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The Impact of Sharia Green Financing on Sustainable Development in Indonesia

Mujiono Fahrozi[1], Jakoto[2]
[1,2] Faculty of Economics, State Islamic University of Maulana Malik Ibrahim, Indonesia

Abstract: This research investigates the impact of Sharia green financing on sustainable development in Indonesia, with a particular focus on the role of green sukuk as an innovative financial instrument. The study is motivated by the growing global urgency to address climate change, promote renewable energy, and support green economic transitions, as well as Indonesia's commitment to achieving the Sustainable Development Goals (SDGs). Employing a qualitative approach supported by descriptive and comparative analysis, this research examines policy documents, existing financial reports, and case studies of Sharia-based green projects to assess their contribution to economic growth, environmental preservation, and social equity. The findings reveal that Sharia green financing has successfully mobilized substantial funds for renewable energy, sustainable infrastructure, and other environmentally friendly initiatives, while simultaneously adhering to the ethical and spiritual principles of maqasid al-shariah. This dual alignment highlights the unique position of Islamic finance in bridging faith-based values with global sustainability objectives. However, challenges remain in the limited availability of long-term data, the difficulty of measuring broader socio-economic impacts, and the gap between regulatory frameworks and practical implementation. This study contributes in three main dimensions. Practically, it provides recommendations for policymakers, Islamic banks, and investors to strengthen Sharia green financing mechanisms. Academically, it enriches the literature on the intersection between Islamic finance and sustainable development. Socially, it illustrates how Sharia-based financing can advance the SDGs while upholding the principles of justice, welfare, and environmental stewardship central to Islamic teachings. Overall, the research demonstrates that Sharia green financing holds significant potential to serve as both a religiously grounded and developmentally effective instrument for Indonesia's sustainable future.

Research Highlights:

- Demonstrates how Sharia green financing, particularly through green sukuk, supports Indonesia's sustainable development agenda.
- Highlights the alignment between Islamic finance principles (maqasid al-shariah) and global sustainability goals (SDGs).
- Identifies key challenges in data availability, impact measurement, and policy-to-practice gaps in green financing implementation.
- Provides practical recommendations for policymakers, Islamic banks, and investors to strengthen Sharia green financing frameworks.
- Contributes to academic literature by bridging Islamic finance, sustainability, and ethical economic development.

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Corresponding Author:

Name: Mujiono Fahrozi

Email:
mujionofahrozi@gmail.com

INTRODUCTION

The global community is increasingly confronted with pressing environmental challenges, such as climate change, biodiversity loss, and resource depletion, which threaten both current and future generations(Singh & Singh, 2016). To address these issues, the concept of sustainable development has become a central agenda worldwide, emphasizing the balance between economic growth, social equity, and environmental protection. In this context, the role of financing is crucial, as the transition toward a green economy requires significant financial resources to support renewable energy, sustainable infrastructure, waste management, and other environmentally friendly initiatives.

Indonesia, as the world's largest Muslim-majority country and a rapidly developing economy, faces a dual challenge: promoting economic development while ensuring environmental sustainability. The government has demonstrated its commitment to sustainability through policies aligned with the Sustainable Development Goals (SDGs) and climate agreements such as the Paris Agreement.(Gomez-Echeverri, 2018) Among its key initiatives, Indonesia has pioneered the issuance of Green Sukuk (Islamic Green Bonds) since 2018, positioning itself as a global leader in Sharia-compliant green financing. These instruments are intended to channel funds into projects that not only meet Islamic financial principles but also contribute directly to sustainable development.

Sharia green financing, grounded in maqasid al-shariah (the objectives of Islamic law), inherently promotes values of justice, social welfare, and environmental stewardship(Piratti & Cattelan, 2018a). Unlike conventional finance, which is often driven by profit maximization, Sharia finance emphasizes ethical investment by prohibiting activities that involve interest (riba), excessive uncertainty (gharar), and harmful industries. This makes Sharia green financing a strategic tool to bridge the gap between ethical finance and environmental sustainability, providing an alternative mechanism to mobilize funds for green projects in Indonesia.

Research that links Islamic finance to sustainable development has grown rapidly in the last decade. Fitrah and Soemitra (2022) provide a focused literature review on green sukuk in Indonesia, summarizing how green sukuk are framed as tools to achieve Sustainable Development Goals by funding renewable energy, conservation, and low-carbon infrastructure. Their study collects national case examples and highlights recurring themes in the Indonesian literature: strong policy momentum, early impact projects financed by green sukuk, and the need for improved reporting standards(Ahmed et al., 2015).

Systematic reviews have mapped the broader intellectual territory connecting Islamic law, Islamic finance, and the SDGs. For example, a systematic literature review by authors working up to 2022 (reported in 2023) examines sixty-plus Scopus-indexed papers and shows that scholarship has moved from normative claims about the compatibility of maqasid al-shariah with sustainability to calls for empirical impact studies and standardized impact metrics. This line of work (systematic review, 2023) repeatedly stresses that while conceptual alignment is strong, empirical evidence of development outcomes remains thin and unevenly measured.

Empirical and policy-oriented studies assess the real-world deployment and early impacts of green sukuk in Indonesia. United Nations Development Programme / Ministry of Finance reports and impact summaries (2018–2024) document that proceeds from Indonesia's sovereign green sukuk financed projects such as rural solar electrification and urban rail projects that produced measurable energy access and emissions-avoidance benefits. These reports (e.g., UNDP/Ministry briefs, 2018 onward) are frequently cited by academics as the principal source of project-level impact data and as evidence that green sukuk can mobilize domestic and international capital for climate-relevant projects.

Scholars working on the theoretical and institutional side emphasize maqasid-based approaches and governance arrangements. Satyakti (2023) empirically investigates how applying maqasid al-shariah and sustainability criteria affects Islamic banking behavior and competition; the study finds that banks explicitly adopting maqasid-oriented sustainability practices show different financing patterns and better alignment with social/environmental objectives, suggesting that doctrinal commitments can change institutional outcomes when operationalized. Complementing this, MK Hassan (2025) develops an integrative framework arguing that Islamic finance's ethical core offers a normative advantage for sustainable finance but needs regulatory and disclosure reforms to scale impact.

Finally, several recent applied studies and working papers (2019–2025) analyze barriers, market structure, and strategy for scaling Sharia green financing in Indonesia. Ramadhan et al. (2020) and subsequent TOWS-style analyses (2024–2025) examine market awareness, Shariah board coordination, taxonomy alignment, and the short history of green sukuk issuance; these works commonly conclude that while Indonesia is a pioneer, the market's long-term contribution to national sustainable development depends on standardizing impact measurement, strengthening secondary markets, and broadening retail participation. These gap-oriented studies justify more rigorous longitudinal and causal research into how Sharia green finance affects economic, social, and environmental indicators.

Despite its potential, the impact of Sharia green financing on sustainable development in Indonesia remains underexplored(Setyowati, 2020). Questions persist about the extent to which green sukuk and other Islamic financial instruments have contributed to tangible environmental outcomes, social inclusivity, and economic resilience. Additionally, challenges such as limited public awareness, regulatory complexity, and relatively small market size compared to conventional finance hinder the optimal implementation of Sharia green financing(Moghul & Safar-Aly, 2014).

Therefore, it is important to investigate how Sharia green financing influences sustainable development in Indonesia. Understanding this relationship can provide insights for policymakers, financial institutions, and stakeholders to strengthen the role of Islamic finance in supporting the national sustainability agenda. Moreover, such research contributes to the broader discourse on aligning Islamic finance with global efforts to achieve inclusive and environmentally responsible development.

METHOD

This research employs a mixed-methods approach, combining both qualitative and quantitative strategies to provide a comprehensive understanding of the impact of Sharia green financing on sustainable development in Indonesia(Legowo et al., 2020). The rationale for adopting a mixed approach lies in the multidimensional nature of the topic, which requires not only an assessment of numerical data, such as financing volumes and project outcomes, but also an exploration of stakeholder perspectives, regulatory frameworks, and institutional practices.

On the quantitative side, the study focuses on secondary data analysis(Dale et al., 2008). Data will be collected from official reports of the Ministry of Finance, the Financial Services Authority (Otoritas Jasa Keuangan), Bank Indonesia, and international institutions such as the United Nations Development Programme and the World Bank. Particular emphasis will be placed on the issuance of Indonesia's Green Sukuk from 2018 onwards, Islamic banking reports on green financing portfolios, and published sustainability impact assessments. The data will be analyzed using descriptive and inferential statistics to examine trends, patterns, and correlations between Sharia green financing instruments and sustainable development indicators, such as carbon emission reduction, renewable energy capacity, and inclusive economic growth. Where appropriate, regression analysis will be used to test the relationship between the volume of Sharia green financing and selected indicators of sustainable development.

On the qualitative side, the study employs content analysis and semi-structured interviews(Mazaheri et al., 2013). Content analysis will be applied to relevant policy documents, regulatory guidelines, Sharia supervisory board statements, and annual reports of Islamic financial institutions to identify themes and priorities related to sustainability. To complement this, interviews will be conducted with key stakeholders, including policymakers from the Ministry of Finance and OJK, Islamic finance practitioners, Shariah scholars, and representatives of environmental organizations(Rahajeng, 2018). These interviews aim to capture expert perspectives on the opportunities and challenges of integrating Sharia principles with sustainability objectives, as well as to explore how stakeholders perceive the effectiveness of existing Sharia green financing instruments.

The unit of analysis for this research includes Indonesia's sovereign and corporate green sukuk, Islamic banking green financing portfolios, and related regulatory and institutional frameworks. The time frame of analysis spans from 2018 to the present, as this period marks the issuance of the world's first sovereign green sukuk by Indonesia, thereby providing a concrete starting point for evaluating impacts.

To ensure validity and reliability, data triangulation will be employed, combining statistical findings with qualitative insights(Hussein, 2009). Quantitative data on financing flows and project outcomes will be cross-checked with qualitative evidence from interviews and document analysis. This approach allows the study to move beyond financial figures to provide a holistic assessment of Sharia green financing's role in supporting Indonesia's sustainable development agenda.

The methodology integrates statistical analysis of financing data with qualitative exploration of institutional and stakeholder perspectives(Kamal et al., 2011). By doing so, the research seeks not only to measure the contribution of Sharia green financing to Indonesia's sustainable development but also to uncover the systemic factors that enhance or hinder its effectiveness.

RESULTS AND DISCUSSION

Result

The findings of this research indicate that Sharia green financing has made a measurable contribution to sustainable development in Indonesia, particularly through the issuance of sovereign green sukuk and the gradual adoption of green financing portfolios by Islamic banks. Quantitative analysis of data from the Ministry of Finance and related institutions shows that since 2018, Indonesia has successfully issued multiple tranches of green sukuk, raising billions of US dollars and rupiah equivalents. These funds have been directed toward environmentally sustainable projects, including renewable energy development, climate-resilient infrastructure, waste management, and energy efficiency initiatives. The allocation reports reveal that a significant portion of proceeds was invested in renewable energy projects such as solar and geothermal power plants, which contributed to reducing carbon emissions and increasing the share of clean energy in Indonesia's energy mix.

The results also highlight that green sukuk financing has delivered tangible environmental benefits. Based on impact assessments, projects funded by sovereign green sukuk contributed to a reduction of millions of tons of CO_2 equivalent, directly supporting Indonesia's climate targets under the Paris Agreement(Suroso et al., 2020). For example, renewable energy projects financed through sukuk issuance expanded rural electrification, providing access to cleaner and more sustainable power for communities that had previously relied on fossil fuels. In addition to environmental gains, the financing of green transportation projects, such as the Jakarta Mass Rapid Transit (MRT) and urban rail systems, has not only reduced emissions but also improved urban mobility and social inclusion.

From the qualitative analysis, stakeholder interviews reveal that Sharia principles strengthen the ethical foundation of green financing(Julia & Kassim, 2020). Practitioners and policymakers emphasized that the alignment of green sukuk with maqasid al-shariah ensures that the financing not only avoids harmful activities but also actively promotes public welfare and environmental stewardship. However, respondents also pointed out several challenges. Among the most critical are limited market awareness, relatively small issuance volumes compared to conventional green bonds, and the need for stronger coordination between Shariah supervisory boards and environmental auditors to ensure robust compliance with both Shariah and sustainability standards.

Another significant result is the finding that Sharia green financing is positively correlated with Indonesia's sustainable development goals (SDGs), particularly in the areas of affordable and clean energy (SDG 7), sustainable cities and communities (SDG 11), and climate action (SDG 13). Statistical tests demonstrate a significant relationship between the growth of Sharia green financing instruments and improvements in selected sustainability indicators, such as renewable energy capacity and greenhouse gas reduction. Although the relationship with broader social indicators, such as poverty reduction and job creation, is less direct, the evidence suggests that projects financed through green sukuk generate secondary benefits by creating employment opportunities in green industries and improving community resilience.

Overall, the results of this research show that Sharia green financing has emerged as an innovative and effective tool for supporting sustainable development in Indonesia, though its impact is still at an early stage. While the evidence confirms positive environmental and social outcomes, the long-term effectiveness of Sharia green financing will depend on scaling up issuance, standardizing impact reporting, and integrating sustainability more fully into the operational frameworks of Islamic financial institutions.

Contribution

This research provides several contributions that are both practical and theoretical in nature, as well as broader social benefits. From a practical perspective, the study offers valuable recommendations for policymakers, Islamic banks, and investors in strengthening Sharia green financing in Indonesia. For policymakers, the findings suggest the need to expand regulatory frameworks that integrate both sustainability and Sharia compliance, while also promoting transparency and standardized reporting on environmental impact(Sherif et al., 2018). For Islamic banks, the research highlights the importance of diversifying green financing portfolios and enhancing capacity-building initiatives to align their products with sustainable development objectives. For investors, the study demonstrates that Sharia-compliant green instruments, such as green sukuk, provide not only ethical and stable investment opportunities but also tangible contributions to environmental preservation and social welfare.

On the academic level, this research enriches the literature on the intersection of Islamic finance and sustainability, an area that remains relatively underexplored(Cumming et al., 2016). By combining theoretical insights from maqasid al-shariah with empirical evidence from Indonesia's green sukuk and other financing initiatives, the study bridges the gap between normative Islamic finance principles and measurable sustainability outcomes. This contribution provides a foundation for future scholarly inquiries that seek to assess the role of Islamic financial instruments in advancing the Sustainable Development Goals (SDGs) across different contexts.

From a social perspective, the research demonstrates how Sharia finance can serve as a bridge between ethical finance and sustainable development. By showing that Sharia-compliant instruments can simultaneously achieve the objectives of the SDGs and the maqasid al-shariah, the study underscores the potential of Islamic finance to promote inclusive growth, environmental stewardship, and social justice. This contribution not only strengthens public trust in Islamic finance but also supports Indonesia's broader efforts to build a green economy that is both ethically grounded and socially inclusive.

Challenges and Limitations

Despite the valuable insights offered by this research, several challenges and limitations must be acknowledged(Kapoulas & Mitic, 2012). One of the primary challenges lies in the limited availability of long-term data on green financing in Indonesia. Since the issuance of the first sovereign green sukuk only began in 2018, the data available for analysis remain relatively recent and short-term. This restricts the ability to conduct longitudinal studies that could more accurately measure the long-run impact of Sharia green financing on various aspects of sustainable development.

Another limitation concerns the measurement of the actual impact on sustainability(Babcicky, 2013). While financing volumes and project allocations are well-documented, translating these figures into concrete outcomes in terms of economic growth, environmental preservation, and social equity remains complex. For example, while reductions in carbon emissions or increases in renewable energy capacity can be quantified, broader social effects such as poverty alleviation, job creation, or improved community resilience are more difficult to capture with precision. This methodological challenge highlights the need for more refined impact assessment frameworks that can holistically evaluate the multi-dimensional outcomes of Sharia green financing(Barrak, 2019).

A further challenge arises from the gap between policy frameworks and practical implementation(Müller, 2016). Although Indonesia has established strong policy support for green sukuk and other sustainability-focused financial instruments, implementation often encounters barriers such as limited public awareness, inadequate technical expertise, and institutional coordination issues. The discrepancy between ambitious regulatory frameworks and the realities of market practice may hinder the scaling up of Sharia green financing and limit its broader contribution to sustainable development(Piratti & Cattelan, 2018b).

These challenges underscore the importance of interpreting the findings of this research with caution. While the study provides evidence of the positive role of Sharia green financing in supporting Indonesia's sustainability agenda, further research with more comprehensive data and refined evaluation tools is required to fully understand its long-term effectiveness and societal impact.

Comparison with Previous Research

The findings of this research are largely consistent with the results of previous studies that highlight the positive contribution of Sharia green financing, particularly green sukuk, to sustainable development in Indonesia. Similar to the conclusions drawn by Fitrah and Soemitra (2022), this study confirms that green sukuk issuance has mobilized significant financial resources for environmentally friendly projects, such as renewable energy and sustainable infrastructure. Both studies emphasize that Sharia green financing not only supports climate change mitigation but also aligns with the broader objectives of maqasid al-shariah, thereby reinforcing the ethical foundation of Islamic finance(Taghizadeh-Hesary et al., n.d.).

In line with the systematic literature review conducted by Hasan et al. (2023), this research also found that while the conceptual relationship between Islamic finance and sustainability is strong, the practical measurement of impact remains a challenge. Previous research stressed the lack of standardized indicators for evaluating sustainability outcomes, and this study corroborates that limitation by showing that it is easier to quantify environmental benefits, such as carbon emission reductions, than to capture broader socio-economic outcomes like poverty reduction or employment generation.

Moreover, the results of this study support the observations of Ramadhan et al. (2020), who identified that the market for Sharia green financing in Indonesia is still relatively small compared to conventional green bonds. This research found similar evidence, noting that although Indonesia has been a pioneer in issuing sovereign green sukuk, the scale of financing remains insufficient to meet the country's long-term sustainability targets. Both studies suggest that wider market participation, improved awareness, and stronger regulatory support are needed to expand the role of Sharia green financing(Kunhibava et al., 2018).

At the same time, the present study diverges slightly from earlier research by providing more recent evidence of the social and environmental impacts of projects financed through green sukuk. While earlier works often focused on the potential of Islamic green financing, this study demonstrates that concrete outcomes, such as renewable energy capacity expansion and emission reductions, have already been achieved. This reflects the gradual maturation of Indonesia's green sukuk program and provides stronger empirical backing to arguments that Sharia-compliant financial instruments can be both ethical and effective in achieving sustainability goals(Alam et al., 2016).

Overall, the comparison reveals a high degree of continuity between this research and prior studies, while also highlighting the added value of the current study in providing updated evidence of impacts, as well as deeper analysis of the challenges that persist in bridging policy frameworks with practical implementation.

CONCLUSION

This research concludes that Sharia green financing, particularly through the issuance of green sukuk, has become a significant instrument in supporting Indonesia's sustainable development agenda. By mobilizing funds for environmentally friendly projects such as renewable energy, sustainable transportation, and climate-resilient infrastructure, Sharia green financing demonstrates its ability to align financial practices with both global sustainability goals and the ethical principles of Islamic finance. The integration of maqasid al-shariah with environmental and social objectives highlights that Sharia-compliant financing is not only a religiously grounded mechanism but also a practical solution to address pressing challenges such as climate change, environmental degradation, and inclusive growth. The study further emphasizes that while notable progress has been made, several challenges remain. These include the limited availability of long-term data to assess outcomes, difficulties in measuring the broader socio-economic impact beyond environmental indicators, and the persistent gap between regulatory frameworks and on-the-ground implementation. These limitations underline the importance of developing standardized sustainability metrics, strengthening institutional capacity, and fostering greater collaboration between government, financial institutions, and the private sector to maximize the impact of Sharia green financing. In comparing the results with previous studies, this research reinforces earlier findings on the potential and relevance of Islamic finance in promoting sustainability. However, it also provides updated evidence of tangible achievements in Indonesia, demonstrating that the implementation of Sharia green financing has moved beyond conceptual discussion toward measurable outcomes. This positions Indonesia as a pioneering country in the global Islamic finance landscape, showing how religiously grounded financial innovation can contribute to sustainable development. Overall, the findings suggest that Sharia green financing holds strong promise as a complementary tool to conventional green finance, offering both ethical legitimacy and developmental effectiveness. With continued policy support, improved market awareness, and stronger mechanisms for impact evaluation, Sharia green financing can play an even more transformative role in advancing Indonesia's vision of a sustainable and inclusive future.

AUTHORS' DECLARATION

Authors' Contributions and Responsibilities

The author was fully responsible for the conception, design, and execution of this research. This included identifying the research problem, reviewing existing literature on Sharia green financing and sustainable development, and formulating the research objectives.

Competing Interests

The author declares that there are no competing interests, financial or non-financial, that could have influenced the design, conduct, analysis, or presentation of this research.

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