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Green Sukuk And Green Banking : Strategic Collaboration For Islamic Sustainable Finance In Indonesia

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Abstract

The global climate crisis necessitates a transformation of the financial sector toward environmentally sustainable practices. However, in Indonesia, the development of sharia-based green finance faces significant challenges, including unspecific regulations, low ESG literacy, and limited incentives for investors and market participants. This study discusses the potential and integration strategy of Green Sukuk and Green Banking as Islamic financial instruments that support sustainable financing. Green Sukuk acts as a source of financing for green projects in accordance with maqasid sharia principles, while Islamic banks implement Environmental, Social, and Governance (ESG) principles through green financing products and environmental literacy programs. This study highlights the importance of collaboration between regulators (OJK, DSN-MUI, KNEKS), Islamic banks, and capital markets to establish a regulatory framework that supports the development of Islamic green finance, including an Islamic green taxonomy and sharia-based ESG scoring. Despite obstacles such as unspecific regulations, low ESG literacy, and lack of fiscal incentives, the Sharia Green Investment Consortium collaboration model is proposed as an innovative solution to strengthen the Islamic green finance ecosystem. This research underscores the importance of policy synergy, human resource capacity building, and transparency in fund management to achieve sustainable development goals and increase the attractiveness of sharia-based green investments.

Keywords: Green Sukuk, Green Banking, Islamic Finance, ESG, Sustainable Financing

Abstrak

Krisis iklim global dan kebutuhan akan pembangunan berkelanjutan mendorong transformasi sektor keuangan menuju praktik yang lebih ramah lingkungan. Namun, di Indonesia, pengembangan keuangan hijau berbasis syariah masih menghadapi tantangan signifikan, seperti regulasi yang tidak spesifik, rendahnya literasi ESG, dan kurangnya insentif bagi investor dan pelaku pasar. Studi ini membahas potensi dan strategi integrasi Sukuk Hijau dan Perbankan Hijau sebagai instrumen keuangan Islam yang mendukung pembiayaan berkelanjutan. Sukuk Hijau bertindak sebagai sumber pembiayaan untuk proyek-proyek hijau sesuai dengan prinsip-prinsip maqasid syariah, sementara bank syariah menerapkan prinsip-prinsip Lingkungan, Sosial, dan Tata Kelola (ESG) melalui produk pembiayaan hijau dan program literasi lingkungan. Studi ini menyoroti pentingnya kolaborasi antara regulator (OJK, DSN-MUI, KNEKS), bank syariah, dan pasar modal untuk membangun kerangka peraturan yang mendukung pengembangan keuangan hijau Islam, termasuk taksonomi hijau Islam dan penilaian ESG berbasis syariah. Terlepas dari hambatan seperti regulasi yang tidak spesifik, rendahnya literasi ESG, dan kurangnya insentif fiskal, model kolaborasi Konsorsium Investasi Hijau Syariah diusulkan sebagai solusi inovatif untuk memperkuat ekosistem keuangan hijau Islam. Penelitian ini menggarisbawahi pentingnya sinergi kebijakan, peningkatan kapasitas sumber daya manusia, dan transparansi dalam pengelolaan dana untuk mencapai tujuan pembangunan berkelanjutan dan meningkatkan daya tarik investasi hijau berbasis syariah.

Kata Kunci:
Sukuk Hijau, Perbankan Hijau, Keuangan Islam, ESG, Pembiayaan Berkelanjutan

INTRODUCTION

The climate crisis has emerged as one of the most significant global challenges of the twenty-first century. Rising global temperatures, environmental degradation, biodiversity loss, and increasing natural disasters have created substantial economic and social consequences, highlighting the urgent need for sustainable development strategies (Cargill Incorporated, 2023). Achieving sustainable development requires not only environmental policies but also financial systems capable of directing capital toward environmentally responsible investments. Consequently, sustainable finance has become a strategic approach for mobilizing financial resources to projects that generate environmental, social, and governance (ESG) benefits while supporting long-term economic growth (Korcheva, 2023).

From the perspective of Islamic economics, sustainable finance is closely aligned with the objectives of *maqashid sharia*, which emphasize the protection of religion, life, intellect, lineage, and wealth (Rohmah & Rohim, 2020). Environmental preservation is therefore not merely an ecological concern but also a religious responsibility that supports human welfare (*maslahah*) and prevents environmental harm (*mafsadah*). This perspective positions Islamic finance as an ethical financial system capable of promoting sustainable development while maintaining compliance with Sharia principles.

Among the various Islamic financial instruments supporting sustainability, Green Sukuk and Green Banking have received considerable attention. Green Sukuk mobilizes capital specifically for environmentally sustainable projects, including renewable energy, green infrastructure, waste management, and climate adaptation initiatives (Musthofa & Nafidzi, 2023). Meanwhile, Green Banking integrates environmental risk management, sustainable financing, and ESG principles into banking operations and financing decisions. In Indonesia, these initiatives have been supported through the Sustainable Finance Roadmap issued by the Financial Services Authority (OJK), demonstrating the government's commitment to developing a sustainable financial ecosystem (Ihsan, 2025).

Despite these developments, the integration between Green Sukuk and Green Banking remains limited. Most Islamic financial institutions continue to implement these instruments independently, resulting in fragmented financing mechanisms and reducing their potential contribution to sustainable development. Regulatory inconsistencies, limited economic incentives, inadequate green finance literacy, and the absence of an integrated collaboration framework remain significant obstacles (Vitriani & Fasa, 2025). As a result, the potential synergy between capital market instruments and Islamic banking has not yet been fully realized. This issue represents the central problem addressed in this study. (S. Wati & Fitri, 2025).

Previous studies have primarily examined Green Sukuk and Green Banking as separate components of Islamic sustainable finance. Rohmah and Rohim (2020) demonstrated that Indonesia's sovereign Green Sukuk aligns with the objectives of *maqashid sharia* while supporting sustainable development through ethical investment. Meanwhile, Vitriani & Fasa, 2025 found that Islamic banks have increasingly incorporated ESG principles into their financing practices while emphasizing the importance of maintaining compliance with *maqashid sharia*. Complementing these findings, Wati and Fitri (2025) emphasized that corporate social responsibility (CSR) plays an important role in strengthening the implementation of Green Banking. Despite these advances, Ihsan (2025) identified persistent regulatory and tax-related barriers that continue to hinder effective collaboration between Islamic banks and Green Sukuk markets.

Although these studies provide valuable insights, they predominantly focus on individual instruments rather than their interaction. Existing research has not comprehensively explained how Green Sukuk and Green Banking can be strategically integrated into a unified Islamic sustainable finance ecosystem. Moreover, previous studies provide limited discussion regarding collaborative governance, institutional coordination, regulatory incentives, and operational mechanisms required to strengthen such integration. Consequently, there remains no comprehensive collaboration model that simultaneously incorporates ESG principles, *maqashid sharia*, and Indonesia's regulatory framework. This constitutes the primary research gap addressed by this study.

To address this gap, this research adopts the Maqashid Sharia framework as its normative foundation and integrates it with the Environmental, Social, and Governance (ESG) framework as the operational sustainability perspective. The combination of these two theoretical perspectives enables the evaluation of financial sustainability from both Islamic ethical principles and internationally recognized sustainability standards. This integrated framework provides a comprehensive basis for designing collaboration strategies between Green Sukuk and Green Banking.

Accordingly, this study aims to develop a strategic collaboration model between Green Sukuk and Green Banking that strengthens the implementation of sustainable Islamic finance in Indonesia. The proposed model seeks to integrate *maqashid sharia*, ESG principles, regulatory support, stakeholder collaboration, and appropriate incentive mechanisms into a unified framework. The findings are expected to contribute theoretically by extending the literature on sustainable Islamic finance and practically by providing recommendations for regulators, Islamic financial institutions, and policymakers seeking to strengthen Indonesia's green Islamic finance ecosystem.

LITERATURE REVIEW

Green sukuk is an Islamic financial instrument specifically developed to support environmentally sustainable projects, such as renewable energy, waste management, and conservation of natural resources. This instrument combines Islamic financial principles with environmental sustainability goals, thus providing an investment alternative that is not only financially profitable but also socially and environmentally responsible (Alkadi, 2024). Malaysia has been a pioneer country in green sukuk issuance since 2017, with the support of government policies and regulations that strengthen investor confidence in this instrument (World Bank, 2019).

On the other hand, green banking is a banking concept that emphasizes financing projects that support environmental conservation and maqāṣid al-sharī'ah principles, such as the protection of people's lives and welfare. Islamic banks play an important role in supporting sustainable development by channeling green financing through Islamic products such as musyārakah and muḍārabah. This approach not only promotes financial inclusion but also ensures that financing activities are in line with Islamic values and contribute to ecological balance (Utomo et al., 2024).

Collaboration between green sukuk and green banking can create strategic synergies that strengthen the Islamic sustainable finance ecosystem. In this framework, Islamic banks act as project originators that identify and finance green projects, while green sukuk provide an attractive source of long-term financing for institutional and retail investors. This synergy enables greater and more sustainable capital mobilization, while accelerating the shift towards a green economy based on Islamic principles (Utermarck et al., 2024).

Despite the huge potential of green sukuk and green banking, there are a number of challenges to be faced, including the lack of uniform international standards for green sukuk and the need for increased Islamic financial literacy among market participants. In addition, regulatory and policy coordination is also needed to optimize the implementation of these instruments and provide a significant impact on sustainable development. Research shows that without attention to these aspects, the development of green sukuk and green banking may not be optimal (Fahad & Areeba, 2022).

With the right regulatory support, capacity building of Islamic financial institutions, and cross-stakeholder collaboration, the development of Islamic sustainable finance based on green sukuk and green banking has a great opportunity to become a major pillar in promoting inclusive and environmentally friendly economic development. This is in line with the global agenda to achieve sustainable development goals (SDGs) and strengthen the position of Islamic finance in an increasingly competitive and sustainability-oriented global market (Utermarck et al., 2024).

METHOD

This study employs a descriptive qualitative approach using documentary analysis to examine the strategic collaboration between Green Sukuk and Green Banking in strengthening sustainable Islamic finance. A qualitative approach is considered appropriate because the objective of this research is not to test causal relationships statistically but to obtain a comprehensive understanding of the regulatory framework, institutional arrangements, implementation strategies, and governance mechanisms that support collaboration between Green Sukuk and Green Banking. Through qualitative inquiry, the study is able to interpret policy developments and institutional practices within their broader socio-economic and Islamic finance contexts (Creswell & Poth, 2018; Flick, 2022). Documentary analysis was selected because Green Sukuk and Green Banking have been extensively documented through official regulations, policy reports, institutional publications, and scientific studies, making documentary evidence an appropriate source for investigating these phenomena (Bowen, 2009).

The research relies exclusively on secondary data obtained from various credible sources. To ensure the quality and relevance of the data, documents were selected based on several criteria. Only documents published between 2018 and 2025 were included in order to reflect recent developments in sustainable Islamic finance. The selected documents had to explicitly discuss Green Sukuk, Green Banking, sustainable finance, Environmental, Social, and Governance (ESG), or *maqashid sharia*. In addition, only publications issued by recognized institutions, including government agencies, financial regulators, Islamic financial institutions, international organizations, and peer-reviewed academic journals, were considered. The documentary sources consisted of regulations and policy documents issued by the Financial Services Authority (OJK), Bank Indonesia, and the National Sharia Council (DSN–MUI); Green Sukuk frameworks, annual reports, sustainability reports, and Islamic banking reports; as well as publications from international organizations such as the Islamic Development Bank (IsDB), the Islamic Financial Services Board (IFSB), AAOIFI, the World Bank, and relevant scholarly articles indexed in reputable academic databases. Documents that lacked methodological transparency, contained duplicated information, or represented opinion-based publications without empirical evidence were excluded from the analysis.

The collected documents were analyzed using reflexive thematic content analysis following the approach developed by Braun and Clarke (2021). The analysis began with repeated reading of all selected documents to gain familiarity with the content and identify issues relevant to the research objectives. Relevant information concerning Green Sukuk, Green Banking, ESG implementation, *maqashid sharia*, regulatory frameworks, institutional collaboration, and implementation challenges was subsequently coded. Similar codes were then grouped into broader categories representing recurring themes across the documentary sources. These themes were continuously reviewed and refined by comparing evidence obtained from different documents to identify similarities, differences, implementation patterns, and institutional challenges. The final stage involved interpreting the findings using the theoretical perspectives of *maqashid sharia* and ESG, which provided the analytical basis for developing a strategic collaboration framework between Green Sukuk and Green Banking. This systematic analytical process enabled the research to move beyond simple description by identifying relationships among regulatory policies, institutional practices, and sustainable Islamic finance initiatives.

To enhance the credibility and trustworthiness of the findings, several validation strategies were applied throughout the research process. Data triangulation was conducted by comparing information obtained from regulatory documents, institutional reports, and peer-reviewed publications. Source triangulation was also employed to ensure consistency across documents produced by different institutions. Furthermore, the coding process and thematic interpretation were discussed with fellow researchers in Islamic finance through peer debriefing, allowing alternative interpretations to be considered and minimizing subjective judgments. An audit trail documenting the data selection process, coding procedures, and analytical decisions was maintained to improve the transparency and dependability of the study (Lincoln & Guba, 1985; Nowell et al., 2017).

As with all qualitative research, the researchers recognize that interpretation may be influenced by their academic background and familiarity with Islamic economics. Therefore, reflexivity was maintained throughout the study by continuously comparing interpretations with documentary evidence, reviewing alternative explanations, and ensuring that conclusions were supported by multiple independent sources rather than individual assumptions. This process helped reduce researcher bias while strengthening the confirmability of the findings.

Although the use of documentary analysis provides comprehensive insights into the development of Green Sukuk and Green Banking, this study has several limitations. The analysis relies solely on secondary data and therefore does not capture the perspectives of policymakers, Islamic banking practitioners, investors, or other stakeholders through direct interviews or field observations. In addition, the findings reflect documented institutional practices, which may differ from actual implementation in practice. Consequently, the proposed strategic collaboration framework should be viewed as a conceptual model derived from documentary evidence and would benefit from further empirical validation through interviews, case studies, or mixed-method research in future studies.

RESULTS AND DISCUSSION

Potential of Green Sukuk in Sharia Green Project Financing

Green Sukuk has become one of the most prominent innovations in sustainable Islamic finance by integrating Sharia-compliant financing principles with environmental sustainability objectives. Documentary evidence indicates that Indonesia has demonstrated significant progress since issuing its first sovereign Green Sukuk in 2018. By 2024, the Indonesian government had mobilized more than USD 4 billion through sovereign Green Sukuk issuances, financing renewable energy, sustainable transportation, climate resilience, waste management, and water resource projects (Fahlevi, 2024). This achievement positions Indonesia as one of the world's leading sovereign Green Sukuk issuers. However, the analysis reveals that this achievement is primarily driven by government initiatives, while participation from private corporations and Islamic financial institutions remains relatively limited. Consequently, Indonesia's Green Sukuk market remains highly dependent on public-sector financing, reducing the diversification of funding sources required to accelerate the green transition.

This finding contrasts with the experience of Malaysia, where Green Sukuk development has been supported by the Sustainable and Responsible Investment (SRI) Sukuk Framework, tax incentives, and active participation from corporate issuers. As a result, Malaysia has successfully expanded both sovereign and corporate Green Sukuk markets, particularly in renewable energy and green infrastructure financing. Similarly, the United Arab Emirates (UAE) has integrated Green Sukuk into large-scale renewable energy projects through close collaboration between Islamic banks, capital markets, and sovereign investment funds. These international experiences demonstrate that the success of Green Sukuk is determined not only by regulatory support but also by the existence of an integrated financing ecosystem that encourages private-sector participation. Therefore, Indonesia's principal challenge lies less in market demand than in creating institutional mechanisms capable of facilitating collaboration among regulators, Islamic banks, project developers, and investors.

The findings also demonstrate that the contribution of Green Sukuk extends beyond capital mobilization. From the perspective of Maqashid Sharia, Green Sukuk supports the protection of wealth (*hifz al-mal*) by financing productive investments while simultaneously contributing to environmental preservation (*hifz al-bi'ah*). Maulida et al. (2023) argue that Green Sukuk represents an ethical financial instrument capable of addressing climate change while maintaining compliance with Islamic principles. However, the present study extends this argument by showing that the realization of these ethical objectives depends on institutional governance rather than the financial instrument itself. In other words, Green Sukuk does not automatically achieve environmental or social outcomes unless supported by transparent project selection, effective monitoring, and measurable impact evaluation. This finding suggests that governance quality is a more decisive factor than the mere issuance of Green Sukuk.

Another important issue identified through documentary analysis concerns the limited participation of the private sector. Although Indonesia possesses considerable investment opportunities in renewable energy, sustainable agriculture, and environmentally friendly infrastructure, most Green Sukuk issuances continue to originate from the government. Similar observations were reported by Musthofa and Nafidzi (2023), who highlighted the underutilization of Green Sukuk within the broader Islamic financial market. Nevertheless, this study argues that the underlying problem extends beyond market awareness. The absence of fiscal incentives, limited project preparation capacity, and the lack of integrated financing mechanisms discourage private issuers from entering the Green Sukuk market. In contrast, Malaysia provides tax deductions for Green Sukuk issuance costs and facilitates green project certification, thereby reducing transaction costs and increasing corporate participation. These findings indicate that regulatory incentives play a crucial role in expanding Green Sukuk markets.

The analysis further reveals that the effectiveness of Green Sukuk depends on the availability of standardized project evaluation and reporting mechanisms. Indonesia has adopted the Green Bond Principles and the OJK Green Taxonomy as guiding frameworks for environmentally sustainable investments. Nevertheless, documentary evidence suggests that these frameworks have not yet fully incorporated Sharia-specific environmental screening criteria. Consequently, project eligibility is assessed primarily from an environmental perspective without comprehensive evaluation of Sharia objectives. Alwi and Gultom (2024) proposed the development of a Sharia Green Taxonomy; however, the present study argues that such a taxonomy should function not merely as a classification system but also as an operational guideline linking environmental indicators, Sharia compliance, ESG reporting, and post-investment monitoring. This integration would reduce uncertainty among issuers and investors while strengthening market confidence.

Transparency and accountability represent another critical issue. Existing reporting practices generally focus on the allocation of proceeds rather than measuring environmental and social outcomes. International best practices demonstrate a different approach. Malaysia requires regular sustainability disclosures under the SRI Sukuk Framework, while several UAE Green Sukuk issuers publish annual environmental impact reports measuring carbon emission reductions, renewable energy generation, and resource efficiency. These practices enhance investor confidence by providing measurable evidence regarding the effectiveness of financed projects. In comparison, Indonesian impact reporting remains relatively heterogeneous across issuers. Therefore, standardized impact indicators including greenhouse gas emission reductions, renewable energy capacity, water conservation, and social welfare improvements should become mandatory components of Green Sukuk reporting.

The analysis also indicates that technological innovation offers significant opportunities to improve Green Sukuk governance. Emerging technologies such as blockchain and smart contracts can enhance transparency by enabling real-time tracking of fund allocation, project implementation, and environmental performance. Although these technologies have not yet been widely adopted in Indonesia, pilot initiatives in several Gulf countries demonstrate their potential to improve reporting efficiency and reduce verification costs. Nevertheless, documentary evidence remains insufficient to conclude that digitalization alone will significantly improve Green Sukuk performance. Its effectiveness depends on complementary regulatory frameworks, institutional readiness, and stakeholder capacity. Accordingly, technological innovation should be viewed as an enabling mechanism rather than a standalone solution.

Based on the comparative analysis, the findings suggest that Indonesia possesses substantial potential to strengthen Green Sukuk as a strategic financing instrument for sustainable development. However, realizing this potential requires structural improvements rather than simply increasing issuance volumes. These improvements include expanding private-sector participation, introducing fiscal incentives, developing an integrated Sharia Green Taxonomy, strengthening ESG-based impact reporting, and improving institutional coordination among regulators, Islamic financial institutions, project developers, and investors. Consequently, the effectiveness of Green Sukuk should be evaluated not solely by the amount of capital raised but also by its measurable contribution to environmental sustainability, socio-economic welfare, and the achievement of *maqashid sharia*. These findings provide the empirical foundation for the development of the Strategic Green Islamic Collaboration (SGIC) Model, which is discussed in the following section as an operational framework for integrating Green Sukuk and Green Banking within Indonesia's sustainable Islamic finance ecosystem.

Green Banking Strategy in Supporting Sharia-Based ESG

Green Banking has become an increasingly important strategy for Islamic banks in responding to the growing demand for sustainable finance while maintaining compliance with Sharia principles. Documentary evidence indicates that the integration of Environmental, Social, and Governance (ESG) principles into Islamic banking has accelerated following the issuance of Indonesia's Sustainable Finance Roadmap by the Financial Services Authority (OJK). Nevertheless, the implementation of Green Banking among Indonesian Islamic banks remains uneven. Most initiatives are concentrated on operational efficiency, such as paperless banking and energy conservation, whereas the integration of ESG into financing decisions, risk management, and corporate governance is still at an early stage. These findings suggest that Green Banking in Indonesia remains largely compliance-driven rather than strategy-driven, limiting its contribution to sustainable economic transformation.

This finding differs from the experiences of Malaysia and the United Arab Emirates (UAE), where ESG principles have been embedded within broader business strategies. In Malaysia, Bank Negara Malaysia's Climate Change and Principle-based Taxonomy (CCPT) provides Islamic banks with clear guidance for assessing environmental risks before financing decisions are made. Consequently, ESG considerations have become an integral component of credit assessment, portfolio management, and sustainability reporting. Similarly, Islamic banks in the UAE increasingly incorporate climate-related financial risks into enterprise risk management and align their financing portfolios with the country's Net Zero 2050 Strategy. These experiences demonstrate that effective Green Banking requires not only regulatory compliance but also institutional commitment, standardized sustainability frameworks, and continuous stakeholder engagement. Therefore, Indonesia's challenge lies in transforming Green Banking from a regulatory obligation into a core strategic objective of Islamic banking.

The findings further reveal that Green Banking offers significant opportunities to operationalize the objectives of Maqashid Sharia, particularly the protection of wealth (*hifz al-mal*), environmental preservation (*hifz al-bi'ah*), and public welfare (*maslahah*). Vitriani and Fasa (2025) argue that Islamic banks can utilize Sharia contracts such as musyarakah, mudharabah, and ijarah to finance environmentally sustainable projects. While this argument highlights the compatibility between Islamic contracts and sustainable finance, the present study demonstrates that contractual suitability alone is insufficient to ensure environmental impact. The effectiveness of green financing depends on comprehensive project evaluation, environmental risk assessment, and continuous monitoring after financing has been disbursed. Consequently, Islamic contracts should be supported by ESG-based governance mechanisms rather than being viewed solely as financing instruments.

Another important finding concerns ESG screening practices. Documentary analysis indicates that most Islamic banks have adopted basic environmental and social risk assessments; however, standardized ESG screening specifically tailored to Sharia-compliant financing remains limited. Existing screening mechanisms generally focus on regulatory compliance without systematically evaluating long-term environmental performance or measurable sustainability outcomes. This finding extends the work of Muarif (2025), who emphasizes the compatibility between ESG principles and Islamic values, by demonstrating that practical implementation requires standardized assessment tools capable of integrating environmental indicators with Sharia compliance criteria. The absence of such integrated screening frameworks may increase the risk of financing projects that satisfy formal regulatory requirements but provide limited environmental benefits.

Corporate Social Responsibility (CSR) also represents an important dimension of Green Banking within Islamic finance. Previous studies (Wati & Fitri, 2025) argue that CSR strengthens the social contribution of Islamic banks through environmental and community development programs. However, documentary evidence suggests that CSR activities among Indonesian Islamic banks remain predominantly philanthropic and are rarely integrated into long-term sustainability strategies. In contrast, several Islamic banks in Malaysia have incorporated CSR into broader ESG agendas by supporting renewable energy projects, sustainable entrepreneurship, and green innovation for micro, small, and medium-sized enterprises (MSMEs). Likewise, Islamic financial institutions in the UAE increasingly combine CSR initiatives with national sustainability agendas, thereby enhancing both environmental outcomes and institutional reputation. These comparative findings indicate that CSR should evolve from charitable activities into strategic investments capable of generating measurable environmental and socio-economic impacts.

Digital transformation emerged as another critical factor influencing the effectiveness of Green Banking. Indonesian Islamic banks have increasingly adopted digital banking services, including mobile banking, electronic statements, and online financing applications, which contribute to reducing paper consumption and improving operational efficiency. Nevertheless, documentary evidence provides limited indication that digitalization has been systematically integrated with green financing strategies. By comparison, several Islamic financial institutions in Gulf countries have begun utilizing blockchain technology and digital monitoring systems to improve transparency in sustainable financing and facilitate ESG reporting. Although these technological innovations remain in the early stages of adoption, they illustrate how digital transformation can strengthen accountability and monitoring within Green Banking. Therefore, technological innovation should be considered an enabling mechanism that complements institutional governance rather than a substitute for comprehensive sustainability policies.

The analysis also identifies institutional capacity as one of the primary constraints affecting Green Banking implementation in Indonesia. Although the Financial Services Authority has introduced the Indonesian Green Taxonomy, the framework has not yet fully incorporated Sharia-specific sustainability indicators. Consequently, Islamic banks often rely on conventional ESG criteria without clear guidance regarding the integration of Islamic ethical principles. Purwanto (2024) recommends the development of a Sharia Green Taxonomy; however, this study argues that such a taxonomy should function as an operational framework linking financing eligibility, environmental performance indicators, Sharia compliance, and sustainability reporting. Similar approaches have been adopted in Malaysia, where regulatory guidance facilitates consistent sustainability assessments across Islamic financial institutions. Therefore, strengthening Indonesia's Sharia Green Taxonomy would reduce regulatory uncertainty while enhancing investor confidence.

The findings further demonstrate that collaboration among stakeholders is essential for expanding Green Banking. Existing cooperation between Islamic banks, OJK, and international organizations such as the Islamic Development Bank (IsDB) has improved awareness of sustainable finance, yet institutional coordination remains fragmented. In Malaysia and the UAE, stronger collaboration among regulators, Islamic banks, capital markets, and sustainability verification agencies has facilitated larger-scale green financing and more consistent ESG implementation. These international experiences suggest that institutional collaboration should move beyond project-based partnerships toward integrated governance arrangements involving regulators, financial institutions, environmental experts, and Sharia authorities. Such collaboration forms the institutional foundation for the Strategic Green Islamic Collaboration (SGIC) Model proposed in this study.

Overall, the findings indicate that Green Banking possesses considerable potential to strengthen sustainable Islamic finance in Indonesia; however, its effectiveness depends on several institutional prerequisites. Rather than focusing solely on expanding green financing portfolios, Islamic banks need to strengthen ESG-based risk assessment, develop standardized Sharia sustainability indicators, improve impact reporting, enhance digital governance, and expand strategic partnerships with regulators and international organizations. Accordingly, Green Banking should be viewed not merely as an environmental initiative but as a comprehensive governance framework capable of integrating ESG principles with Maqashid Sharia to achieve measurable environmental, social, and economic outcomes. These findings provide an important empirical basis for developing the operational Strategic Green Islamic Collaboration (SGIC) Model, which integrates Green Banking and Green Sukuk within a unified sustainable Islamic finance ecosystem.

Collaboration between Regulators, Islamic Banks, and Capital Markets

The findings indicate that effective collaboration among regulators, Islamic banks, and capital markets is the most critical institutional factor determining the success of sustainable Islamic finance. Documentary evidence demonstrates that Indonesia has established an enabling regulatory environment through the Sustainable Finance Roadmap issued by the Financial Services Authority (OJK), the National Committee for Islamic Economy and Finance (KNEKS), and Sharia governance provided by the National Sharia Council of the Indonesian Ulema Council (DSN-MUI). However, despite this institutional framework, coordination among these stakeholders remains fragmented. Existing policies primarily regulate individual financial sectors rather than creating an integrated governance mechanism that links Green Sukuk issuance, Green Banking, project verification, and sustainability reporting. Consequently, the current institutional arrangement has not fully optimized the potential synergy between Islamic banking and the Islamic capital market.

This finding differs from the experiences of Malaysia and the United Arab Emirates (UAE), where sustainable Islamic finance is supported by stronger inter-institutional coordination. In Malaysia, Bank Negara Malaysia, the Securities Commission Malaysia, and the Ministry of Finance jointly implement the Sustainable and Responsible Investment (SRI) Sukuk Framework, enabling Islamic banks, corporate issuers, and investors to operate under a unified regulatory structure. Similarly, the UAE integrates Islamic financial institutions into national sustainability initiatives through close collaboration among financial regulators, sovereign wealth funds, and renewable energy agencies. These coordinated governance structures have accelerated private-sector participation in sustainable finance and facilitated large-scale green infrastructure investment. In comparison, Indonesia's institutional collaboration remains largely regulatory rather than operational, limiting the scalability of sustainable Islamic finance initiatives.

The analysis further reveals that the absence of a Sharia Green Taxonomy represents a major institutional constraint. Although OJK has introduced the Indonesian Green Taxonomy to classify environmentally sustainable economic activities, the framework does not yet explicitly integrate Sharia principles into project eligibility criteria. Consequently, Islamic banks and Green Sukuk issuers continue to rely on conventional environmental classifications when evaluating sustainable projects. Maulida et al. (2023) emphasize the importance of aligning sustainable finance with Islamic ethical principles; however, the present study argues that ethical alignment alone is insufficient without operational regulatory guidance. A comprehensive Sharia Green Taxonomy should therefore function as an integrated framework that simultaneously evaluates environmental sustainability, Sharia compliance, ESG performance, and socio-economic benefits based on the objectives of *maqashid sharia*. Such an approach would improve consistency in project selection while reducing uncertainty among issuers and investors.

A similar challenge is evident in the implementation of ESG assessment within Islamic finance. Current ESG evaluation practices primarily adopt internationally recognized sustainability indicators without explicitly incorporating Islamic governance principles. Previous studies have highlighted the compatibility between ESG and Islamic finance (Amyulianthy et al., 2025); nevertheless, documentary evidence suggests that practical implementation remains inconsistent across Islamic financial institutions. The findings indicate that an integrated Sharia-based ESG assessment framework should include not only environmental and governance indicators but also measures of *maqashid sharia*, such as environmental preservation (*hifz al-bi'ah*), protection of wealth (*hifz al-mal*), social justice (*'adl*), and public welfare (*maslahah*). This broader assessment would enable Islamic financial institutions to evaluate sustainability performance from both global ESG standards and Islamic ethical perspectives.

The study also identifies regulatory incentives as a decisive factor influencing collaboration between Islamic banks and capital markets. Although Indonesia has successfully established a sovereign Green Sukuk market, the issuance of corporate Green Sukuk remains limited. Similar observations were reported by Fitrah and Soemitra (2022), who argued that regulatory support is essential for expanding sustainable Islamic finance. However, the present analysis demonstrates that regulatory support should extend beyond licensing procedures. Malaysia provides tax incentives, issuance grants, and sustainability verification assistance that significantly reduce transaction costs for Green Sukuk issuers, thereby encouraging greater private-sector participation. In contrast, Indonesia still provides relatively limited fiscal incentives, resulting in higher issuance costs and reduced market participation. These findings suggest that regulatory innovation is equally important as financial innovation in strengthening sustainable Islamic capital markets.

Another important finding concerns the operational relationship between Islamic banks and Green Sukuk markets. Current financing practices indicate that Islamic banks and capital markets often operate independently despite sharing common sustainability objectives. Islamic banks generally provide project financing through bilateral financing arrangements, whereas Green Sukuk issuances occur separately within the capital market. This institutional separation creates financing inefficiencies, particularly for large-scale renewable energy, sustainable transportation, and climate resilience projects requiring long-term capital. Documentary evidence suggests that stronger integration between Islamic banks and Green Sukuk could improve financing continuity, where Islamic banks provide early-stage financing before refinancing mature projects through Green Sukuk issuance. Similar financing structures have been successfully implemented in Malaysia for renewable energy projects and in the UAE for large-scale solar energy investments, demonstrating the effectiveness of integrated financing mechanisms.

Stakeholder participation also emerged as an essential component of institutional collaboration. Existing literature often emphasizes the roles of regulators and financial institutions while paying relatively limited attention to universities, Islamic boarding schools (*pesantren*), environmental organizations, and private corporations. The findings indicate that these stakeholders perform complementary functions within the sustainable Islamic finance ecosystem. Universities contribute to research and the development of Sharia-based ESG methodologies, environmental organizations provide technical expertise in sustainability assessment, while private companies generate investment-ready green projects. Consequently, effective collaboration should extend beyond financial institutions to include knowledge producers, civil society organizations, and industry actors capable of strengthening both project quality and public awareness.

Transparency and accountability constitute another critical issue influencing investor confidence. Current reporting practices primarily focus on financial performance and the allocation of Green Sukuk proceeds, whereas reporting on measurable environmental and social outcomes remains relatively limited. International best practices demonstrate a different approach. Malaysian Green Sukuk issuers are required to disclose sustainability impacts through standardized reporting frameworks, while UAE issuers increasingly integrate ESG performance indicators into annual reports verified by independent reviewers. These mechanisms improve market credibility by reducing information asymmetry and strengthening investor confidence. Therefore, Indonesia should adopt integrated sustainability reporting standards combining ESG indicators with Sharia compliance reporting, enabling investors to evaluate not only financial returns but also environmental and social impacts.

Based on these findings, this study argues that collaboration among regulators, Islamic banks, and capital markets should evolve from administrative coordination toward integrated institutional governance. Such collaboration requires a clear division of responsibilities among regulators, financial institutions, sustainability verification agencies, and Sharia authorities throughout the project life cycle. Regulators should establish enabling policies and fiscal incentives; Islamic banks should conduct ESG-based financing assessments and provide project origination; Green Sukuk issuers should mobilize long-term capital; independent verifiers should evaluate environmental performance; and the Sharia Supervisory Board should ensure compliance with Islamic principles. This integrated governance structure constitutes the institutional foundation for the Strategic Green Islamic Collaboration (SGIC) Model developed in this study.

Rather than viewing collaboration as merely a regulatory arrangement, the findings demonstrate that institutional integration is the principal mechanism through which Green Banking and Green Sukuk can jointly support sustainable development. The effectiveness of sustainable Islamic finance therefore depends not only on the availability of financial instruments but also on governance quality, regulatory consistency, stakeholder coordination, and transparent accountability mechanisms. These findings provide the empirical justification for the operational SGIC Model presented in the subsequent section, which specifies the institutional roles, implementation stages, and governance mechanisms required to strengthen Indonesia's sustainable Islamic finance ecosystem.

Implementation Barriers: Regulation, Literacy, and Incentives

The documentary analysis indicates that the implementation of Green Sukuk and Green Banking in Indonesia is constrained by four interrelated dimensions: regulatory fragmentation, limited institutional apacity**,** inadequate ESG literacy, and insufficient financial incentives. Although Indonesia has established a number of regulatory initiatives through the Financial Services Authority (OJK), the Sustainable Finance Roadmap, and sovereign Green Sukuk issuance, these initiatives have not yet evolved into an integrated governance framework capable of accelerating sustainable Islamic finance. Consequently, the challenge lies not in the availability of financial instruments but in the institutional ecosystem that supports their implementation.

1) Regulatory Fragmentation and the Absence of an Integrated Sharia Green Taxonomy

   The findings reveal that regulatory fragmentation remains one of the most significant barriers to implementing sustainable Islamic finance. Indonesia has introduced the Green Bond and Green Sukuk Framework as well as the Indonesian Green Taxonomy; however, these frameworks primarily emphasize environmental criteria and provide limited guidance regarding the integration of Sharia principles**,** project governance, and sustainability verification. As a result, Islamic financial institutions frequently rely on conventional ESG classifications without standardized procedures for assessing Sharia compliance throughout the project life cycle.

   This finding supports Vitriani and Fasa (2025), who argue that regulatory harmonization is necessary for strengthening Green Sukuk and Green Banking. However, the present study extends their argument by demonstrating that regulatory integration should not merely combine environmental and financial regulations but should establish a comprehensive Sharia Green Taxonomy linking environmental indicators, Islamic contracts, ESG reporting, and Sharia governance. Similar regulatory approaches have been implemented in Malaysia**,** where the Climate Change and Principle-based Taxonomy (CCPT) provides a consistent framework for financial institutions to classify environmentally sustainable projects. By comparison, Indonesia still lacks an operational taxonomy specifically designed for Islamic finance, creating uncertainty among issuers, investors, and financial institutions.

2) Institutional Capacity and Governance Challenges

The analysis further demonstrates that institutional capacity remains insufficient to support large-scale implementation of Green Sukuk and Green Banking. Many Islamic banks have introduced sustainable financing policies; however, ESG assessment is often conducted separately from Sharia governance, resulting in fragmented decision-making processes. Likewise, Sharia Supervisory Boards (DPS) generally focus on contractual compliance while paying limited attention to environmental risk assessment and sustainability performance.

This institutional limitation differs from practices observed in Malaysia and the United Arab Emirates (UAE)**.** In Malaysia, sustainability governance has become part of enterprise risk management, with regulators requiring Islamic banks to integrate climate-related risks into financing decisions. Similarly, UAE Islamic financial institutions increasingly involve sustainability experts, independent environmental verifiers, and governance committees throughout project implementation. These institutional arrangements improve project quality and strengthen investor confidence by ensuring continuous monitoring rather than one-time compliance verification.

The findings therefore suggest that Indonesia should strengthen institutional governance through multidisciplinary collaboration involving regulators, Islamic financial institutions, environmental experts, independent ESG verifiers, and Sharia scholars. Such collaboration would reduce governance fragmentation while improving the effectiveness of sustainable project implementation.

3) Limited ESG Literacy and Human Resource Capacity

Another major obstacle identified through documentary analysis is the relatively low level of ESG literacy among Islamic finance practitioners, investors, and customers. Although sustainable finance has received increasing policy attention, many Islamic financial professionals continue to perceive ESG as an external regulatory requirement rather than an integral component of maqashid sharia**.** Consequently, sustainable financing products remain limited, and innovation within Islamic financial institutions progresses slowly.

Purwanto (2024) and Muarif (2025) argue that strengthening ESG literacy is essential for expanding sustainable Islamic finance. Nevertheless, the present findings indicate that literacy alone is insufficient unless accompanied by institutional capacity building. Unlike Malaysia, where sustainability competencies have been incorporated into professional certification programs and banking supervision, Indonesia has yet to develop standardized ESG certification specifically tailored for Islamic finance professionals. This gap affects project evaluation quality because financing decisions frequently rely on conventional financial indicators without systematically assessing long-term environmental and social impacts.

Furthermore, customer awareness regarding Green Sukuk and Green Banking remains relatively limited. Documentary evidence suggests that most retail investors continue to prioritize financial returns over measurable environmental or social impacts. Consequently, Islamic financial institutions have limited incentives to expand sustainable financial products. These findings highlight the importance of integrating

ESG and sustainable finance into higher education curricula, professional certification programs, and financial literacy initiatives coordinated by regulators, universities, and Islamic financial associations.

4) Limited Financial Incentives and Market Support

The analysis also identifies limited financial incentives as an important structural constraint. Despite Indonesia's success in issuing sovereign Green Sukuk, fiscal incentives supporting corporate Green Sukuk issuance and Green Banking remain relatively modest. Existing policies provide regulatory guidance but offer limited financial mechanisms capable of reducing issuance costs or investment risks.

This situation contrasts with Malaysia, where tax deductions, issuance grants, and sustainability verification subsidies encourage greater private-sector participation in Green Sukuk markets. Likewise, the UAE supports sustainable Islamic finance through public-private investment partnerships and national climate financing initiatives. These experiences indicate that regulatory commitment alone is insufficient; effective sustainable finance also requires competitive economic incentives capable of attracting institutional and private investors.

Another related issue concerns the absence of blended finance mechanisms specifically designed for Islamic green projects. Adzimatinur and Olii (2024) emphasize the importance of blended finance in reducing investment risks for sustainable development. However, documentary evidence suggests that Indonesia has not yet developed an integrated financing mechanism combining public funds, Islamic banks, Green Sukuk, philanthropic Islamic finance instruments, and private investment. Consequently, many environmentally significant projects remain financially unviable despite their substantial long-term social benefits.

Similarly, sustainability reporting and impact measurement remain relatively underdeveloped. Existing reporting practices primarily emphasize financial accountability rather than measurable environmental and social outcomes. International experience demonstrates that standardized ESG reporting significantly enhances investor confidence by providing transparent information regarding project performance. Therefore, Indonesia should strengthen sustainability reporting standards by integrating ESG indicators with Sharia compliance assessments and measurable environmental impact indicators.

5) Implications for Sustainable Islamic Finance

Overall, the findings indicate that the barriers facing Green Sukuk and Green Banking are fundamentally institutional rather than financial. Regulatory fragmentation, limited institutional capacity, inadequate ESG literacy, and insufficient financial incentives collectively constrain the expansion of sustainable Islamic finance in Indonesia. These challenges are mutually reinforcing and therefore require coordinated policy responses rather than isolated institutional reforms.

The comparative analysis with Malaysia and the UAE demonstrates that successful implementation depends on integrated governance, standardized sustainability frameworks, fiscal incentives, and continuous institutional collaboration. Accordingly, Indonesia should prioritize the development of an operational Sharia Green Taxonomy, strengthen ESG competencies within Islamic financial institutions, establish blended financing mechanisms, and improve sustainability reporting standards. These institutional improvements constitute the fundamental prerequisites for implementing the Strategic Green Islamic Collaboration (SGIC) Model**,** which is proposed in the following section as an integrated governance framework capable of linking regulators, Islamic banks, capital markets, and other stakeholders in achieving sustainable Islamic finance.

Green Sukuk and Green Banking Collaboration Model: Sharia Green Investment Consortium

In response to the increasing urgency of the transition to a sustainable green economy and the need for Islamic financing aligned with ESG principles, a collaborative model called the *Sharia Green* Investment *Consortium* (SGIC) is proposed (Saturna Capital, 2019). This model is an integrated platform that aims to systemically connect Islamic banks, Islamic capital markets, regulatory agencies, investors, and green project development entities through sharia-compliant and sustainability-oriented financing schemes. SGIC is designed to be the center of collaboration in supporting green financing that not only ensures compliance with *maqāṣid al-sharī'a* principles, but is also able to meet global ESG standards and Sustainable Development Goals (SDGs). This model combines the advantages of an Islamic financial system based on ethics and justice, with the massive financing needs for environmental projects such as renewable energy, water efficiency, sustainable transportation, waste management, to forest conservation and organic farming.

Within the SGIC framework, the implementation process begins with the identification of eligible green projects by Islamic banks in collaboration with project developers. Each project is subsequently assessed through two complementary screening mechanisms: (1) Sharia compliance assessment conducted according to DSN-MUI principles and (2) environmental and ESG assessment based on the Sharia Green Taxonomy. Projects that satisfy both criteria are then structured using appropriate Islamic financing contracts, including *musyarakah*, *mudharabah*, *ijarah muntahiyah bit tamlik*, or *wakalah*, depending on project characteristics. Following financial structuring, the project portfolio is submitted for Green Sukuk issuance through the Islamic capital market, enabling institutional and retail investors to provide long-term financing. After the proceeds are disbursed, project implementation is continuously monitored using standardized ESG indicators and Sharia compliance audits. The implementation cycle concludes with periodic sustainability reporting and impact evaluation, ensuring transparency, accountability, and continuous improvement of environmental and socio-economic performance.

The role of regulators such as the Financial Services Authority (OJK), the National Sharia Council - Indonesian Ulema Council (DSN-MUI), the Ministry of Finance, and the National Committee for Sharia Economics and Finance (KNEKS) is an important element in ensuring that all activities in SGIC run according to legal principles, sharia principles, and sustainability principles (Naseri & Amani, 2024). OJK and KNEKS can provide specific derivative regulations regarding sharia green taxonomy, guidelines for issuing sharia green sukuk, and *green impact reporting* standards. DSN-MUI can develop fatwas and sharia compliance parameters for green sectors, while the Ministry of Finance can support in terms of fiscal policies such as tax incentives, margin subsidies, or credit guarantees. In addition, the existence of an independent and sharia-based ESG assessment institution needs to be included as a party to verify and score projects in the portfolio.

To ensure accountability and operational efficiency, SGIC also encourages the utilization of digital technology through *blockchain-based sukuk issuance*, *digital project impact monitoring* system, and *Islamic green fintech* (World Bank, 2019). These technologies will increase transparency in tracking the flow of funds, monitoring project impact in real time, and providing a more inclusive investment channel for retail investors. Going forward, SGIC can develop a digital ecosystem that allows global Islamic investors to invest directly in project-based green sukuk in Indonesia, through an online platform that meets sharia principles, data protection principles, and cybersecurity regulations.

In addition to functioning as a financing tool, SGIC can also be a center for education, advocacy, and capacity building of Islamic financial industry actors on ESG principles (Fitrah & Soemitra, 2022). Through synergies with training institutions, universities, and professional associations, SGIC can encourage massive sharia-based ESG literacy. Programs such as *Sharia Sustainable Finance Analyst* training, *Green Sukuk Structuring Specialist* certification, or *Sharia ESG Rating System* development can be an integral part of strengthening industry capacity. SGIC can also facilitate the establishment of research centers and incubation of sharia-based green projects, especially for MSME players engaged in the environment.

The SGIC model has the potential to be replicated at the regional and international levels through collaboration across member countries of the Organization of Islamic Cooperation (OIC). Countries such as Malaysia, United Arab Emirates, Saudi Arabia, and Turkey have experience in issuing green sukuk or Islamic green financing and can be Indonesia's strategic partners in developing a *global Islamic green finance alliance*. This initiative is also in line with the ASEAN Taxonomy for Sustainable Finance plan and opportunities for ASEAN Islamic capital market integration.

With strong institutional support, adaptive policy framework, inclusive digital infrastructure, and ideological commitment to maqāṣid al-sharī'ah, the *Sharia Green Investment Consortium* model is expected to be a major catalyst in accelerating the integration of green finance and Islamic finance. Moreover, SGIC is not only an innovative solution in addressing the challenges of green project financing, but also an important foundation in the transformation of the Islamic financial system towards a globally inclusive, ethical, and sustainable model.

As a form of strengthening the implementation of the *Sharia Green Investment Consortium* (SGIC) model, it is also important to build an incentive system that is able to attract participation from various stakeholders, both domestic and international. The government, through the Ministry of Finance and related agencies, can provide fiscal support in the form of income tax exemptions on green sukuk coupons, local tax incentives for Islamic green projects, or the provision of margin subsidies for Islamic banks that channel financing to environmentally friendly sectors. On the other hand, non-fiscal incentives such as ease of green project licensing, priority in government procurement, and awards to Islamic financial industry players committed to ESG can also encourage increased participation. Furthermore, the government can utilize sharia-based *public-private partnership* (PPP) to accelerate the implementation of large-scale green projects such as renewable energy power plants or green transportation infrastructure, utilizing SGIC's role as a coordinating bridge.

At the global level, the existence of SGIC also opens up a great opportunity for Indonesia to take a strategic position as a leader in the development of global Islamic green finance. By capitalizing on the growing potential of the global Islamic finance market and increasing investor interest in sustainable financial instruments, SGIC can become a reference model for Muslim countries and emerging markets that want to develop sharia-based green financing schemes. Indonesia can strengthen its Islamic finance diplomacy by initiating an annual international forum on *Sharia Green Finance*, developing a regional sharia ESG index with the Indonesia Stock Exchange and other regional Stock Exchanges, and establishing strategic cooperation with the Islamic Development Bank (IsDB), IFSB, or UNDP Islamic Finance Hub to support this initiative systemically. Thus, SGIC serves not only as a domestic catalyst, but also as an instrument of Indonesia's sharia green economy diplomacy on the international stage.

CONCLUSION

This study concludes that Green Sukuk and Green Banking are complementary instruments that can strengthen sustainable Islamic finance in Indonesia when supported by an integrated governance framework. The findings indicate that the effectiveness of Green Sukuk depends not only on capital mobilization but also on regulatory support, institutional coordination, transparent ESG reporting, and active private-sector participation. The proposed Sharia Green Investment Consortium (SGIC) Model contributes by providing an operational framework that integrates regulators, Islamic banks, project developers, capital markets, investors, and ESG verification institutions into a coordinated Sharia-compliant green financing ecosystem.

The findings have important practical implications for policymakers, regulators, and Islamic financial institutions. Strengthening the implementation of a Sharia Green Taxonomy, standardized ESG reporting, and fiscal incentives is essential to encourage greater private-sector participation and improve market transparency. Islamic banks should expand their role in identifying and financing eligible green projects while enhancing collaboration with other stakeholders. Although this study is based on documentary analysis, future research should empirically validate the SGIC Model using quantitative or comparative approaches to assess its effectiveness in supporting sustainable Islamic finance.

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