an amendment to the United Nations Climate Change Conference (UNFCCC) that legally binds all member countries (legal binding). The Kyoto Protocol became the UN Framework Convention in implementing climate change by providing direction to industrial countries to reduce and limit agreed GHG emissions (Husain & Korbaffo, 2024). The results of the convention require all countries that have agreed to the Kyoto Protocol to comply with the rules that have been agreed upon and implement the rules by reducing each country's GHG emissions by around 5% per year and reporting the results (Husain & Korbaffo, 2024). Then, there is the Paris Agreement an international agreement on climate change that is legally binding with the main objective of holding the increase in global average temperatures below 2°C above preindustrial levels and limiting the increase in temperatures to 1.5°C above pre-industrial levels. Reported by the Deputy Minister of Environment and Forestry (LHK) Alue Dohong that Indonesia is one of the countries that agreed to and ratified the Paris Agreement by implementing one of the points of the Paris Agreement Article 4 Paragraph 19 concerning the strategy of a long-term low-carbon plan and climate resilience through the draft of Indonesia's Forest and Other Land Use (FOLU) Net Sink 2030 in the forestry and land sectors in an effort to reduce greenhouse gas emissions. The Indonesian government has established a policy regarding implementing Carbon Economic Values for the Achievement of Nationally Determined Contribution Targets and Control of Greenhouse Gas Emissions in National Development in Presidential Regulation Number 98 of 2021 (Kementerian LHK, 2023). The FOLU design is a form of Indonesia's serious efforts to improve climate change and reduce GHG emissions.

Indonesia's efforts to reduce GHG emissions are supported by concrete steps taken by the government by drafting the 2030 FOLU Net Sink in the forestry and land sector. The steps taken by the Indonesian government have received support from several countries such as the United States, the United Kingdom, and Norway for efforts to reduce GHG in controlling climate change in line with the Paris Agreement. The United States announced the United States-Indonesia Comprehensive Strategic Partnership with President Biden and President Joko Widodo reaffirming Indonesia's commitment to addressing the climate crisis and clean energy transition (White House US Government, 2023). Meanwhile, the cooperation between Indonesia and the UK began with the signing of an agreement on cooperation in the environmental and climate sector, namely FOLU Net Sink 2030 in the MoU signed by Lord Goldsmith, Minister of State for Asia, Energy, Climate, and the Environment, UK and Siti Nurbaya, Minister of Environment and Forestry (Kementerian LHK, 2022). The Norwegian government has previously provided related funding assistance in 2022 amounting to \$56 million in 2022.

The Norwegian government is continuing its commitment by providing funding assistance due to the performance in 2017/2018 and 2018/2019 regarding the reduction of deforestation (Kementerian LHK, 2023). The existence of financial assistance support from the United States, England, and Norway in environmental and



climate cooperation with Indonesia is a pillar in the FOLU Net Sink 2030 program to reduce GHG emissions. The country sees Indonesia's efforts that have succeeded in deforestation, so until now it still supports the FOLU Net Sink Indonesia cooperation efforts which are a sustainable practice program in forest and environmental conservation by paying attention to mitigation steps for forest governance management based on the Paris Agreement. The theory used in this study is the Green Theory by Hugh Dyer which sees environmental changes due to collective human actions from the transformation of human behavior and values through politics and global political changes (Dyer, 2017).

The relevance of green theory in international relations is related to the fact that the increasingly complex global issues today have involved the environment as a relevant issue that must be addressed together. Economic growth and industrialization increase the amount of carbon gas emissions that cause the greenhouse gas effect. Thus, the use of green theory does not ignore human desires and needs, but maintains the sustainability of the environmental ecosystem which will later have an impact on human welfare and health (Dyer, 2017).

This study aims to identify and examine the role of the contribution of the United States, United Kingdom, and Norway through Indonesia's FOLU Net Sink 2030 program for mitigating greenhouse gas (GHG) emissions based on the Paris Agreement. This study uses a review of references in the journal The Role of America, England, and Egypt in FOLU Net Sink Against Indonesia by Abdul Hakim Hasibuan and the journal Perspective on Sustainable Management of the Implementation of Indonesia FOLU Net Sink 2030: A Review by A. Nizam Syahiib and Rahmat Safe'i.

This study uses the Green Theory by Hugh Dyer which helps in redefining the issue of climate change by linking long-term ecological values, not just short-term political interests. The Green Theory becomes relevant due to the involvement of state actors such as the United States, England, and Norway who work with Indonesia in protecting the environment. then, the green theory also analyzes the existence of a 'green solution' in a broader ecological perspective as has been implemented in FOLU Net Sink 2030 with the mission of protecting the environment.

METHODS

The data collection method used by the author is by using qualitative techniques. Qualitative method is a method that focuses on deep observation. Therefore, the use of qualitative methods in research can produce a more comprehensive study of a phenomenon. For the type of data that the researcher uses is in the form of secondary data collection, where the data obtained comes from research or other sources that have been researched before. In addition to using existing research, the author also obtains research data through journal articles that can be accessed through the web, books, international and national news which will later be used as a source for



this writing. The more data used and discussed by the author, the more discussion can be discussed by the author.

RESULT AND DISCUSSION

FOLU Net Sink Indonesia 2030 as a Form Of Action to Mitigation the Reduction of Greenhouse Gas Emissions Based on The Paris Agreement

Indonesia's commitment in dealing with the impact of climate change has been shown through the signing of the Paris Agreement on April 22, 2016 in New York, United States. This is regulated in Law Number 16 of 2016 concerning "Paris Agreement Radiation to the United Nations Framework Convention on Climate Change". Nationally Determined Contribution (NDC) is a symbol of the commitment of every country that has come to the Paris Agreement with the aim of reducing greenhouse gases (GHG). By ratifying the Paris Agreement, it is considered capable of improving performance towards sustainable development. The ratification of the Paris Agreement as an effort to prevent a global temperature rise of 2°C by 2100. Until 2030, Indonesia has committed to reduce carbon emissions by 29% from Business as Usual (BAU) (BPHN, 2016).

Forestry and Other Land Use (FOLU) is part of the implementation of NDC which is believed to be Indonesia's mainstay sector as a form of effort to reduce greenhouse gas emissions from the forestry sector and land use with a balanced absorption rate or higher than the emission level (MENLHK, 2022). FOLU Net Sink 2030 is an Indonesian strategy to achieve the Paris Agreement goal to limit the temperature rise to 1.5°C in the pre-industrialization period and used as a guideline for Indonesia in carrying out mitigation actions and adaptation of climate change. FOLU Net Sink 2030 is considered as Indonesia's strategy towards Long-tern Strategy on Low Carbon and Climate Resilience (LTS-LCCR) in 2050. In an effort to reduce GHG emissions, the FOLU sector is considered to contribute 60% of the total target for reducing GHG emissions.

In the LTS-LCCR document, with the Low Carbon Scenario Compatible with Paris Agreement (LCCP) scenario target, the ambition to reduce GHG emissions with the peak of national net GHG emissions in Indonesia will be achieved in 2030 with an amount of 1.244 million tons of CO2e which is equivalent to 4,23 tons of CO2e per capita (MENLHK, 2022). In addition, in 2050 the net emission value is 540 million tons of CO2e which is equivalent to 1.6 tons of CO2e per capita (MENLHK, 2021). The existence of this makes a faster chance to reach Net Zero Emission (NZE) in 2060 or even faster. Indonesia's FOLU Net Sink 2030 action has been integrated and designed to provide dual benefits, namely the improvement and improvement of forest and land canopy cover, emission rate reduction, and improvement of various main forest functions including microclimate, biodiversity conservation, ecosystem, water management, which are then prioritized.



In determining the priority locus for the implementation of mitigation actions, it is carried out through the following approaches (MENLHK, 2022); (1) Prevention of Deforestation and Degradation. The location of natural forests that is a priority in the implementation of mitigation actions is located in areas that have natural forest cover with a relatively high Location Priority Index (IPL) based on the Environmental Services Index (IJLH). A relatively high IPL location has a high level of risk of being converted to non-forest or graded; (2) Concession Forest Degradation. Some of the concession areas still have primary natural forests. One of the mitigation actions on this approach is to prevent primary forest degradation into secondary in forest concession areas; (3) Plant Forest Development. The implementation of plant forest development is found in land areas with unproductive conditions that are used for non-rotational rehabilitation; (4) Sustainable Forest Management (PHL). Priority area for the implementation of PHL actions with forest enrichment activities or Enhanced Natural Regeneration (ENR). ENR activities are navigated in areas with land cover in the form of natural forests and enter the navigation of rehabilitation and conservation; (5) Increasing Carbon Reserves (PCK). The approach to increasing carbon reserves is defined as land rehabilitation activities using the method of planting trees whose wood can be harvested (rotation) and those whose wood is not harvested (non-rotation); (6) Peat Forest Management. Priority activities in the implementation of peat forest management activities that aim to reduce emissions from peat decomposition and fire can be carried out by improving the management of water management and restoration in peatland areas with relatively high IPL; and (7) Natural Forest Conservation. Natural forest conservation is an approach that is carried out to maintain the area so that it has a high conservation value.

United States, Norway, and United Kingdom Contribution in Indonesia' FOLU Net Sink 2030

In order to support the success of 'Indonesia's FOLU Net Sink 2030' program, there are not only support from the Indonesian government, but also international support especially from the developed nations such as the United States, Norway and the United Kingdom. These countries are significantly committed to the program due their dedication to addressing climate change issues as agreed upon the Paris Agreement, which seeks to strengthen efforts to reduce carbon emissions and achieve environmental sustainability goals.

The 'Indonesia's FOLU Net Sink 2030' program has been officially launched in November, 2021 by Indonesia's Minister of Environment and Forestry, Siti Nurbaya, with representatives from the United States Agency for International Development (USAID) during the COP26 conference in Glasgow, Scotland (USAID, 2023). President Jokowi has introduced this program at the G20 in Bali, Indonesia as an alignment to the Ministry of Environment and Forestry's policies with the Paris Agreement, Sustainable Development Goals (SDGs), and various international commitments made by the Indonesian government.



Forest Insight (2024) explained during President Jokowi's leadership, Indonesia has experienced a significant decrease in deforestation rates. In 2020-2021, deforestation was recorded at 113,500 hectares and dropping to lowest record at 104,000 hectares in 2021-2022. This achievement makes Indonesia as the top country in the world for deforestation reduction with achieving a 65% decrease. These efforts encouraging the developed nations, such as the United States, Norway and the United Kingdom to support the 'Indonesia's FOLU Net Sink 2030' program.

These three countries have a long history of partnership with Indonesia in order to address climate issues, especially in forest restorations through REDD+. REDD+ known as reducing emissions from deforestation and forest degradation aims to reduce gas emissions caused by deforestation and forest degradation (UN Climate Change, 2023). It offers financial incentives to developing countries from developed nations to effectively reduce greenhouse gas emissions through forest conservation and restoration.

The United States is contributing USD 50 billion (around Rp758 trillion) to the 'Indonesia's FOLU Net Sink 2030' program. A USAID representative (2023) stated that this partnership aims to support Indonesia's sustainability efforts in addressing climate change and improving environmental conservation, especially for its iconic species, the orangutan. Norway also has a long track-record of partnership with Indonesia, this nation has been one of the largest donors for Indonesia in REDD+ program since 2010. Norway's commitment to contribute to Indonesia's latest climate initiative, the 'Indonesia's FOLU Net Sink 2030' program is driven by Indonesia's success in deforestation reduction. Norway has signed a funding agreement of USD 56 million (around Rp869 billion) as the first phase of Norway's contribution, also acknowledging Indonesia's achievement (Sudoyo, 2022). Meanwhile, the United Kingdom supports not only limited in financial incentive, but also implementation assistance while the United Kingdom evaluating Indonesia's progress towards its goal of reducing 140 millions tons of CO2 by 2030.

Indonesia's Success in Carrying Out the Folu Program and Concrete Evidence

The FOLU Net Sink 2030 program, which has been formulated and implemented since 2021, has begun to show significant changes for the environment, although these changes are still relatively modest. The author will outline Indonesia's achievements in environmental mitigation efforts under the FOLU Net Sink 2030 program through several key points. First, the reduction of deforestation and forest degradation has become a primary concern for the Indonesian government, which implemented a moratorium on new permit issuance in primary forests and peatlands through a presidential instruction in 2011. This moratorium was established permanently in 2019.

As a result of this policy, the rate of deforestation has gradually decreased; during the period from 2019 to 2020, deforestation was recorded at 115,000 hectares, and from 2020 to 2021, it dropped to just 113,500 hectares. Furthermore, the Ministry of



Environment and Forestry released the Indicative Map for the Suspension of Business Permit Issuance (PIPPIB) in 2022, which indicated that 66,511,600 hectares of primary forests and peatlands saw an increase of 372,417 hectares compared to the end of 2021 (The Ministry of Environment and Forestry of the Republic of Indonesia, 2023).

Second, in the development of plantation forests, the Indonesian government has promoted investment in the establishment of plantations on degraded land and forests. Business permit holders who invest will be monitored by the Ministry of Environment and Forestry and will receive warnings or even have their permits revoked if they fail to operate. Plantation forests that supply logs for the wood processing industry will have a significant impact on the economy and can enhance carbon absorption in forests more effectively. In 2021, this initiative generated an economic value of USD 13.5 billion, and by 2022, an area of 436,223.35 hectares of plantation forests was successfully planted by permit holders or investors (Kementerian Lingkungan Hidup dan Kehutanan Republik Indonesia, 2022).

Third, in terms of Sustainable Forest Management, the government employs intensive silvicultural techniques as part of its efforts to rehabilitate forests and optimize forest productivity through practices such as selective cutting and line planting. These techniques involve modifications to plantation areas, tree improvements, and pest and disease control. The implementation of these methods has successfully produced roundwood yields that are four times higher than those from conventional forest operations (90-120 m³ per harvest cycle). Additionally, the RIL-C technique has shown to improve operational efficiency in forests, enhancing productivity by up to 10% and increasing carbon absorption and carbon stocks by twofold (The Ministry of Environment and Forestry of the Republic of Indonesia, 2023). The government has also established the Timber Legality and Sustainability Assurance System, which prioritizes transparency and accountability while involving all segments of society in its implementation, including civil society organizations that act as monitors. (The Ministry of Environment and Forestry of the Republic of Indonesia, 2023).

Forth, in 2021, significant efforts were made in Forest and Land Rehabilitation in collaboration with the Ministry of Environment and Forestry and the Peat and Mangrove Restoration Agency, covering 203,386.58 hectares, plus an additional 7,138.73 hectares of community-owned land. To further this initiative, 54 permanent nurseries were established throughout Indonesia, alongside community nurseries for local residents to rehabilitate their lands. The ongoing restoration of degraded forests and lands is being enhanced through the creation of permanent nurseries in each province via public-private partnership schemes (KPBU). This approach has been executed in Bogor with APRIL, Penajam Paser Utara with PT Indo Tambangraya Megah Tbk, Banjarbaru with PT Adaro Energy Indonesia Tbk, and Banyuasin with Sinar Mas (The Ministry of Environment and Forestry of the Republic of Indonesia, 2023).

Fifth, in the Management of Peatland and Mangrove Ecosystems, mangroves store significant amounts of carbon in their sediments and biomass, making them crucial for



global climate regulation. The government aims to rehabilitate 600,000 hectares of mangroves by 2024, involving local communities to support their livelihoods. As of 2021, 35,881 hectares of mangroves had already been rehabilitated. To expedite this process, the government expanded the roles and responsibilities of the Peat Restoration Agency to include Mangrove Restoration (BRGM). As of the writing of this article, this initiative remains a top priority in the FOLU Net Sink 2030 Agenda (The Ministry of Environment and Forestry of the Republic of Indonesia, 2023).

Sixth, in the Enhancement of the Role of Biodiversity Conservation, there are 514 conservation areas covering 27.14 million hectares, which have the potential to significantly contribute to achieving carbon neutrality by 2030. To protect various wildlife populations, the government has undertaken several initiatives, including the rescue of wildlife for rehabilitation and release after being illegally captured. In 2021, there were 2,790 births recorded among endangered species, including Sumatran tigers, orangutans, Bornean gibbons, and Javan eagles (The Ministry of Environment and Forestry of the Republic of Indonesia, 2023).

Seventh, to achieve the FOLU Net Sink 2030 goal, active community participation is essential in the Strengthening of Social Forestry and Indigenous Forests initiative. Local wisdom practices are being employed to support this effort. For instance, the Kasepuhan Adat Ciptagelar in West Java has designated Leuweung Tutupan as a protected area, Leuweung Titipan as a conservation area, and Leuweung Garapan as a production area, while also working to enhance carbon stocks. This highlights the government's dedication to advancing social forestry and indigenous forests. A total of 12.7 million hectares of forest is allocated for social forestry, including Community Forests, People's Plantation Forests, Village Forests, Rights Forests, Forestry Partnerships, and Indigenous Forests. As of August 1, 2022, 5.03 million hectares have been issued as social forestry permits across 7,650 permits for 1.1 million households. Additionally, 14,488 hectares have been designated for Indigenous Forests benefiting 105 customary law communities, with a total of 1.09 million hectares recognized as Indigenous Forests (The Ministry of Environment and Forestry of the Republic of Indonesia, 2023).

Eighth, in the Development of Urban Green Spaces and Eco-Riparian Areas, not only rural communities surrounding forests but also urban populations are essential for the implementation of the FOLU Net Sink 2030 agenda. The development of eco-riparian areas, which serve as transitional zones between land and rivers, aims to revitalize rivers and reduce pollution, particularly from domestic waste and litter. Within these eco-riparian areas, installations for domestic wastewater management and organic waste processing can be established, contributing to carbon emission reductions in the waste sector. Additionally, these areas can be utilized for nursery development, reforestation, organic farming, or other activities that have the potential to enhance carbon absorption and storage. (The Ministry of Environment and Forestry of the Republic of Indonesia, 2023).



Ninth, the FOLU Net Sink 2030 agenda also focuses on improving legal compliance among communities regarding environmental matters. To this end, the Ministry has established the Directorate General of Law Enforcement, which plays a key role in addressing all types of environmental and forestry-related crimes. Robust and consistent law enforcement not only fosters a healthy and safe environment but also promotes sustainable forest management. This initiative is also a crucial means of regulating carbon emissions from the forestry sector and other land uses, supporting Indonesia's FOLU Net Sink 2030 goals. The Ministry of Environment and Forestry received the Asia Environmental Enforcements Awards 2022 for its exceptional leadership in national law enforcement against cross-border environmental crimes. Award recipients are assessed by a panel of experts from various UN agencies and international organizations, including UNODC, UNEP, UNDP, CITES, INTERPOL, WCO, and the Basel Convention Secretariat (The Ministry of Environment and Forestry of the Republic of Indonesia, 2023).

CONCLUSION

Climate change until now has become a global problem that has been paid attention to by all countries, moreover the main cause of climate change is due to human destructive actions that make the ozone layer thin. Indonesia is one of the countries that has a high commitment in reducing greenhouse gases, the action taken by Indonesia is by signing the Paris Agreement on April 22, 2016. Forestry and Other Land Use (FOLU) is part of the implementation of NDC which is Indonesia's mainstay sector as one of their efforts in reducing greenhouse gas emissions. In the FOLU Net Sink 2030 Indonesia program, there are contributions from 3 countries, including (1) United States; (2) Norway; (3) England. Previously, the program had been approved in November 2021 by the Indonesian Minister of Environment and Forestry, namely Siti Nurbaya. This program then provides several significant changes to the environment, the changes that can be obtained include; (1) reduction of deforestation and land degradation; (2) development of plantation forests; (3) sustainable forest management; (4) rehabilitation of forests and land; (5) management of peatland and mangrove ecosystems; (6) enhancement of biodiversity conservation; (7) strengthening of social forestry and indigenous forests; (8) development of urban green spaces and eco riparian areas; and (9) law enforcement.



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