



Greening Indonesia: The Role of Green Finance in Achieving Sustainable Development Goals

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Abstract. Green finance in Indonesia presents significant opportunities as the country strives towards a sustainable future. Indonesia has committed to ambitious climate objectives, including a reduction of annual greenhouse gas emissions by 31.89% domestically and 43.20% with international assistance by 2030, as well as achieving net zero emissions by 2060 or earlier. This positions Indonesia to effectively utilize various forms of financial support. However, with limited substantive regulatory oversight it is difficult to see tangible sustainable outcomes; Indonesia can improve the efficacy of its green finance roadmap, ensuring that procedural compliance leads to tangible sustainability outcomes and enhanced the incentives for compliance.

Keywords: green finance, greenhouse gas, sustainable.

1 Introduction

The largest economy in Southeast Asia, Indonesia—a diverse archipelago nation—has charted impressive economic growth and has attained significant growth in economic development with the influential rise in per capita gross domestic product (GDP) from US\$770.9 in 2000 to nearly US\$4,940.5 and 5% GDP growth in the year 2023, and forecasting to average 5.1% per year from 2024 to 2026 [1]. But at the same time, Indonesia is also one of the world's major greenhouse gas emissions (GHG) contributors, reaching 1.96% per-year and 2.6 tonnes CO₂ per-capita emissions in 2022., and the highest carbon dioxide emissions from fossil fuels and industry among the ASEAN countries.

Various global studies indicate that failure to undertake responsible development could result in huge costs. Higher temperatures and land degradation negatively impact GDP in specific sectors such as agriculture and fishing [2, 3], which imposes an economic problem on populations dependent on land-based natural capital [4, 5].

In the long term, inadequate mitigation of climate change could lead to a global GDP decline of around 3.6% globally by the end of the century [6]. As for Indonesia, the environmental depletion will cause a reduction in the number of international tourists

in Indonesia due to the higher temperature and humidity [7], reducing the value of Indonesia's agricultural sector by 10 percent by mid-century, and potential financial losses impacts that will increase poverty and income inequality among provinces in Indonesia [8].

Considering the significant impacts discussed above, it is essential that governments prioritize and allocate comprehensive efforts toward combating environmental degradation. An integrated, multifaceted strategy is required, wherein governments establish robust policies and frameworks aimed at safeguarding the environment and fostering sustainable development. Alongside regulatory actions, the role of green finance is pivotal, as it offers the necessary financial resources for investments in sustainable infrastructure, renewable energy, and conservation initiatives, all of which are critical to mitigating the adverse effects of environmental degradation. The implementation of green finance is a significant initiative that demands structured management.

2 Literature Review

The positive relationship between financial development and economic growth [9, 10] has long been confirmed, but varying significantly between developed and developing and countries [11].

Green finance is a new type of financial instrument proposed to solve environmental problems. Despite the lack of a universally accepted definition [12], it generally involves financing activities that promote environmental protection and sustainable development [13, 14]. It includes a range of financial instruments and is guided by ESG principles, with significant roles played by governments [15] and financial institutions in its implementation [16].

Green finance has evolved significantly over the past few decades, driven by international agreements and the growing recognition of the need to address sustainable development goals. Adopted on 16 September 1987, the Montreal Protocol provided a strong foundation for promoting the sharing of environmentally friendly technologies and the establishment of a multilateral fund, particularly to assist developing countries in mitigating the negative impacts on the ozone layer [17]. Kyoto Protocol stated in Article 10(c), 11(a), 13(4.g) and 13(5) that countries have to seek and provide to mobilize additional finance resources and financial procedures to minimize the adverse impact on environment [18]; in line with that, Paris Agreement Article 2 No.1(c) page 3 stated: "Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development" [19].

There is no single accepted definition for green finance; however, several working definitions and criteria have been established, for example: relevant themes to institutional finance initiative, namely: green loan, green investment, green traded and green bancassurance, or as national finance system (namely: green bond, green sukuk) [20]; or global financial system (namely: sustainable finance, climate finance) [21]. However, world-wide has agreed that green finance refers to financial activities that support the development and implementation of projects, technologies, and initiatives aimed at promoting environmental sustainability, either by private [22], or public sector [23, 24].

Green Finance is crucial in supporting Indonesia's commitment to the Nationally Determined Contributions (NDCs) under the 2015 Paris Agreement and achieving national development goals. To meet these NDCs, Indonesia increased its climate ambitions for reducing annual greenhouse gas emissions to 31.89% domestically and 43.20% with international support below 2010 levels by 2030, up from the previous targets of 29% and 41%, and submitted its Enhanced NDC on 22 September 2022 to the United Nations Framework Convention on Climate Change (UNFCCC) [25], with an optimistic scenario of reaching net zero emissions (NZE) by 2060 or earlier. Furthermore, the Government of Indonesia launched the 2030 FOLU Net Sink plan for forestry and land-use. To support these goals, the government issued Presidential Regulation No. 98/2021 and Ministerial Regulation No. 21/2022, detailing the implementation of the NDCs and alternative financing strategies

3 Methodology

This study employed narrative analysis that focuses on summarizing and interpreting the basic features of information to provide a clear summary of the information and dataset [26], making it easier to understand the information briefly, so that may be useful for further analysis and to assist stakeholders in making informed decisions based on the summarized findings. Narrative is an important tool for developing and writing up action research experiences.

The data have been drawn from the various Government of Indonesia report, and global report that prepared by Climate Bond Initiative.

4 Result and Discussion

Indonesia has made significant progress in green finance, focusing on instruments like green bonds, green sukuk and recently the sustainable bonds to support environmental-related projects. The commitment to green finance has been driven by both domestic regulations, and international collaborations. This fact has led to a considerable amount of green finance issued, though most are still denominated in foreign currencies, which reflects the international appetite for green investments in Indonesia (see Table 1).

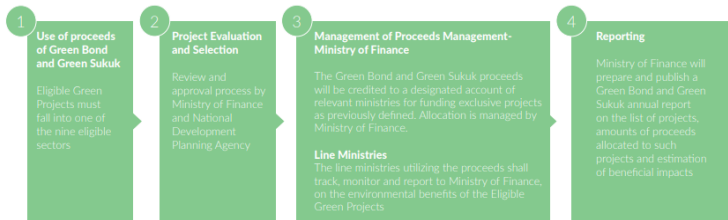


Fig. 1. Green Bond and Green Sukuk Framework [27]

Table 1. List of Indonesian Green, Social and Sustainability Bonds

No.	Issuer Name	Issued Date	Amount Issued	Use of Proceeds
Green Bond				
1	Star Energy Geothermal (Darajat II) Ltd	2020 October	USD 320 million	Energy
2	Star Energy Geothermal (Darajat II) Ltd	2020 October	USD 790 million	Energy
3	Green Bond (Republic of Indonesia)	2020 June	USD 750 million	Energy, Waste, Water
4	Green Bond (Republic of Indonesia)	2019 February	USD 750 million	Energy, Waste, Water
5	OCBC NISP	2018 August	USD 150 million	Energy, Transport, Water
6	PT Sarana Multi Infrastruktur (SMI)	2018 July	USD 35 thousand	Energy, Land Use, Transport, Waste, Water, Transport
7	Star Energy Geothermal (Wayang Windu) Ltd	2018 April	USD 580 million	Energy
8	Tropical Landscape Finance Facility I Pte	2018 February	USD 96 million	Land Use
Green Sukuk (Republic of Indonesia)				
1	4 th Retail Green Sukuk	2022 November	IDR 10 trillion	Energy, Waste, Water
2	Project Based Green Sukuk	2022 October	IDR 5.6 trillion	Energy, Waste, Water
3	5 th Global Green Sukuk	2022 May	USD 1.5 billion	Energy, Waste, Water
4	3 rd Retail Green Sukuk	2021 November	IDR 5 trillion	Energy, Waste, Water
5	4 th Global Green Sukuk	2021 June	USD 750 million	Energy, Waste, Water
6	2 nd Retail Green Sukuk	2020 November	IDR 5.4 trillion	Energy, Waste, Water
7	3 rd Global Green Sukuk	2020 June	USD 750 million	Energy, Waste, Water
8	1 st Retail Green Sukuk	2019 November	IDR 1.46 trillion	Energy, Waste, Water
9	2 nd Global Green Sukuk	2019 February	USD 750 trillion	Energy, Waste, Water
10	1 st Global Green Sukuk	2018 March	USD 1.25 billion	Energy, Waste, Water
Sustainability Bonds				
1	SDG Bond (Republic of Indonesia)	2022 November	IDR 1 trillion	Green and Blue Focus, Social Focus
2	SDG Bond (Republic of Indonesia)	2022 October	IDR 2.26 trillion	Green and Blue Focus, Social Focus
3	SDG Bond (Republic of Indonesia)	2021 September	USD 573 million	Green and Blue Focus, Social Focus
4	Bank Mandiri	2021 April	USD 300 million	Green and Blue Focus, Social Focus

5	Bank Rakyat Indonesia	2019 March	USD 500 million	Green and Blue Focus, Social Focus
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(Source: Author’s compilation, 2024)

The Government of Indonesia (GoI) has established a Green Bond and Green Sukuk Framework (refer to Figure 1) to finance or refinance the eligible green projects through the issuance of green bonds or green sukuk. The nine eligible sectors are: renewable energy, sustainable natural resource management, energy efficiency, green tourism, climate resilience for vulnerable areas and sectors, green buildings, sustainable transport, sustainable agriculture, and waste-to-energy and waste management [27]. The issuance of green bonds and green sukuk is assessed by the Centre for International Climate Research (CICERO). Up to date, GoI has issued USD3,436.035 million green bonds, with most of the finance allocated to the energy sector (see Table 1). Research revealed that green bonds contribute to global emission reduction and the expansion of renewable energy production in the long term; and countries with higher levels of green bond issuance are more possible to achieve their sustainability targets related to these areas [28].

In terms of issuance, most of the GoI products are green sukuk. Green sukuk are essentially like green bonds. However, the key difference lies in their structure. Sukuk, which adhere to Sharia’ law, are equity-or asset-based instruments, granting holders partial ownership of the underlying assets and a share of the profits they generate. In contrast, bonds are debt-based, with bondholders acting as lenders, receiving regular interest payments from the issuer. Thus, green sukuk is considered as an ideal investment choice for Islamic investors seeking to combine both Sharia’ compliant financial practice with environmentally sustainable investment [29, 30].

In 2021, Indonesia became the first Southeast Asian country to issue an SDG Bond to support its Sustainable Development Goals (SDGs), raising EUR 500 million [31]. Showing its ongoing dedication, in 2022, Indonesia followed up with SDG Bonds totaling IDR 3.26 trillion (about USD 210 million) [32]. The funds were directed towards projects that promote inclusive and sustainable recovery in line with the SDGs. There are three focus areas of Eligible SDG expenditures that can be financed or refinanced by Indonesia’s thematic bonds. These suitable areas include projects or sectors that contribute to (i) climate change mitigation and adaptation (green focus), (ii) the advancement of the blue economy (blue focus), namely sustainable management of natural resources on ocean; and (iii) the generation of positive social outcomes (social focus), namely employment generation including through the potential effect of SME financing and microfinance, socioeconomic advancement and empowerment, food security and sustainable food systems, access to essential services affordable basic infrastructure.

Despite these efforts that Indonesia has shown, most sustainable bonds issued by Indonesian entities were denominated in foreign currencies. It means that Indonesia's green finance provide an opportunity for these investors to contribute to projects. However, it will also introduce significant risks related to currency volatility, increased costs, and potential financial instability.

One of the challenges in Indonesia to tackle climate change comes from financing

Achieving the 2030 climate targets will require an estimated investment of USD 285 billion [33]. With the government's budget covering only 34% of this amount, there remains a significant funding gap of approximately USD 145 billion that needs to be filled through climate finance.

Studies also highlighted Indonesia's green finance roadmap has high procedural compliance, but limited regulatory oversight hinders tangible sustainability outcomes [15, 34]

5 Conclusion

The ambitious commitment stated in Enhanced NDC gives Indonesia the right to take advantage of various types of support. However, Indonesia cannot rely solely on international support to meet its enormous green finance needs; it must develop innovative financing through various instruments, such as Corporate Social Responsibilities (CSR) [35], encouraging fund village [36]. This research only provides a general overview; a more in-depth study is needed to obtain more comprehensive results.

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