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Indonesian Business Council

FINANCIAL DEVELOPMENT FOR STRONG
AND EQUITABLE GROWTH:

POLICY PAPER 8

LEVERAGING THE POTENTIAL OF GREEN FINANCING

February 2025

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This policy paper is part of a series derived from the "**Financial Development for Strong and Equitable Growth**" white paper, launched in February 2024. By employing the IMF's Financial Development Index framework, which encompasses depth, access, and efficiency dimensions, each paper offers a comprehensive analysis of critical financial development issues. These papers propose targeted strategies to enhance Indonesia's financial landscape and foster sustainable economic growth.

The policy paper series consists of:

1. Financial Product Innovation to Enhance Financing Options
2. Increasing MSME Access to Credit through Collateral Assets and Credit System
3. Enhancing Financial Efficiency through Banking Consolidation
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5. Levelling Taxation Playing Field between Financial and Non-Financial Sectors
6. Managing Non-Performing Loan through Asset Management Companies
7. Expanding Financial Coverage through Non-Bank Financial Institutions
- 8. Leveraging the Potential of Green Financing**

LEVERAGING THE POTENTIAL OF GREEN FINANCING

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LEVERAGING THE POTENTIAL OF GREEN FINANCING

Executive Summary

Climate change has recently become a worldwide hot topic as it threatens the survival of all species. Indonesia has shown its commitment to reducing CO₂ carbon emissions through the ratification of the Paris Agreement. In practice, environment management requires substantial funding to fulfil all project expenses. Green finance can be a solution to overcome funding issues and also promote sustainable development. At the same time, green finance also affects the Indonesian financial sector because it can motivate investors to put their funds in this new instrument. The availability of new tools offers investors a range of options and ought to yield favorable returns.

Indonesia has several challenges in promoting green finance to foster financial development, such as the lack of interest in green finance. The public has limited information regarding the guidelines for implementing green finance, so the awareness of using green finance instruments is relatively low. Based on the ADB survey, it is known that around 61% of Indonesian investors are interested in green bonds, but they have limited awareness and resources. The lack of interest in green finance is also supported by issuers who are not interested in green bond issuance. Green finance instruments are relatively limited, resulting in a lack of product variety. Indonesia uses green financial instruments in the form of green bonds, sustainability bonds, green loans, and viability gap funding. Diversifying green finance products is an important aspect of attracting investors' interest. The financing was dominated by non-renewable energy rather than renewable energy. This was demonstrated by Indonesia's 4th rank for contribution to global coal lending 2021-2023 and coal financing by commercial banks, which increased by 42% from 2016 to 2023. Some parties provide financial support for non-renewable energy because it provides certainty of profit. Energy transmission in Indonesia has begun using renewable energy, but the total energy supply does not compete with non-renewable energy. It requires a readjustment of some policies to overcome all the challenges.

Several regulations from the Financial Services Authority (OJK) and the Ministry of Energy and Mineral Resources (ESDM) have supported the implementation of green finance in Indonesia. However, this support is insufficient, requiring another initiative to complement them. Some solutions can be implemented to develop green finance in Indonesia. **First**, the government should use inclusive green finance as a guideline in the development of green finance. The provision of clear information can influence investor and issuer interest in green finance. **Second**, the government should provide incentives and increase the number of credible green project developers to create a green finance ecosystem that can attract investors. Increasing funds from investment are used to overcome limited funds in the development of green finance. **Third**, the government should use blended finance to realize more green projects. Indonesia is a member of the G20 Global Blended Finance Alliance (GBFA), which can be utilized to optimize its blended finance framework and as a solution to secure financing in the green sector. **Fourth**, the government should develop green securitization as another alternative green financial instruments. Securitization programs provide cost, liquidity, and business scale benefits. **Fifth**, the government should offer risk guarantees to reduce greenwashing. It should help reassure investors that implementation aligns with the green finance plan and framework. Indonesia can optimize the Indonesia Infrastructure Guarantee Fund (IIGF) to provide guarantees for green projects. **Sixth**, the government should increase the adoption of renewable energy such as the use of rooftop solar power plants, electric vehicles, and the battery industry. All initiatives are being conducted to create successful green finance in Indonesia and have a great impact on the economy and the environment.

1. Background and Problem Identification

Climate change is a pressing global issue, with the 2015 Paris Agreement serving as a pivotal milestone in international efforts to combat it. The Agreement aims to limit the global temperature increase to well below 2 degrees Celsius above pre-industrial rates, with a more ambitious target of 1.5 degrees Celsius. As a signatory to the Paris Agreement, Indonesia has committed to addressing these challenges by adopting strategies that align with global climate goals.

Achieving these targets requires significant funding, highlighting the critical role of green finance—a financial system that integrates economic growth with environmental sustainability.¹ By combining these dimensions, green finance ensures that policies not only enhance economic welfare but also prioritize environmental considerations. Research has shown that green finance can improve carbon emission efficiency by reducing carbon emissions², including through the adoption of advanced technologies and the digital economy.

Indonesia's potential to develop green finance is evident but underutilized. Based on the Global Green Finance Index (GGFI) 8 in 2021, Jakarta ranks 59th globally, trailing behind other ASEAN cities such as Singapore, Kuala Lumpur, and Bangkok (see Table 1). Despite this, Jakarta's rating has improved significantly, rising 11 points in 2021. However, its performance remains the lowest among ASEAN-4 cities, highlighting Indonesia's lagging financial development compared to its neighbors.

Table 1. Global Green Finance Index 8³

City	Ranking	Rating	Ranking Change	Rating Change
Singapore	16	533	4	8
Kuala Lumpur	49	506	3	15
Bangkok	57	492	-8	-7
Jakarta	59	489	3	11

Indonesia's GGFI ranking reflects its financial development status, which lags behind Singapore, Malaysia, and Thailand (see Figure 1). Indonesia's Financial Development Index in 2021 stood at 0.36, significantly lower than its ASEAN peers. This index, which evaluates depth, access, and efficiency, underscores the challenges Indonesia faces in achieving financial development.

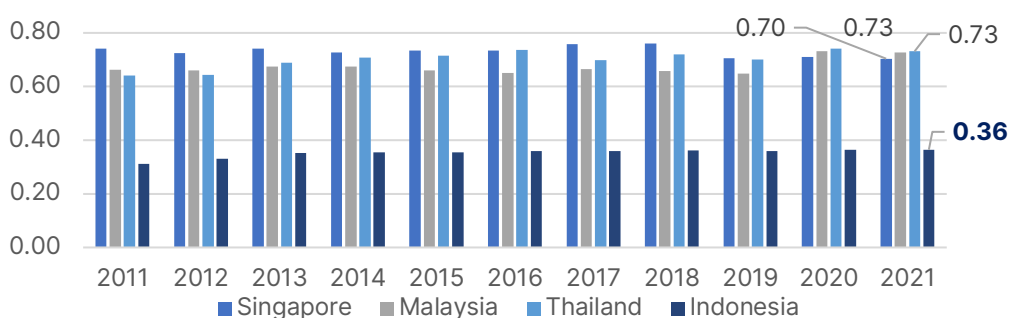


Figure 1. Financial Development Index ASEAN-4⁴

¹ Noh, 2019

² Zhang et al., 2022; Liu and Zhu, 2024; Wu, Liu and Cai, 2024

³ Wardle et al., 2021

⁴ IMF, 2021

Among the dimensions of financial development, depth, or the range of financial services available, remains particularly shallow in Indonesia. This is evidenced by Indonesia's M2 to GDP ratio, a common measure of liquidity, which stood at 42.25% in 2023. This ratio has been declining since 2021 and lags behind those of Malaysia and Thailand (see Figure 2).

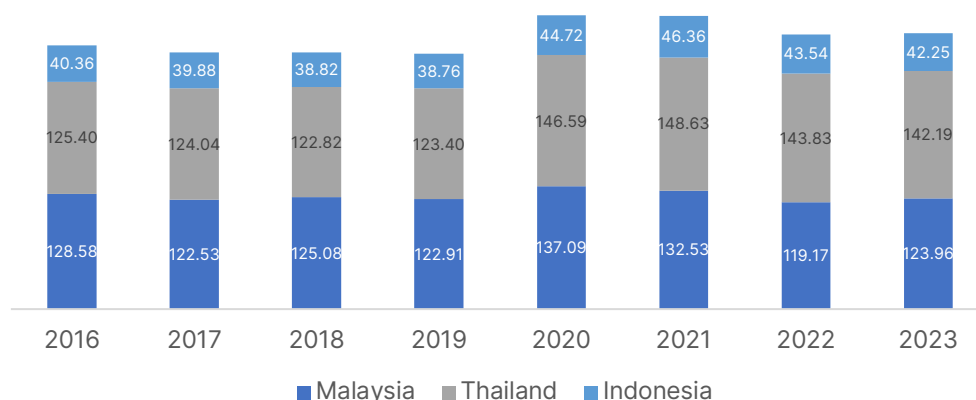


Figure 2. Broad Money (M2) to GDP, 2016 – 2023 (%)⁵

Green finance offers a promising solution to improving Indonesia's financial depth and liquidity, thereby attracting both domestic and foreign investment. By introducing innovative financing schemes that integrate environmental considerations, green finance can address the limitations in Indonesia's financial sector. Instruments such as green bonds and blended finance schemes have the potential to deepen financial markets, boost liquidity, and support broader financial development objectives. This approach not only aligns with Indonesia's sustainability commitments but also strengthens its competitiveness within ASEAN.

Despite its potential, Indonesia faces significant challenges in advancing green finance. Key barriers include a lack of interest in green finance, the dominance of non-renewable energy financing, limited availability of green financial instruments, and suboptimal energy resource management. Overcoming these challenges is crucial for Indonesia to realize the dual benefits of increased financial depth and sustainability. Addressing these issues will not only foster the growth of green finance but also position Indonesia as a leader in sustainable economic development.

Global shock is a particular challenge in the development of green finance, especially when Trump withdrew the United States from the Paris Agreement. The policies chosen by Trump are an important issue when every country is trying to reduce carbon emissions. Because the United States is a global superpower, all policies implemented will be of particular concern and provoke global uncertainty. The impacts felt from the United States' withdrawal from the Paris Agreement are increasing the possibility of global warming escalating, slowing down US climate finance internationally, and making it difficult for investors to navigate the differences between European and US green rules⁶. Trump said that the Paris Accord is an agreement that does not reflect the United States values and steer American tax dollars to countries that do not need, or merit, financial assistance for the benefit of the American people⁷.

⁵ World Bank, 2024

⁶ Abnett & Furness, 2025

⁷ Daly & Borenstein, 2025

1.1 Lack of Interest in Green Finance

Based on a survey of the green bond market in Indonesia conducted by the Asian Development Bank, it was found that institutional investors (fund managers, financial institutions, and insurance companies) are interested in green bonds but have limited awareness and resources to access them⁸. Meanwhile, the majority of issuers are not interested in issuing green bonds (see Figure 4). This results in a declining supply and constrains the development of green bonds. Based on these conditions, awareness is an essential aspect of developing green finance. If awareness has developed in the community, there is a chance to increase the willingness of institutional investors or issuers to release green bonds.

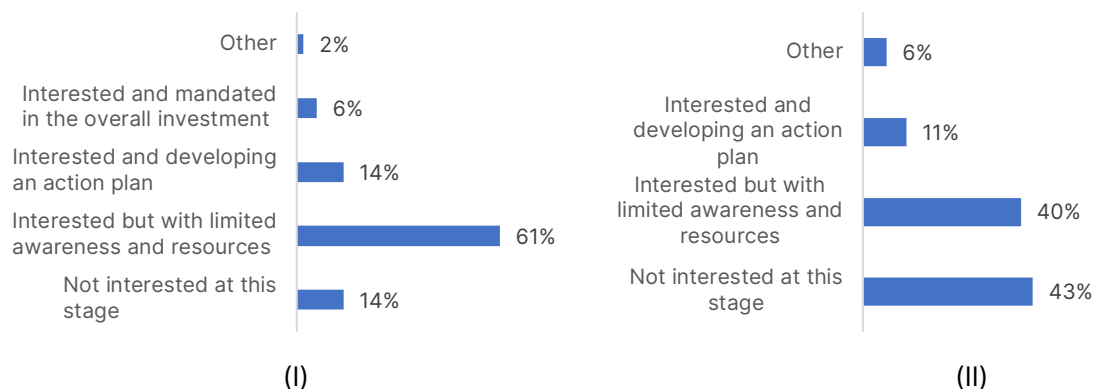


Figure 3. Interest in Issuing Green Bonds by (I) Institutional Investors and (II) Issuer's Perspectives⁹

The obstacles to investing in green bonds are limited bond issuance, lack of internal guidance and resources for this type of investment, and no clear benefits of green bonds compared to conventional bonds. Meanwhile, from the issuer's side, the majority are not interested in issuing green bonds due to challenges such as a lack of knowledge and awareness related to green bonds, additional issuance procedures and costs, no clear benefits compared to conventional bonds, and the absence of policy guidelines from regulators. For this reason, strategies are needed to raise awareness about green finance, including information about green projects, green finance instruments, and the expected impact of green finance. Clear information will change the perspective of investors and issuers about green finance, thus increasing interest in green finance.

1.2 High Non-Renewable Energy Financing

Indonesian lenders remain focus on financing non-renewable energies, which is illustrated by the nation's high financing levels in the coal sector. Based on Urgewald's Global Coal Exit List (GCEL), it is known that Indonesia is becoming one of the countries with the highest coal financing (see Figure 5). Indonesia ranks fourth for contribution to coal lending and seventh for coal underwriting in 2021-2023. This condition needs to be addressed immediately to avoid climate disasters, and the capital should be diverted towards a transition to green energy.

⁸ ADB, 2022

⁹ ADB, 2022

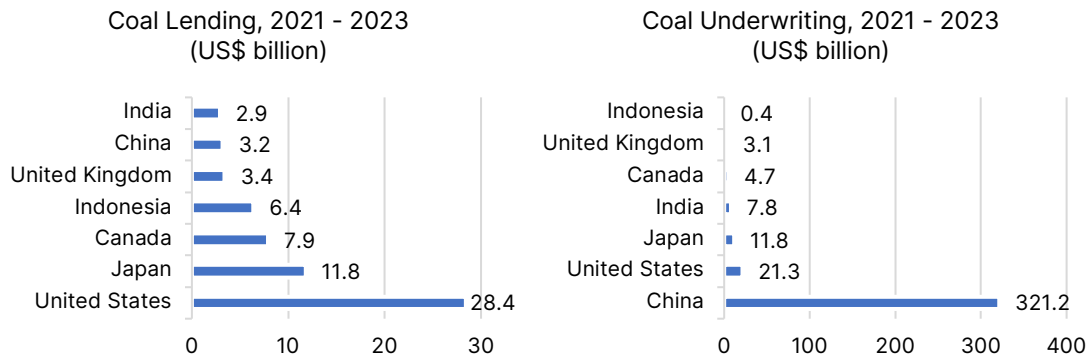


Figure 4. Global's Coal Financing, 2021 – 2023¹⁰

Indonesian coal financing by commercial banks amounted to \$6,830 million from January 2021 to December 2023 (see Figure 6). Loan instruments dominate in coal financing at 94% or \$6,446 million. The top three commercial banks with the highest financing for coal are Bank Mandiri, Bank Negara Indonesia and Bank Rakyat Indonesia. An acceleration of green financing or green investment should follow the optimization of sustainable finance in Indonesia. These are not sufficiently organized and need further development.

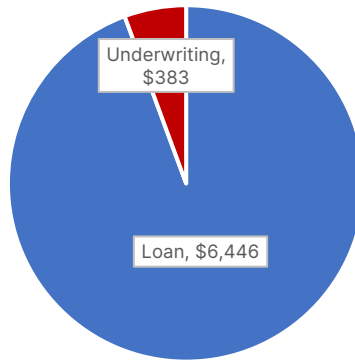


Figure 5. Indonesia's Coal Financing by Commercial Bank, 2016 – 2023 (million)¹¹

1.3 Limited Green Financial Instruments

In 2017, Green finance in Indonesia started to grow with regulations related to sustainable finance, but green financial instruments should be diversified further. Based on Table 2 of The ASEAN Green Finance Instrument Guide identifies four types of green finance instruments: debt instruments, debt/equity instruments, equity instruments, and credit enhancement. Indonesia has been working to ensure the availability of green finance instruments in each category (see Table 3). However, the government or issuer should issue other instruments to diversify green finance products and attract investors with a variety of green finance instrument options. To diversify green financial instruments, Indonesia can further identify each category and adjust them according to investors' needs.

Table 2. ASEAN Green Financial Instruments¹²

Debt Instruments	Debt/Equity Instruments	Equity Instruments	Credit Enhancement
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¹⁰ GCEL, 2024

¹¹ GCEL, 2024

¹² CBI, 2019

1. Green Corporate Bond 2. Green Securitization 3. Green Sovereign Bond 4. Green Project Bond 5. Green Loan	1. Green Sukuk 2. Green Perpetual Bond 3. Green Convertible Bond 4. Green Mezzanine Bond	1. Public Private Partnership 2. Private Equity 3. Joint Venture 4. Investment Trust	1. Guarantees 2. A/B Loans or Grants 3. First Loss Piece 4. Viability Gap Funding
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Indonesia can adopt a variety of green financial instruments in some countries to develop Indonesia's green finance. The United States and China have a wide variety of green finance instruments that have led them to become leading countries in the development of green finance (see Table 3). Green finance innovation is carried out in the instruments of bonds, loans, securitization, insurance, public-private partnerships, and others. The effective utilization of a green financial instrument in other countries may serve as a model for its implementation in Indonesia. However, given the features of the Indonesian economy, the implementation needs to be readjusted.

Table 3. Green Financial Instruments in Some Countries¹³

Indonesia	China	United State
1. Green Bond 2. Green Sukuk 3. Sustainability Linked Loan and Bond 4. Public-Private Partnership 5. Viability Gap Funding	1. Green Loan 2. Green Lease 3. Green Bond 4. Green Insurance 5. Green Fund 6. Green Trust 7. Green Securitization	1. Green Bond 2. Green Securitization 3. Sustainability Linked Loan and Bond 4. Green Loan 5. Green Mutual Fund 6. Green Real Estate Investment Trusts (REITs) 7. Public-Private Partnership 8. Viability Gap Funding

1.4 The Greenwashing Issue

The implementation of green finance in Indonesia has not worked effectively due to the possibility of greenwashing problems¹⁴. Greenwashing occurs when a company makes claims that its products and services are green, without actually carrying out activities that have an impact on environmental sustainability.¹⁵ The factors that encourage greenwashing include a lack of a common definition of sustainable investment, insufficient regulations, and increasing demand for green investment (see Figure 7).



Figure 6. The Main Driver Causing Corporate Greenwashing¹⁶

Throughout 2017 - 2021, there were nine known cases of greenwashing in Indonesia¹⁷. The existence of greenwashing practices can affect the decline of public trust in institutions that carry out green projects. This condition hampers the development of green finance in Indonesia and is thus a problem that must be resolved immediately.

¹³ CBI, 2019, 2022

¹⁴ Wijianto and Falianty, 2023

¹⁵ Sari and Windijarto, 2023

¹⁶ Alaudhli, 2024

¹⁷ Indonesian Center for Environmental Law, 2021

1.5 Suboptimal Energy Resource Management

Renewable energy consumption in Indonesia is below total non-renewable energy consumption, indicating that non-renewable energy is still dominant in energy consumption in Indonesia. In Table 7, renewable energy is represented by biofuel and waste, while non-renewable energy is reflected through coal, oil, and natural gas. Non-renewable energy has a high supply, which illustrates that there is more investment in its development. This is in stark contrast to renewable energy, where both its supply and consumption is limited. Starting in 2018, however, the supply of renewable energy began to increase gradually, which is a promising trend that needs to be maintained.

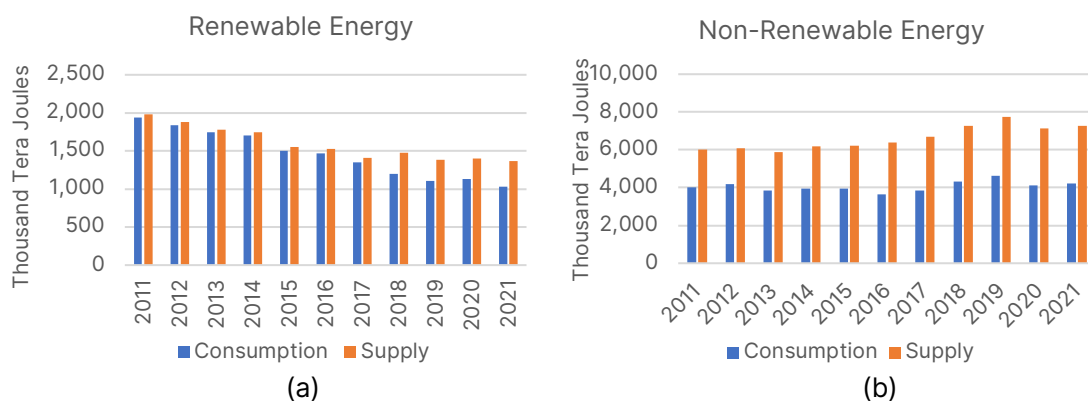


Figure 7. Final Consumption and Supply in a) Renewable Energy and b) Non-Renewable Energy in the Residential Sector¹⁸

Renewable energy consumption is used for several sectors, such as industry, transport, commercial and public services, and housing. The highest consumption is in the residential sector, but the value of renewable energy consumption has been declining annually (see Figure 8). This decrease, however, is a result of an increase in renewable energy consumption in other sectors, thereby decreasing the share of renewable energy consumed in the residential sector. This illustrates that efforts to distribute the use of renewable energy across all sectors are beginning to accelerate. Nonetheless, Indonesia still needs a strategy to optimize its renewable energy potential.

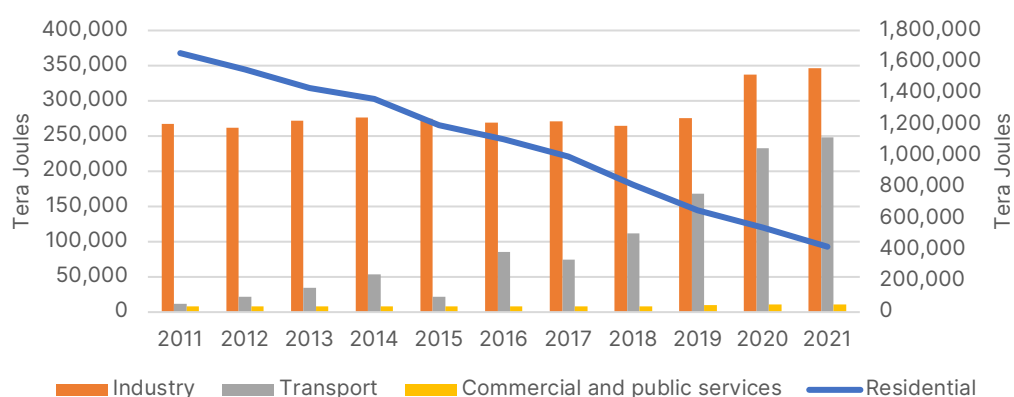


Figure 8. Final Consumption of Biofuels and Waste by Sector in Indonesia, 2011 – 2021¹⁹

¹⁸ IEA, 2021

¹⁹ IEA, 2021

Non-renewable energy consumption is also allocated to several sectors, with the dominant being the transport sector (see Figure 9). This condition can be explained by the fact that transportation still relies on fossil fuels. The number of motorized vehicles in Indonesia reached 141 million units in 2021²⁰ and certainly has an impact on oil consumption which is still high. Increasing the use of renewable energy for transportation (see Figure 9) is a step towards shifting the use of non-renewable energy to renewable energy, especially in the transportation sector. While this is a good solution for the development of renewable energy, it also has challenges in other aspects, such as public acceptance of green vehicles. The creation of an ecosystem that cares about the environment needs to be optimized; this is because extraction methods to obtain non-renewable energy contribute significantly to environmental degradation²¹. The adoption of sustainable energy can also improve energy security, reduce dependence on traditional energy sources, job creation, and increase economic growth²².

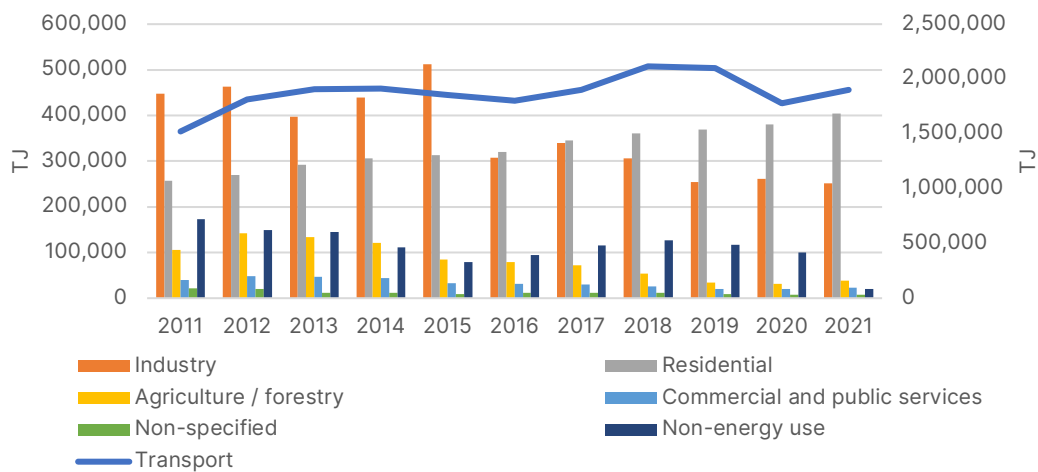


Figure 9. Final Consumption of Oil Products by Sector in Indonesia, 2011 – 2021²³

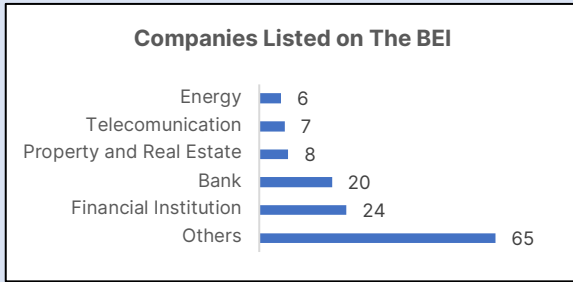
²⁰ BPS, 2022

²¹ Amin, Song and Shabbir, 2022

²² Lv, 2023

²³ IEA, 2021

BOX I. The Dominance of Financing Institutions in Indonesia's Corporate Bond Issuers

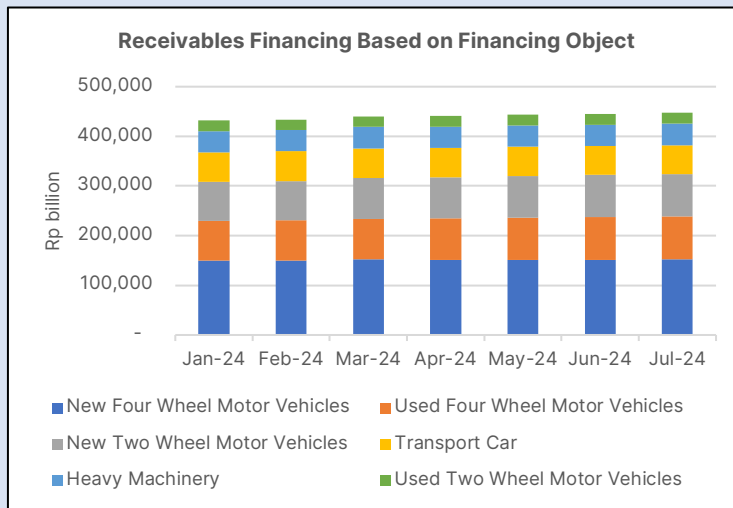


Bonds are issued by a variety of companies to fund different initiatives. Corporate bond issuers listed on the Indonesia Stock Exchange (IDX) are 130 companies with different types of business sectors. The financial industries (banks and financial institutions) are a sector that dominates among corporate bond issuers, reaching 44 companies.

Financial institutions have managed to outperform banks in terms of corporate bond issuance. The three companies with the largest corporate bond issuances are PT Sarana Multigriya Finance, PT Astra Sedaya Finance, and PT Federal International Finance. These successes are also supported by a good corporate rating that make it possible to maintain financing for various activities.

Corporate	Issuance (Rp million)	Corporate Rating	
		Fitch	Pefindo
PT. Sarana Multigriya Financial (Persero)	39,052	AAA Stable	idAAA Stable
PT. Astra Sedaya Finance	12,120	BBB Stable	idAAA Stable
PT. Federal International Finance	10,257	BBB Stable	idAAA Stable

Based on the Indonesian Multifinance Institutions Statistics by OJK in 2024, it is known that vehicle financing is mostly allocated to financing fossil-fuelled vehicles, such as motorbikes, cars, and heavy equipment. The financing allocation illustrates that coal is highly utilised in Indonesia and supported by financial institutions.



2. Literature Review

2.1 Definition and Importance of Green Finance

Green finance refers to financial investments directed toward sustainable development projects, environmental products, and policies that foster environmentally sound growth. This includes financing renewable energy projects, sustainable agriculture, energy efficiency initiatives, and other low-carbon activities.

The importance of green finance lies in its role as a catalyst for climate action, addressing environmental risks while promoting economic growth. It bridges the gap in funding for green initiatives, diversifies financial markets, and drives innovation in financial instruments. Furthermore, it enhances market liquidity by offering green bonds, securitized green assets, and innovative blended finance schemes. In the Indonesian context, green finance is critical for achieving climate resilience, supporting energy transitions, and aligning economic growth with sustainability goals.

2.2 Green Finance Framework

Green finance is a financial system that addresses the combination of finance, environment, and economic growth.²⁴ The scope of green finance overlaps with other aspects of finance (see Figure 10). Green finance also falls under the broader framework of **sustainable finance**. In addition, sustainable finance also includes environmental finance, carbon finance, and climate finance. **Environmental finance** discusses financing or investing for environmental sustainability, taking potential environmental externalities into account. **Carbon finance** is used to finance projects that reduce emissions of carbon dioxide and other greenhouse gases. **Climate finance** supports climate change mitigation activities to achieve a low-carbon economy and implement climate-resilient development.

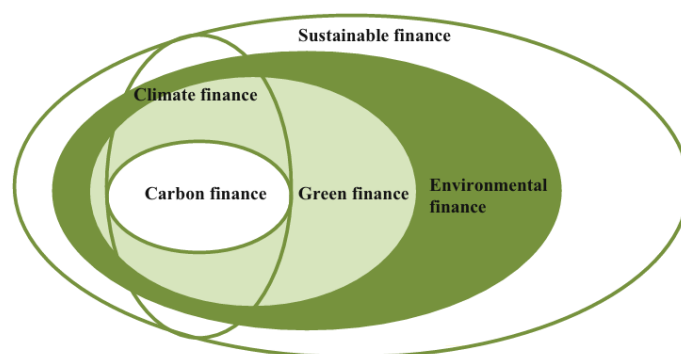


Figure 10. Relationship between Green Finance and Other Types of Finance²⁵

Climate change adversely affects the economy, especially the growth of real output per capita, labor productivity, and employment²⁶. Climate change's economic impact can be transmitted through physical and transition risks (see Figure 11). It will cause risks affecting financial conditions, requiring slick management to achieve a sustainable economy.

²⁴ Noh, 2019

²⁵ Noh, 2019

²⁶ Kahn et al., 2019

Physical and transition risks

The risks from climate change to the economy have two basic channels, but many potential impacts.

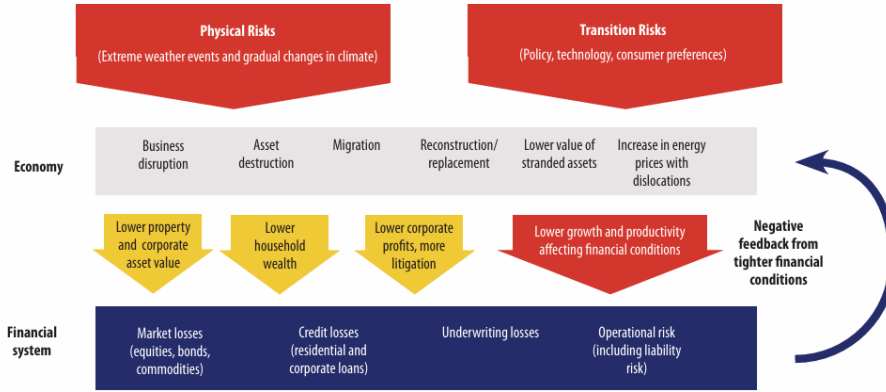


Figure 11. Impact of Climate Change Transmission on the Financial System²⁷

The issuance of various green finance instruments is one way to advance green finance initiatives. Financial instruments that facilitate "greener" investment and involve companies within the sustainability field into their business plans might lower exposure to climate-related risk without temporarily influencing market exposure.²⁸ Some types of green financial instruments can be seen in Table 4.

Table 4. Green Financial Instruments²⁹

Type of Debt	Instruments	Key Properties
Fixed Income	Green Bonds	Specific bonds that are labeled green, with proceeds used for funding new and existing projects with environmental benefits
	Green Money Market Funds	Apply ESG factors to the investment of money market instruments
	Social Bonds	Bonds that raise funds for new and existing projects that create positive social outcomes
	Sustainable Bonds	The Proceeds used to finance or refinance a combination of green and social projects
	Sustainability-Linked Bonds	Types of bond instruments for which financial and/or structural characteristics can vary depending on the predefined ESG objectives.
	Green Mortgage-Backed Securities (MBS)	Green MBS securitizes mortgages that go toward financing green properties
Loans	Green Loans	The proceeds used to finance or refinance green projects, including other related and supporting expenditures such as R&D
	Sustainability Loans	Loans instruments and/or contingent facilities such as guarantees or letters of credit that incentivize the borrower to meet green or social projects
	Social Loans	The proceeds used to finance eligible social projects
	Sustainability-Linked Loans	Loan instruments that incentivize the borrower to meet predetermined sustainability performance goals

Green finance instruments differ from conventional financial products (illustrated in Table 5). The most visible difference is in their objective, as green financial instruments are concerned with funding and environmental aspects. The use of green financial instruments provides a good image to the public, and the company requires this. The added weight of considering environmental externalities, however, causes green financial instruments to

²⁷ Grippa et al., 2019; IMF, 2019

²⁸ OECD, 2017

²⁹ Aufa, 2024

require higher costs than conventional products for Environmental, Social, and Government (ESG) Assessments.

Table 5. Differences Between Green Finance and Conventional Instruments³⁰

	Sustainability Linked Loan (SLL)	Green Loan	Conventional Loan
Objective	Incentivize borrowers to achieve Sustainable Performance Target (SPT)	Exclusive to finance green project	Fundraising
Proceeds	Suitable for general purpose	Allocated to green projects	Suitable for general purpose
Investor Diversification	A large scope of investors across sustainable and conventional investor	A larger scope of investors across sustainable and conventional investor	Diversification of conventional investor
Positive Publication	Yes	Yes	Neutral
SPT Target	Yes	No	No
Consequence of Unable to Implement Framework/ SPT	Reputational risk	Reputational risk and penalty	None
Reporting Requirement	Reporting on sustainability performance rated by ESG assessor	Reporting on allocation to green projects, impact report rated by ESG assessor	No report
Preparation Process	An additional process of negotiating SPT and assessing sustainability framework by Second Party Opinion (SPO) provider	An additional process of assessing green framework by SPO Provider	Does not require assessment by SPO Provider

Green bonds are one of the green financial instruments that have voluntary issuance process guidelines called Green Bond Principles (GBP). The GBP is managed by the International Capital Market Association (ICMA) and has four important components, including the use of proceeds, project evaluation and selection, management of proceeds, and reporting.³¹ The use of proceeds describes the projects that must qualify according to the legal documentation of the securities and their environmental benefits. Green projects may include assets, investments, and other matters related to environmental objectives. The issuer must inform investors about the objectives, processes, and risks involved in the green project during the project evaluation and selection process. Management of proceeds is conducted to determine the allocation of funds in the specified green project. The proceeds can be managed per bond (bond-by-bond approach) or on an aggregate basis for multiple green bonds (portfolio approach). Transparency is required in the management of proceeds, and external auditors or third parties could be utilized to verify the allocation of funds. Lastly, annual reporting includes a list of projects allocated from the green bond, a brief project description, the funds allocated, and the expected impact.

The implementation of the green finance framework is also supported by the launch of the Climate Bond Standard to certify general-purpose instruments, assets, and entities. This scheme complements the GBP ICMA in encouraging investment in the green sector. Proceeds are divided between projects that qualify and don't qualify with the Climate Bonds Sector Eligibility Criteria to achieve net-zero transition. A minimum of 95% of net proceeds to finance projects that meet the criteria and a maximum of 5% to finance projects that are not fully aligned with the criteria but comply with ICMA's GBP or Social Bond Principles (SBP)³².

³⁰ Aufa, 2024

³¹ ICMA, 2021

³² CBI, 2021

Green bond indices are ratings provided by credit rating agencies to offer a clear measure of risk and return of an asset class. Some investors adopt green bond indices to ensure the credibility and scope of a green project. Examples of popularly used green bond indices are Bloomberg MSCI and S&P. This is because both indices are relevant to GBP and cover various issuers (sovereigns, multinationals, and corporations) with multiple currencies.

Investing in green bonds offers benefits and challenges to investors and issuers. Issuers can expand access to investors by enhancing institutional credibility and gaining support from national entities through cost reduction or credit enhancement. As for investors, it can be a form of diversified fixed-income portfolio and green investments to address climate change. All disadvantages of green bonds must also be considered to ensure manageable risks. The issuer must consider the higher cost of green bonds compared regular bonds and be prepared if the use of proceeds is contrary to the plans. Failure will lead to a decrease in the credibility of the issuer. Furthermore, the smaller and less liquid green bond market is currently less profitable than that of regular bonds, decreasing its attractiveness for investors.³³

2.3 The Effect of Green Finance

A positive correlation between green finance and positive climate outcomes can be demonstrated through empirical evidence, such as through the case of China. China's use of green financing to support its environmental, social, and governance goals has enabled it to reduce its carbon emissions.³⁴ The utilization of technology and the digital economy are two factors that have encouraged the widespread use of green finance in China. China's eastern region, which is its most populated and economically developed region, leads the nation in utilizing green financing.³⁵ The region thus enjoys decreased energy use intensity, increased technological innovation, and industrial structure optimization through its use of green financing.³⁶ Green finance has also successfully reduced CO2 emissions in other countries that support green finance, such as Canada, Denmark, Hong Kong, Japan, New Zealand, Norway, Sweden, Switzerland, the United Kingdom, and the United States.³⁷ The positive impact of green finance on carbon emission efficiency is also found in Indonesia. However, the effect has not been effective and consistent.³⁸ This is because its implementation has not been in accordance with the rules, causing problems such as greenwashing. In addition, much of the growth of non-fossil energy is still dependent on government financing and, therefore, limited. These factors need to be optimized so that the positive impact of green finance can run consistently in the long term.

Green finance also affects financial development, especially in terms of efficiency. Green finance can reduce non-performing loans (NPLs) due to the influence of the Green Credit Policy.³⁹ The policy pressures institutions to increase green credit ratios and reduce credit risk. However, a green credit policy can also reduce liquidity risk in companies that produce heavy pollutants. This happens because the policy will reduce the long-term debt ratio and information transparency.⁴⁰

³³ Salman, Sayegh and Ayoubi, 2016

³⁴ Zhang et al., 2022; Lei and Wang, 2023; Liu and Zhu, 2024; Wu, Liu and Cai, 2024

³⁵ Sun, Bao and Taghizadeh-Hesary, 2023

³⁶ Lei and Wang, 2023

³⁷ Saeed Meo and Karim, 2022

³⁸ Kamaluddin, 2023; Wijianto and Falianty, 2023

³⁹ Cui et al., 2018; Al-Qudah et al., 2023

⁴⁰ Wang, Liu and Guo, 2023

2.4 Overview of Green Finance in G20 Countries

The G20 is a multilateral cooperation forum that supports sustainable development, leading to the Paris Agreement 2015 and the Sustainable Development Agenda 2030.

The members of the G20 represent both developing and developed countries. Its developing countries include China, Mexico, Indonesia, and South Africa. Meanwhile, its developed members include the United States, Germany, the United Kingdom, and Japan.

Several G20 members have launched green financial instruments such as green bonds.

The Chinese government's initiative to issue green bonds began in 2013 when it developed a corporate green bond market as part of the 12th five-year plan. The Chinese government regulated and guided its green bond market as part of its economic policies, and became the highest issuer of green bonds in developing countries. As show in Figure 12, China ranks far above other developing countries of the G20 in issuing green bonds. China has detailed regulations related to green bonds regarding criteria standards, issuance requirements, and green bond issuance. Indonesia is the second developing country with green bond issuance reaching 2 billion USD in 2023. The Indonesian government published Green Taxonomy 1.0 in 2022 to support the implementation of green financing and prevent greenwashing. Meanwhile, the country that dominates green finance in developed countries is the United States, which has achieved above 20 billion USD of green bond issuance annually since 2018 to 2023 (see Figure 13). In 2021, green bond issuance in the United States became the highest issuance of the eight countries at 95 billion USD. The potential of green finance in developed countries is also held by Germany, which has successfully taken second place after the United States.

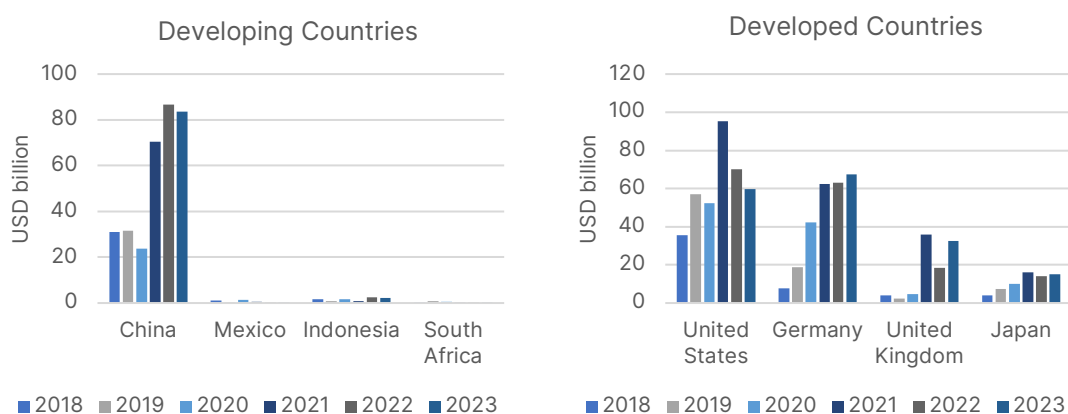
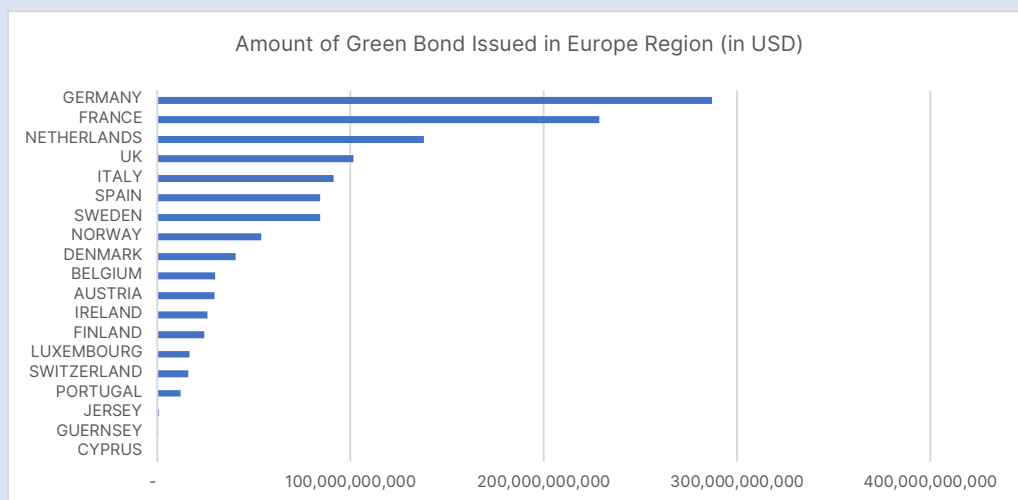


Figure 12. Green Finance Issuance in Several Countries, 2018 - 2023⁴¹

The success of China in green finance can be a benchmark for other countries in implementing and adopting green finance. Some of the lessons learned from China for other developing countries in establishing green finance programs are (i) the importance of inter-institutional cooperation and coordination in issuing and implementing sustainable finance policies, (ii) the balance between administrative and market-based measures that can inform financial policymakers, and (iii) the concern for gap reduction in financing a low-carbon economy can be used to inform the efforts of politicians concerned with a 'just transition' elsewhere, and (iv) providing a variety of green finance instruments to give investors alternative options for green finance products.

⁴¹ CBI, 2024

BOX II. The Lesson of Germany's Achievement in The Development of Green Finance



Source, CBI, 2023

Germany has made several notable achievements in developing green finance, establishing itself as a leader in sustainability and environmental investment. Germany was among the first nations to issue green bonds, with the Federal Republic of Germany introducing its first green bond in 2020. This initiative established a benchmark for sustainable financing at the sovereign government level.

Countries looking to develop their own green finance frameworks can learn from Germany's success by following these steps:

1. Develop comprehensive regulations and guidelines defining green finance, similar to Germany's Green Bond Standard.
2. Encourage public and private sector entities to issue green bonds by providing incentives, such as tax breaks or streamlined approval processes, as seen in Germany.
3. Allocate substantial public and private investments in renewable energy projects and set ambitious targets for renewable energy generation, similar to Germany's commitment to achieving high percentages of renewables in its energy mix.

2.5 The Development of Green Finance in Indonesia

The use of green finance globally has been increasing, reflected in an uptick green bond issuance around the world (see Figure 13). While green finance is designed to catalyze low-carbon investments, green bond issuance does not effectively reduce carbon emissions or has limited impact in addressing climate change⁴². It can also be empirically proven through Figure 13 that green bond issuance was significant in 2022 in Indonesia, but carbon emissions continued to increase. This condition be caused by several factors, such as (i) greenwashing, (ii) unnecessary project selection where issuers choose projects that are insignificant to reducing carbon emissions, and (iii) lack of transparency and clear standards⁴³.

⁴² Wijianto and Falianty, 2023

⁴³ Wijianto and Falianty, 2023

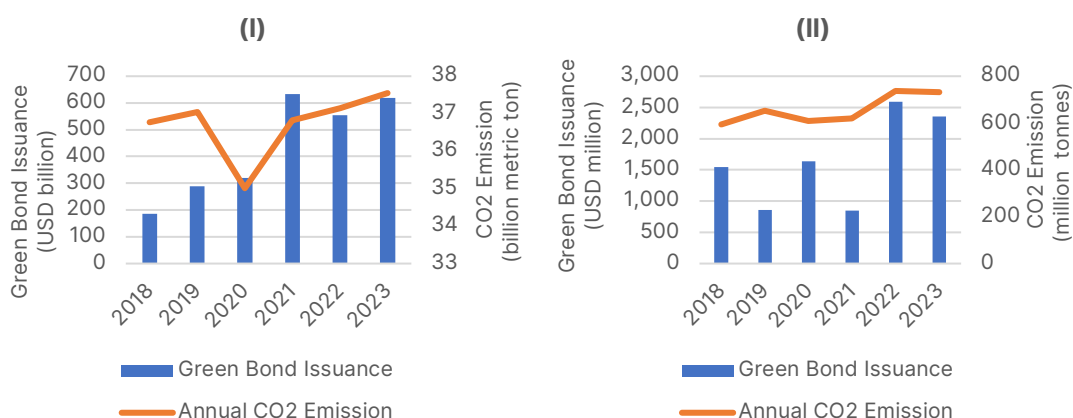


Figure 13. Green Bond Issuance and CO2 Emission in (I) the World⁴⁴ and (II) Indonesia⁴⁵

Efforts to create green finance in Indonesia can also be seen in Indonesia's increase in issuing green financial instruments. The dominant green financial instrument in 2022 are bonds issued by the Indonesian government totaled more than 7 billion USD (see Figure 14). The central government and state-owned companies are the primary issuers of green bonds in Indonesia. In addition, private companies also participate in issuing green financial instruments. Indonesia Infrastructure Finance ant PT. Japfa Comfeed Indonesia Tbk, for example, have both released sustainability-linked bonds. Indonesia also has several other green financial instruments that can be used as alternative instruments in the development of green finance (see Table 6).

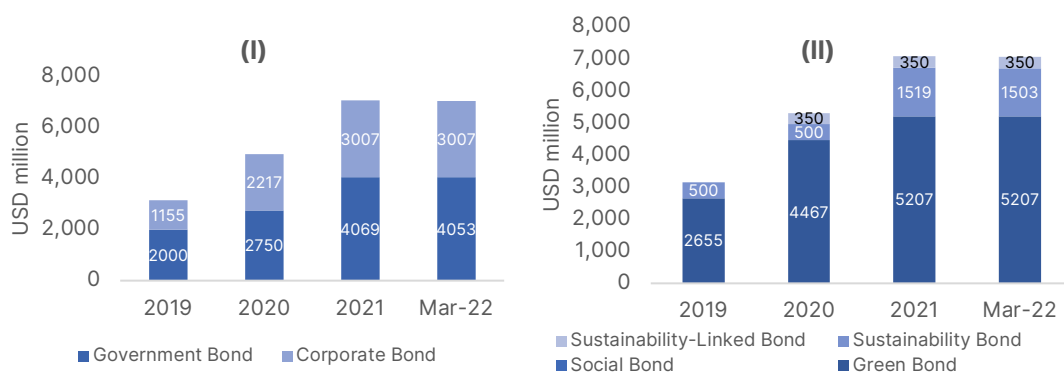


Figure 14. Sustainable Bonds Outstanding in Indonesia by (I) Issuer Type and (II) Bond Type⁴⁶

Table 6. Green Financial Instruments in Indonesia⁴⁷

Instrument	Definition	Example
Debt Instrument		
Supranational and Sovereign Green Bond	Proceeds are allocated to designated projects and assets. Debt securities have a credit rating from the issuing country or rating agencies.	The Republic of Indonesia issued a USD1.25bn 5-year green sovereign sukuk in 2018 to finance eligible projects under a range of categories: Renewable Energy, Energy Efficiency, Adaptation, Transport, Green Buildings, Sustainable Agriculture, Sustainable Management of Natural Resources, and Green Tourism ⁴⁸

⁴⁴ Statista, 2024b, 2024a

⁴⁵ CBI, 2024; Our World in Data, 2024

⁴⁶ ADB, 2022

⁴⁷ CBI, 2019, 2022

⁴⁸ CBI, 2022

Instrument	Definition	Example
Sub-Sovereign Green Bonds	Proceeds are allocated to nominated projects and assets within the sponsoring region. The credit rating is based on that of the issuing municipality and the credit quality of the underlying assets.	PT. Sarana Multi Infrastruktur (PT. SMI) issued a 2-tranche IDR500bn (USD50m) unsecured green bond in 2018. Proceeds will be allocated to refinancing three light rail transit projects, two mini hydro power plants, a water treatment plant, and irrigation systems ⁴⁹
Green Bond, Sustainability Bond	Business agreement between two or more parties that pool their capital, skills, and resources to achieve a specific project or business activity	The Tropical Landscape Finance Facility—a partnership between the United Nations Environment Programs, World Agroforestry Centre, ADM Capital, and BNP Paribas—launched its landmark USD95m bonds to help finance a sustainable natural rubber plantation on heavily degraded land in two provinces in Indonesia ⁵⁰
Green Loan	Provide lending to encourage market development in line with the Climate Bonds Taxonomy and compliance with the Green Loan Principles.	The World Bank is providing a loan of USD150m to support the Indonesia Geothermal Resource Risk Mitigation (GREM) project. The loan from the World Bank will support public and private developers to lower risks in geothermal resource exploration ⁵¹
Equity Instrument		
Public-Private Partnership	A long-term contract between a public entity and a private party aimed at developing and supporting a public asset or service.	PT SMI plays an active role in facilitating infrastructure financing, project development and infrastructure advisory services in Indonesia. PT SMI supports the Government's infrastructure development agenda for Indonesia through partnerships with private and/or multilateral financial institutions in PPP projects
Credit Enhancement		
Viability Gap Funding	The Indonesian Ministry of Finance provides financial support to improve the certainty and viability of PPP infrastructure projects.	Bandar Lampung Water Supply project was developed as a joint project between the government and the private sector to increase the coverage of drinking water services for citizens in Bandar Lampung from 20% (2015) to 46% (2024) and improve environmental sanitation, living standards, and public health ⁵²
Infrastructure/Property Funds	Proceeds are allocated to nominated infrastructure projects. Funds can have a mixed financing structure by both investing directly in assets and through debt subscription	Indonesian Infrastructure Finance provides infrastructure financing and advisory services for viable infrastructure projects. In December 2018, it provided USD28.7m financing for the project company to develop a 2x5 MW Mini Hydro Power Plant Project in North Sumatra ⁵³

The commitment to green finance in Indonesia is proven by the existence of carbon trading. The carbon trading ecosystem began to develop when the government issued Presidential Regulation Number 98 of 2021 concerning the economic value of carbon and POJK Number 14 of 2023 concerning carbon trading through carbon exchanges. The existence of regulations is the foundation for the implementation of carbon trading in Indonesia. Concrete action was taken by launching IDXCarbon to accommodate carbon trading in Indonesia. Since its launch on September 26, 2023, trades on IDXCarbon have shown a positive development. Users on IDXCarbon reached 106 participants in January 2025, a rapid increase from the initial launch of only 17 participants. Indonesia continues to expand by launching international carbon trading. The Ministry of Environment, OJK, and the Indonesia Stock Exchange launched international carbon trading with authorized carbon units of 1,780,000 tons CO₂e. Indonesia has strengthened important elements in the carbon ecosystem, namely (1) National Registry System (SRN); (2) Measurement, Reporting, and Verification (MRV); (3) Greenhouse Gas Emission Reduction Certificate (SPE-GRK); and (4) Authorization and Corresponding Adjustment (CA) on carbon trading international.

⁴⁹ CBI, 2022

⁵⁰ United Nations Environmental Program, 2018

⁵¹ Power Technology, 2019

⁵² Ministry of Finance of Republic of Indonesia, 2019

⁵³ Indonesia Infrastructure Finance, 2018

The existence of carbon trading is expected to contribute to the economy and solve the problem of carbon emissions. Carbon trading in Brazil and Ecuador has provided benefits such as minimizing transaction costs and transparent financial distribution, easier work programs to reach the community, cooperation between stakeholders for better operations, clear regulations in the division of roles between stakeholders, and success in managing forest resources⁵⁴. The experience of several countries motivates carbon trading to be successful in Indonesia both domestically and internationally.

2.6 Regulatory Reform to Support Green Finance

The Indonesian government has committed to sustainable finance through several regulations. Environmental management in Indonesia was initially regulated through Law Number 32 of 2009 about Environmental Protection and Management, which replaced Law Number 23 of 1997 about Environmental Management. This regulation emphasizes that environmental aspects also need to be considered in maintaining the survival of humans and other living things due to the threat posed by global warming. Therefore, Indonesia's national economic development goals must use sustainable and environmentally-friendly principles. Indonesia has signed the Paris Agreement with 170 other countries, which aims to address climate change issues. The agreement related to the Paris Agreement was also ratified through Law Number 16 of 2016.

Another concrete action the government took in addressing climate change is the establishment of Presidential Regulation (Perpres) Number 98 of 2021 about Carbon Economic Value and Controlling Greenhouse Gas Emissions in National Development. Indonesia targets reducing greenhouse gas emissions by 29% through its domestic capabilities and by a further 41% with international support by 2030. To achieve this target, the government set Permen of Environment and Forestry Number 21 of 2022 about procedures for the application of Carbon Economic Value.

Regulators have also developed regulations on Carbon Economic Value to support the government's efforts in terms of greenhouse gas emission reduction targets. This illustrates that there is coordination between the government (Ministry of Environment and Forestry) and the regulator (OJK) in supporting green finance in Indonesia. The Financial Services Authority regulates carbon trading through Financial Services Authority Regulation (POJK) Number 14/POJK.04/2023. Along with sustainable development, efforts are being made to create an environmentally sound ecosystem in financial and social aspects. OJK plays an important role in monitoring activities in sustainable finance and ensuring its successful implementation. OJK has issued several regulations that aim to support green finance in Indonesia, starting in 2017 (see Figure 15).

⁵⁴ Cadizza et al., 2024



Figure 15. OJK Regulation in Sustainable Finance

Bank Indonesia supports sustainable finance in Indonesia through several macroprudential policies. Bank Indonesia implemented the Loan to Value (LTV) policy for property loans and Down Payment (UM) for green vehicle loans since December 2019. The LTV and UM policies aim to increase demand and access to green financing as well as attract public interest in green properties and vehicles. Bank Indonesia also established the Macroprudential Inclusive Financing Ratio (RPIM) through Bank Indonesia Regulation (PBI) No.24/3/PBI/2022 to support inclusive financing and sustainable financial system stability. Sustainable finance is achieved by expanding the scope of the RPIM Policy to include securities for sustainable finance. The next policy is related to the Macroprudential Liquidity Incentive Policy (KLM) to banks that provide credit to certain sectors, Ultra Micro businesses, environmentally oriented, and others in accordance with PBI Number 11 of 2023. The KLM policy can act as an incentive for banks that provide green credit and support sustainable finance practices in Indonesia.

3. Findings and Discussion

Green financing is essential for supporting the transition to a low-carbon and resilient economy. It addresses the need for regulatory frameworks, inter-institutional coordination, and the development of financing instruments to bridge funding gaps and promote sustainable economic growth. By focusing on these elements, green financing can mitigate risks and facilitate the establishment of an effective and inclusive financial system for environmental sustainability.

3.1 Addressing the Lack of Interest in Green Finance

3.1.1 Leveraging Inclusive Green Finance

Inclusive Green Finance (IGF) is an approach that combines Green Finance (GF) and Financial Inclusion (FI) to optimize financial inclusion policies toward addressing climate change and its mitigation⁵⁵. The IGF framework was developed by members of the Alliance for Financial Inclusion (AFI) and has four pillars known as “AFI 4Ps”: Promotion, Provision, Protection, and Prevention (see Figure 16). This framework provides policy options for policymakers and regulators. In the promotion phase, possible policies that can be implemented are shared through awareness raising, information sharing, capacity building, and data collection related to green projects. The policy will create a strategy and roadmap for sustainable finance. Then, provision is carried out to ensure that funds are given to beneficiaries following the agreed terms. This can be done through lending policies, refinancing, or other financing schemes. Another policy is protection, which reduces financial risk and builds resilience against extreme events. Insurance, risk guarantee, and risk-sharing management are programs that can be implemented to introduce potential losses from green projects. The possibility of undesirable outcomes requires preventive policies to minimize the risk. Green projects require Enacting Environmental (and Social) Risk Management (ERM or ESRM) Guidelines to control the possibility of environmental and social risks. These policy options create a climate and financial resilience that will support achieving the final goal of sustainable financial inclusion and financial stability.

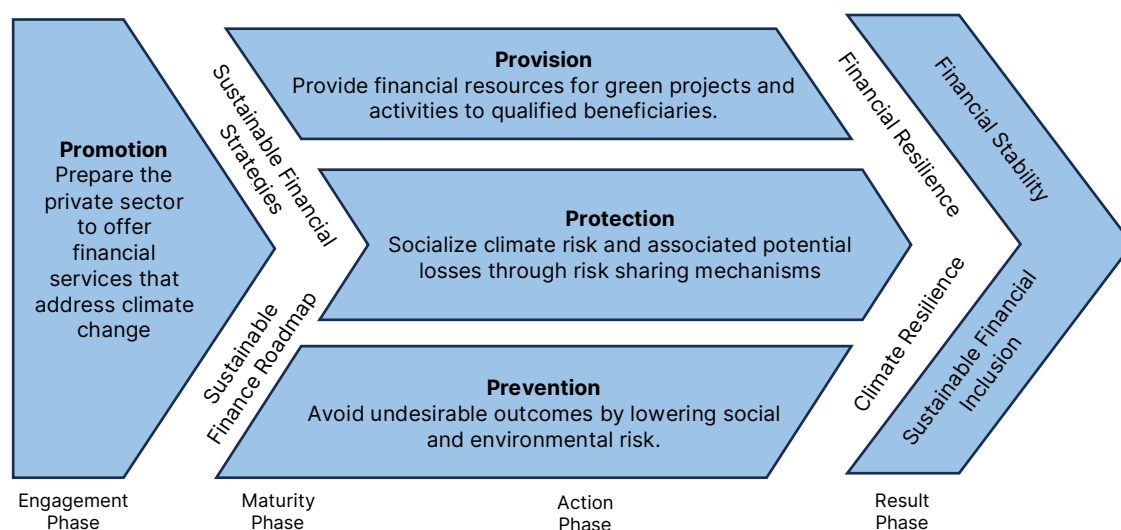


Figure 16. Inclusive Green Finance Framework⁵⁶

⁵⁵ Volz et al., 2020

⁵⁶ Nyman et al., 2020

The 4P of the IGF has been implemented in several AFI member countries through various programs (illustrated in Table 7). Based on past examples, there are several key indicators that the government must monitor for successful implementation of the IGF. First, in the promotion policy, improve data collection on green finance activities so that the potential economic impact of climate events can be recognized. Second in the provision policy, being able to ensure that the beneficiaries are in line with the terms and provide funds to support the policy. Third in the protection policy, be able to establish good cooperation between stakeholders for the success of insurance and risk-sharing programs. Fourth in the prevention policy, providing training to financial service providers and supervisory resources for ESRM implementation. It also ensures that thorough credit checks do not lead to financial exclusion.

Table 7. Implementation of IGF in Several Countries⁵⁷

4P	Programs	Evidence
Promotion	Data Collection	Bangladesh, Philippines
	Capacity Building	Philippines, Thailand, Egypt
Provision	Lending Quota	Bangladesh, Nepal, Egypt
	Refinancing Green Lending	Bangladesh, Nepal, Argentine
	Financing Schemes for Green Lending	Pakistan, Armenia
Protection	Agriculture Climate Risk Insurance	Armenia, Nigeria, Morocco
	Credit Guarantee	Nigeria, Ghana
	Post-disaster Rehabilitation Facilities	Philippines, Fiji
Prevention	Environmental Risk Management (ERM) Guideline	Bangladesh, Brazil, Pakistan, Nepal

Several countries have implemented the IGF framework with various approaches, either explicitly or implicitly in national financial inclusion strategies. Climate change can also be linked to other national strategies (see Table 8). The type of approach chosen will depend on individual country preferences. The integration of climate change and financial inclusion into national strategies shows the government's commitment to developing the IGF framework.

Table 8. List of Countries Linking Climate Change to NFIS and Other Financial Strategies⁵⁸

Climate Change Explicitly Integrated in NFIS	Climate Change Implicitly Integrated in NFIS	Other Financial Sector Strategies that link Financial Inclusion and Climate Change
<ul style="list-style-type: none"> • Argentina • Fiji • Jordan • Rwanda • Bangladesh (Planned) • Egypt (Planned) • Sri Lanka (Planned) 	<ul style="list-style-type: none"> • Eswatini • Philippines • Tanzania • Vanuatu • Armenia (Planned) 	<ul style="list-style-type: none"> • Thailand: Sustainable Banking Guideline • Philippines: Sustainable Finance Framework • Cambodia: Sustainable Finance Principles • Sri Lanka: Sustainable Finance Roadmap

Based on the experiences of other countries, as shown in Table 7, Indonesia can also use strategies to explicitly link climate change with the NFIS. Indonesia already has a National Strategy for Inclusive Finance (SNKI), which is described in Perpres Number 114 of 2020. The regulation only needs to be adjusted by adding green finance aspects to build the IGF framework in Indonesia. The green finance framework in Indonesia can be seen from the sustainable finance roadmap phase II. It can be used as a reference when linking to the NFIS material.

⁵⁷ Nyman et al., 2020

⁵⁸ Nyman et al., 2020

The Indonesian government can also adopt the overall IGF framework by joining the AFI Network, such as Malaysia, Philippines, Thailand, and Cambodia. Participation in these networks encourages the development of financial inclusion and its link to climate change. AFI is a policy leadership alliance owned and led by central banks and financial regulatory agencies. If Indonesia joins AFI, its central bank will benefit from participation in an integrated and regional climate and financial policy body.

The development of IGF through NFIS and joining the AFI Network is expected to overcome the lack of interest from investors and issuers related to green finance. The addition of green finance in the national strategy gives policies a clear legal and theoretical foundation. Investors and issuers will know the overall guidelines from the government regarding green finance and it will enhance their understanding of the types of instruments to participate in green finance. The regional green finance ecosystem will be further strengthened by Indonesia joining the AFI Network because all new provisions and rules regarding the development of green finance can adopt the IGF frameworks already in use within the AFI Network.

3.1.2 Providing Incentives to Support Green Finance

The Indonesian government need to provide incentives gradually to support green finance. Support from the government through incentives can encourage issuers to launch green bonds. Maximizing the issuance of green bonds is crucial as it serves as a strategy to diversify investment products, enhance the green image of participating organizations, and improve their corporate disclosure, which in turn can attract more investors.⁵⁹ Indonesia has already incentivized 25% of the original fee on green bond registration through the Board of Commissioners Decree (KDK) Number 24/KDK.01/2018. The registration fee provisions are outlined in Government Regulation (PP) Number 11/2014. Table 9 shows an example of how this incentive policy can be implemented in the case of an estimated IDR1 trillion green bond issuance. Based on these estimations, a 25% incentive on the green bond issuance of IDR1 trillion can save IDR1.250 billion.

Table 9. Estimation of Incentive Policy on Green Bond Issuance

Category	Without Incentive (Before)	With Incentive (After)
Bond Value	1,000,000,000,000	1,000,000,000,000
Underwriter Fees	30,000,000,000	30,000,000,000
Registration Fees at the Stock Exchange	5,000,000,000	3,750,000,000
Legal Fees	2,000,000,000	2,000,000,000
Financial Advisory Fees	3,000,000,000	3,000,000,000
Second Party Opinion Fees	1,500,000,000	1,500,000,000
Verification Fees	1,000,000,000	1,000,000,000
Total	42,500,000,000	41,250,000,000

Regulatory reforms also play a critical role in increasing investment in green bonds. POJK Number 51/POJK.03/2017 outlines that financial institutions, issuers, and public companies must implement sustainable finance practices. The regulations detailing the obligation of companies to invest in green financial instruments must be more comprehensive. For instance, a mandate requiring companies to invest 30-50% of their assets in green bonds could be established. Clear guidelines set forth by regulations will apply pressure on financial institutions and public companies to invest in the green sector, contributing to the success of sustainable finance in Indonesia. In line with supporting

⁵⁹ ADB, 2022

sustainable finance, the government should also guide financial institutions and public companies to begin reducing financing for the coal sector. This transition can occur gradually, with funds being redirected toward green sectors. Shifting from coal financing to green financing will help increase the available funds for green finance in Indonesia.

The solutions of providing incentives and updating regulations are expected to overcome the limited funds in the development of green finance. Clear incentives and rules delineating the assets that need to be invested in the green sector reduces doubt and uncertainty, thereby making a shift towards green financing more attractive to investors. It is imperative that green financing becomes more attractive than financing in the non-renewable energy sector to trigger a drawing back from that sector.

Another solution to limited financing is to create a green finance ecosystem by increasing the number of credible green project developers. They work to ensure that starting from planning to implementing green projects are aligned with sustainability standards. When there are more green project developers, the price will be more competitive and investment funds will be more readily available. In addition, the green ecosystem that has been formed will accelerate and make the development of green finance more efficient.

3.2 Reducing Dependence on Non-Renewable Energy Financing

Blended finance is a structured approach that enables organizations with diverse objectives to jointly invest in projects that aim to achieve mutual goals, such as financial returns, positive environmental impacts, or a combination of both.⁶⁰ This approach was first introduced by the Global Environment Facility (GEF) in 1992 as a means of financing climate change projects. The GEF blended finance utilizes non-grant instruments, including partial/full credit guarantees, performance risk guarantees, structured financing, equity/investment funds, revolving equity funds, contingent loans, concessional loans, and revolving loan funds. Non-grant instruments, in the GEF context, refer to financing mechanisms that have the potential to generate financial returns, such as the initial investment amount, interest, dividends, and the sale of equity shares. Multilateral development banks, which blend GEF resources with their own funds to attract private investors, serve as an example of blended finance in action.

The GEF blended finance uses three steps in the financing process, i.e., identify, incubate, and invest (see Figure 17). In the first stage, identify, how to find financial innovations that will positively impact the environment. The GEF collaborates with stakeholders, such as economic leaders, civil society organizations, state partners, and Indigenous peoples. The second stage, incubate, promotes ideas by building platforms for like-minded stakeholders, encouraging partnerships, and providing strategic grants to develop new approaches. The final stage, invests, uses blended financial tools to offer non-grant investments to creative businesses and projects.

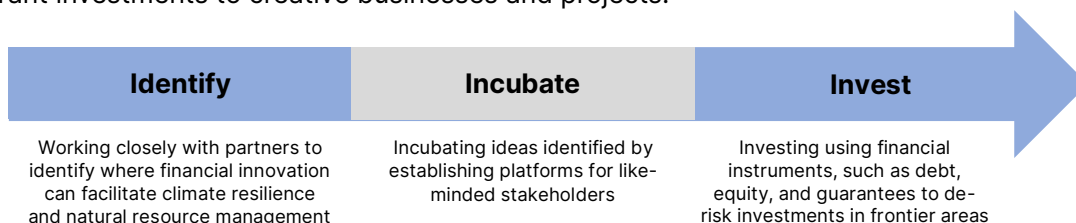


Figure 17. Three Steps in GEF Blended Finance⁶¹

⁶⁰ Global Environment Facility, 2020

⁶¹ Global Environment Facility, 2020

In 2024, Indonesia launched the G20 Bali Global Blended Finance Alliance (GBFA), an international organization that unlocks investment for sustainable development goals (SDGs) and environmental action through blended finance schemes. It aims to provide transformational solutions for six priority sectors: policy, human development, technology and data, enterprise, regional and emerging markets, and finance (see Figure 18). These solutions are built upon six pillars such as (i) engaging in comprehensive policy design, (ii) accelerating South-South collaboration, (iii) prioritizing knowledge and capacity building, (iv) facilitating private sector engagement, (v) standardizing & simplifying data sharing and analysis, and (vi) spearheading new partnerships to optimize resource use.

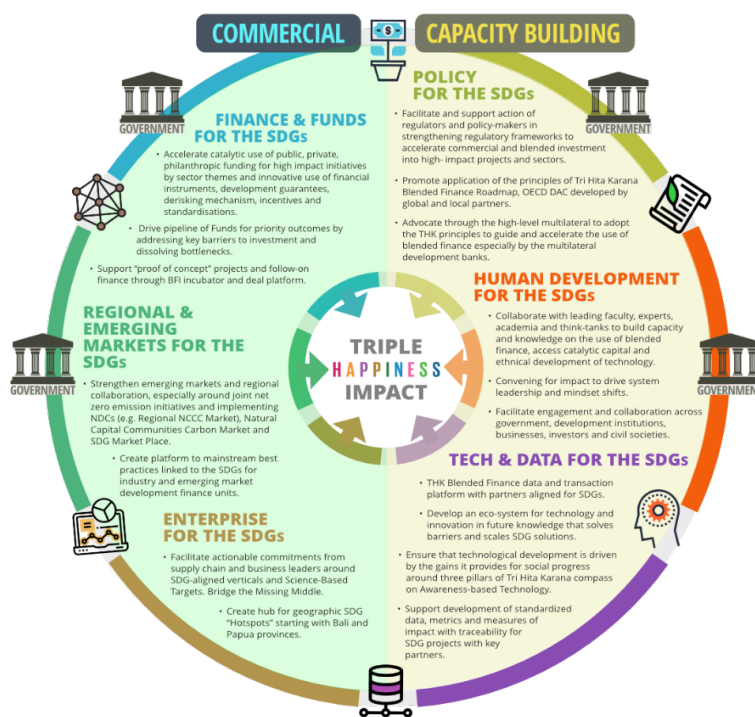


Figure 18. The G20 Bali GBFA Six Priority Function⁶²

Indonesia has undertaken several initiatives to establish a sustainable ecosystem and drive the development of the GBFA. In 2018, the Indonesian government, in collaboration with the OECD, launched the Tri Hita Karana Roadmap for Blended Finance, which became the foundation for the G20 Principles on Scaling Blended Finance for developing countries. In 2022, the government introduced several programs, such as SDG Indonesia One, the Just Energy Transition Partnership (JETP), and Blue Halo S. SDG Indonesia One is an integrated funding collaboration platform to support infrastructure development in alignment with Indonesia's SDG goals. By December 2022, SDG Indonesia One had successfully funded 62 projects using blended financing schemes (see Figure 19).

⁶² Tri Hita Karana Forum, 2023

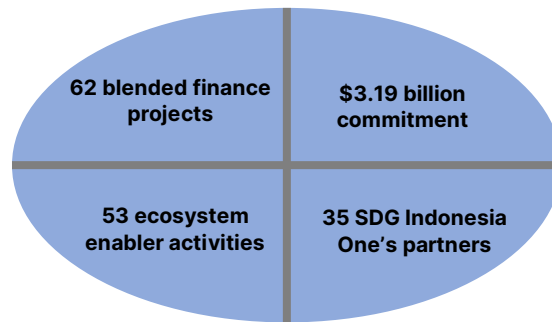


Figure 19. SDG Indonesia One in Numbers⁶³

On the other hand, the JETP program promotes an equitable energy transition from coal to renewable power generation, with a classification into five focus areas (see Figure 20). The Indonesian government has invested US\$20 billion in JETP with the International Partners Group (IPG) and the Glasgow Financial Alliance for Net Zero (GFANZ). As of mid-2024, JETP's performance includes 19 ongoing programs valued at US\$144.6 million, 13 recently signed/launched programs worth US\$59.7 million, and 6 programs still under discussion, with a total value of US\$77.3 million. Another initiative is Blue Halo S, an integrated approach to marine conservation and fisheries management, launched by the Indonesian government with support from the Green Climate Fund (GCF), Conservation International (CI), and Konservasi Indonesia. This program aims to raise USD 300 million from GCF and other sources for blended finance schemes.

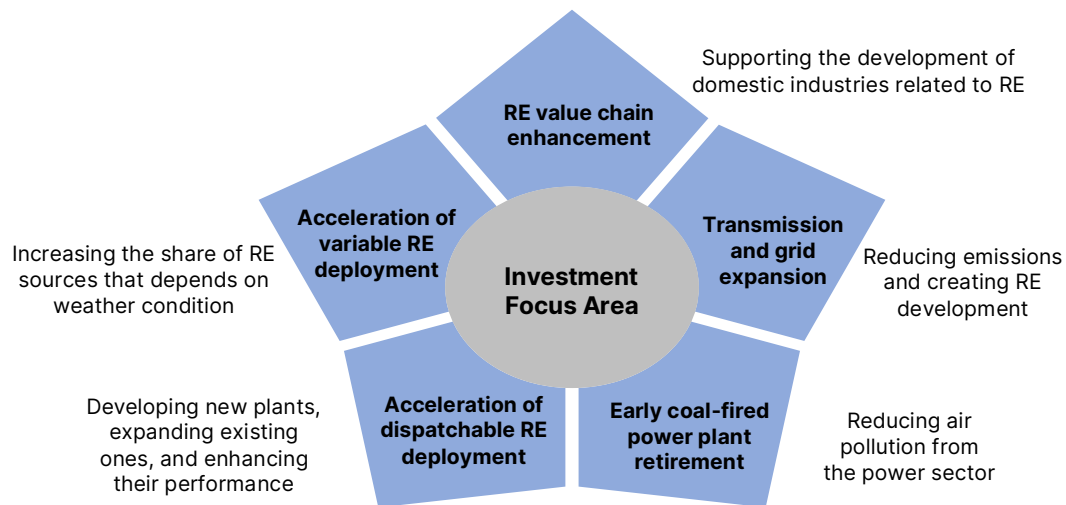


Figure 20. Five Investment Focus Areas in JETP⁶⁴

The GBFA presents an additional solution for the Indonesian government to encourage financing in the green sector. It provides guidance on how to access funds for green projects, enabling these projects to thrive. The government can continue supporting existing green programs to ensure the sustainability of green finance. Furthermore, the government should regularly update reports on the projects that have been financed. All provisions under the GBFA will require specialized regulations, so the government must facilitate this by establishing regulations specific to the GBFA. The success of the GBFA scheme could attract significant investment to the green sector and help address the high financing levels currently directed toward the non-renewable energy sector.

⁶³ SMI, 2022

⁶⁴ Sekretariat JETP, 2023

3.3 Expanding Green Financial Instruments

3.2.1 Green Securitization

Securitization involves converting a pool of illiquid financial assets into tradable financial instruments, known as Asset-Backed Securities (ABS). Securities are considered green if they are associated with low-carbon assets or investments in low-carbon assets.⁶⁵ The underlying collateral used can include financial assets such as loans for electric vehicles or related equipment (e.g., charging stations), loans for solar-based assets, loans for energy efficiency development, and lending to green Small and Medium Enterprises (SMEs).

Green securitization and green bonds are two related concepts that share the mutual goal of contributing to climate change solutions (see Table 10). Green securitization is a debt instrument where the source of payment comes from a pool of green assets or projects, typically in the form of covered bonds and ABS. In contrast, green bonds are debt instruments issued by companies or governments to finance projects that deliver environmental benefits and help reduce the risk of climate change.

Table 10. Green Bond VS Green Securitization⁶⁶

	Green Bond	Green Securitization
Issuer Obligation	Backed by the issuer's creditworthiness	Backed by underlying green asset cash flows
Resource	Issuer or project assets related to green projects	Collateral or funds from borrowers with unsecured loan cases
Repayment	The issuer is directly responsible for repaying the bond	The repayment to investors comes from the cash flows generated by the underlying green assets
Use of Proceeds	Used for green projects (with or without specifications)	Refinance a portfolio of green assets or projects or the proceeds are allocated to green projects

Benefits of green securitization, including⁶⁷:

- a. Access to capital
Loans from small-scale projects can be pooled for securitization to meet bond market requirements. Capital raised through the sale of ABS.
- b. Lower cost of capital
ABS offers a lower capital cost than bank financing in the bond market. This is important for low-carbon projects that typically have high capital expenditure.
- c. Helping to match the investor's long-dated liabilities with the asset tenor
ABS investors include pension and insurance companies with long-dated liabilities. New assets can be added to the collateral pool throughout the ABS program, and maturities can be changed following market demand. Because securitization enables banks to offer longer-dated loans, it might be a good fit for green financing.
- d. Enhancing investment yield
Securitization relies on creating equity and mezzanine tranches. It generates higher yields than vanilla bonds and attracts interest from tranches with AAA or AA ratings.
- e. Limiting sectoral exposure
Limiting over-exposure in one particular sector can help banks minimize their risks. For investors, selecting a diversified pool of underlying loans can limit the concentration risk of collateral (by geography, by types of borrowers, by types of assets).
- f. Freeing up the balance sheet and increasing lending capacity

⁶⁵ CBI, 2020

⁶⁶ CBI, 2020; Fitch Ratings, 2021

⁶⁷ CBI, 2020

If a lender has reached its lending capacity, ABS may be able to provide new loans. This is highly beneficial as it will free up the balance sheet.

g. Increasing the potential of the green bond market

Various instruments and investment options with different prices, risks, and tenors allow more issuers and projects to enter the market. It also creates more options for institutional investors, each with varying asset allocation and risk tolerance criteria.

The green securitization program serves as an alternative green financial instrument to green bonds. It can help investors mitigate risks by enhancing credit, improving liquidity and security of underlying assets, reducing financing costs, and expanding the market scale. To optimize the role of green securitization, the government should consider formulating regulations for issuing ABS in green financing. The next step would involve establishing a framework for the implementation of green securitization. This framework would be valuable in providing clear guidance for stakeholders unfamiliar with the process, helping them understand each step, instrument, and its associated benefits.

3.2.2 Risk Guarantee for Green Projects

The implementation of green finance in Indonesia has faced challenges, primarily due to the prevalence of greenwashing.⁶⁸ Greenwashing refers to the practice where companies make claims that projects are green, whether in terms of products, values, or company goals, without implementing activities that genuinely contribute to environmental sustainability.⁶⁹ The factors that allow companies to greenwash include a lack of a common definition for sustainable investment, insufficient regulations, and increasing demand for green investment (see Figure 21).



Figure 21. The Main Drivers Behind Corporate Greenwashing⁷⁰

Strategies such as enforcing regulations, improving the quality and transparency of reporting, and ensuring clarity in the use of investment funds are essential to mitigate greenwashing (see Figure 22). Clear regulations and transparency are critical to addressing greenwashing. The Indonesian government and regulators should develop precise rules governing the implementation of green projects, including defining what constitutes a "green" project, specifying the allocation of funds, and measuring resulting impacts. Transparent communication of information related to green projects ensures that all stakeholders are informed accurately and prevents misinformation.

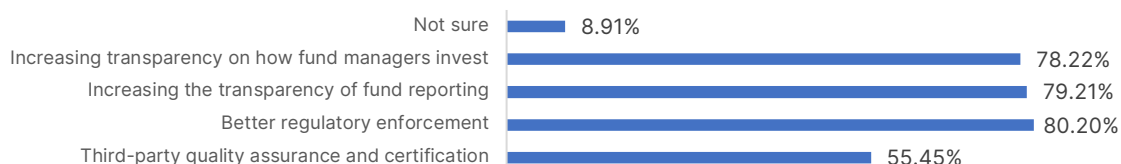


Figure 22. Strategy to Decrease Corporate Greenwashing⁷¹

⁶⁸ Wijianto and Falianty, 2023

⁶⁹ Sari and Windijarto, 2023

⁷⁰ Alaudhli, 2024

⁷¹ Alaudhli, 2024

The government of Indonesia has established the Infrastructure Guarantee Fund (IGF), which can be utilized to provide guarantees for green projects. IGF is a State-Owned Enterprise (SOE) tasked with providing guarantees for government infrastructure projects developed under Public-Private Partnership (PPP) schemes. IGF has provided guarantees to 50 projects as of October 2023. IGF intends to guarantee the political risk of the central and local governments as the party responsible for the cooperation project. IGF may also expand the scope of project guarantees by providing guarantees to green projects. The existence of guarantees in green projects provides assurance and security to investors and can prevent greenwashing. This condition will encourage investment interest in green projects and green finance will run well without greenwashing problems.

To further strengthen risk management for green projects, the government could collaborate with global institutions such as the Green Guarantee Company (GGC). GGC ensures that supported projects meet strict sustainability standards, leveraging its expertise in risk management, transparency, and accountability. Such collaborations not only ensure adherence to international sustainability provisions but also enhance investor trust and the credibility of green finance initiatives in Indonesia.

3.4 Optimizing Energy Resource Management

The adoption of renewable energy in Indonesia is crucial to driving green finance. This is because the use of renewable energy fosters a green ecosystem, which directly supports the growth of green financial initiatives. Renewable energy adoption can be realized through several green projects, such as the development of rooftop solar power plants (PLTS), incentives for electric vehicle (EV) users, and the establishment of a robust battery industry.

The Indonesian government seeks to encourage renewable energy adoption through Rooftop Solar Power Plants (PLTS) supported by the Minister of Energy and Mineral Resources Regulation (Permen ESDM) Number 2 of 2024. This initiative aims to promote sustainable finance. Other benefits of rooftop PLTS include (i) installation can be conducted as required because there is no capacity limit, (ii) reduced financial costs because there is no capacity charge, and (iii) it provides flexibility in using excess energy because there are no provisions regarding export and import of electricity generated through PLTS.

A robust battery industry is also essential for managing excess energy generated by rooftop PLTS and meeting the needs of the growing EV sector. Under Permen ESDM Number 2 of 2024, the removal of the net-metering scheme means that excess electrical energy can no longer reduce electricity bills. The introduction of batteries as a solution for energy storage ensures that households remain financially viable after adopting rooftop PLTS. In this regard, the Indonesian government has established the Indonesia Battery Corporation (IBC) as a state-owned holding company to position Indonesia as a global leader in EV battery production. IBC can also play a critical role in developing batteries for rooftop solar power plants. Expanding IBC's business scope to include rooftop PLTS batteries would strengthen Indonesia's renewable energy ecosystem. A sufficient supply of batteries for both rooftop PLTS and EVs demonstrates Indonesia's progress in advancing a green economy through renewable energy initiatives.

Efforts such as promoting rooftop PLTS, offering EV incentives, and building a strong battery industry are essential steps toward optimizing renewable energy adoption in Indonesia. Widespread adoption of rooftop PLTS will enhance electricity access, while transitioning the transportation sector to EVs reduces dependence on fossil fuels. Successful implementation of these green projects will not only support renewable energy adoption but also attract investors to finance similar initiatives, thereby fostering green financing.

4. Conclusion and Recommendations

Green finance is one way to ensure that Indonesia's economic growth will not come at the expense of its environment. Additionally, it will also help Indonesia meet its global climate commitments. Raising awareness, understanding, funding, and execution are the steps in the development of green finance. If these elements function well, they can address climate change and enhance financial development. Green finance development also takes into account global shocks that may impact domestic development.

The solutions that could be undertaken to resolve green finance challenges in Indonesia include (i) promotion of IGF to raise awareness on green finance, (ii) providing incentives to attract investors and issuers related to green finance, (iii) developing blended finance schemes to provide alternative financing for green projects, (iv) promoting green securitization as a new green finance instrument, (v) providing risk guarantees on green projects to reassure investors on green project implementation and prevent greenwashing, and (vi) enabling the adoption of renewable energy through several green projects.

The Indonesian government needs a strategic policy adjustment and regulatory reform in developing green finance, such as:

4.1 Promoting the Concept of Inclusive Green Finance

- The government should create several programs based on the 4P aspects.
- The government should update the NFIS by adding green finance aspects; thus, the NFIS's objectives can include financial and environmental considerations.
- Indonesia should join the AFI network to implement the IGF framework and collaborate with other member countries.

4.2 Incentivising Green Projects

- The government should provide incentives for issuers. This should help maintain the demand-supply balance and avoid imbalances.
- OJK should update the provisions regarding the obligation of financial institutions or companies to invest in the green sector.
- The government should increase the number of green project developers to create a competitive price that can provide financial support for green projects.

4.3 Developing a Blended Finance Scheme

- The government should maintain the sustainability of the GBFA owned by Indonesia and provide reports on the projects financed.
- The government should create special regulations related to blended finance to ensure that all provisions used are legally accepted and have clear rules.

4.4 Promoting Green Securitization as a New Green Finance Instrument

- OJK should formulate regulations regarding the issuance of ABS for green financing.
- The government should create a framework for the implementation of green securitization.

4.5 Providing Risk Guarantee for Green Project

- The government should add green projects as guaranteed projects in IIGF.
- The government should maintain cooperation with global institutions such as the Green Guarantee Company (GGC) to secure green projects developed in Indonesia.

4.6 Activating Green Projects Such as Rooftop Solar Power Plants and Electric Vehicles

- The government should maintain the sustainability of rooftop solar power plants as a form of renewable energy adoption apart from electric vehicles.

- The government should develop the battery industry or expand the scope of IBC to produce rooftop solar power plant batteries.

5. Regulatory Adjustment Recommendation

The following regulatory adjustments are recommended in leveraging green finance to enhance liquidity (see Table 11).

Table 11. Recommendations for Regulatory Adjustments

No	Problem	Solution	Existing Regulations	Recommended Change in Regulation	Implementation Time
1.	Lack of Interest in Green Finance	Promoting Inclusive Green Finance	Existing regulations in Perpres Number 114 of 2020 regarding SNKI have not discussed inclusive green finance.	The government should update Perpres Number 114 of 2020 by adding IGF to solve climate change problems through financial inclusion.	Mid-term
2	High Non-Renewable Energy Financing	Add clear provisions regarding the obligation of financial institutions and public companies to invest in green financial instruments	Existing regulations in POJK Number 51/POJK.03/2017 regarding the implementation of sustainable finance do not explain the obligation of financial institutions and public companies to invest in green instruments	OJK should update POJK Number 51/POJK.03/2017 by adding details on the percentage obligation of financial institutions and public companies to invest in green instruments	Mid-term
		Developing a blended finance scheme	Currently, there are no regulations that discuss blended finance, only in the form of an organization through GBFA.	The government should formulate regulations regarding blended finance, specifically for green financing. This can be formulated like Perpres Number 38/2015 on PPP in the Provision of Infrastructure (PPP).	Mid-term
3.	Limited Green Financial Instruments	Developing green securitization	Currently, there is no regulation specifically addressing green securitization, but only regulation on the issuance of ABS for residential financing through POJK Number 23/POJK.04/2014	<ul style="list-style-type: none"> OJK should formulate regulations regarding the issuance of ABS for green financing. The government should establish a guideline for the implementation of green securitization in Indonesia. 	Mid-term
4.	The Greenwashing Issue	Providing guarantees to green projects ensures that funds are allocated to eco-friendly activities.	Existing regulations in Perpres Number 78 of 2010 regarding infrastructure guarantees have not discussed green projects within the scope of infrastructure guarantees	The government should update Perpres Number 78 of 2010 by adding green projects within the scope of infrastructure guarantee to categorize between green and non-green projects clearly	Mid-term

No	Problem	Solution	Existing Regulations	Recommended Change in Regulation	Implementation Time
5	Suboptimal Energy Resource Management	Developing the battery industry and allowing Indonesian Battery Corporation to expand its scope to produce rooftop solar power plant batteries.	Regulations regarding the development of the battery industry are still developing for electric vehicles following Perpres Number 55 of 2019 , while regulations for rooftop solar power plant batteries do not exist yet	The government should formulate regulations regarding the development of the battery industry for rooftop solar power plants or give directions to expand the scope of IBC to produce rooftop solar power plant batteries	Mid-term

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