el Barka: Journal of Islamic Economics and Business
Vol. : 8 (1), 2025, 31-49
DOI : 10.21154/elbarka.v8i1.11714
p-ISSN : 2657-1153
e-ISSN : 2657-1862

GREEN SUKUK CONTRIBUTION TO SDGs: A COMPARATIVE STUDY OF MALAYSIA AND INDONESIA

Abdullah Ziarmal
Economics Faculty, Kandahar University, Afghanistan
abdullah2016ziarmal@gmail.com,

Abstract: This study aims to illustrate the concept of green sukuk and examine its role in achieving the Sustainable Development Goals (SDGs), focusing on relevant projects in Indonesia and Malaysia. A qualitative, descriptive approach was employed, utilizing data from various sources including annual reports, scholarly articles, books, and official websites. Findings indicate that the green sukuk markets in both countries reflect strong governmental commitment to advancing sustainability goals outlined in the United Nations 2030 Agenda. Projects funded through green sukuk include renewable energy, waste management, disaster and flood risk reduction, low-carbon transportation, and sustainable urban development. In the global green sukuk market, Indonesia ranks among the top participants, holding approximately 40% of the market share, while Malaysia leads in the number of issuers, representing 57% of total participants. This study contributes to the understanding of green sukuk as an effective Islamic finance instrument for sustainable development. It serves as a practical guide for policymakers, researchers, and practitioners, especially in countries with emerging green finance sectors such as Afghanistan, to replicate and adapt similar models within their contexts.

Keywords: Sukuk, Green Sukuk, SDGs, Climate change, renewable energy.

INTRODUCTION

Unavoidable, the climate change has intensely changed the economic way of thinking altogether. This global occurrence has transformed the scenery of resource allocation and misrepresented the function of the market mechanism. To beat off today's climate change Maraval, the world is forced to hold endurance of sustainability. The Commence is often by moving to eco-friendly energy sources(Keshminder et al., 2019). Based on IEA (The International Energy Agency https://www.iea.org/) reported that around USD44 trillion is required to hold up the global energy supply (Abubakar & Handayani, 2020)Thus, the immense challenge faced by altogether economies around the world countries is to have way to such a enormous amount of fund and investing. Additionally, pressure from environmental agreement like the Paris Agreement, the Centre of attention of the investments has to be on the clean energy development to control the rise in world temperature by 2o starts from now until the year 2050 (Irvine et al., 2014). To top this problem, the World Bank has developed the use of green bonds since 2008. This financing mechanism has managed to raise USD6.4 billion to fund clean energy development projects globally(Güçlü, 2019).

After expanding environmental awareness and knowledge alongside an enlarging demand for clean energy, issues about the financing of clean energy sources have become in Centre stage. In contrast to green bonds, green Sukuk is also being clapped as an effective financing instrument to finance green(Golden et al., 2016). The certification of Climate Bond Standards has defined the eligible

assets for green Sukuk to include aspiring energy efficiency and renewable transmission and infrastructure, electric vehicles and infrastructure, solar parks, biogas plants and wind energy(Keshminder et al., 2019). Give thought to the growing Islamic financing needs in the Islamic and OECD countries, green Sukuk is considered as the most proper financing instrument(Malaysia International Islamic Finance Centre, 2017). This is because green Sukuk is seen as an excellent investment choice for Islamic investors who are looking for both Sharia and environmental protection features in their investments(Debrah et al., 2022).

The escalating urgency of climate change has reshaped global economic priorities, requiring innovative, sustainable financing mechanisms to support clean energy and environmental projects(Yesuf & Aassouli, 2020). While green bonds have gained international traction, green sukuk presents a Sharia-compliant alternative that aligns environmental goals with Islamic financial principles(Billah & Adnan, 2024). Despite their rising relevance, the application and impact of green sukuk remain underexplored—particularly in Islamic finance-leading countries such as Malaysia and Indonesia. (Climate Bonds Initiative, 2019). As these two nations spearhead green sukuk development within ASEAN, there is a pressing need to understand how this instrument contributes to their climate change mitigation strategies and Sustainable Development Goals (SDGs) (Darby & Berhad, 2020). Without this understanding, opportunities to replicate and scale green sukuk as a viable tool for sustainable finance in other regions may be missed.Hence, this study illustrates the role of Indonesia and Malaysia in term of achieving sustainable development

goals specifically mitigation of climate change. This study explores the role of these two countries by explaining the vital sustainable environmental projects being funded by green sukuk.

This study illustrates the significant role of Indonesia and Malaysia in achieving Sustainable Development Goals (SDGs), particularly in mitigating climate change, by exploring how green sukuk is used to fund vital environmental projects. The objectives of this study are to examine the role of green sukuk in financing sustainable development projects in Indonesia and Malaysia, and to identify key environmental initiatives funded through green sukuk, particularly those aimed at mitigating climate change. The study also aims to assess the impact of green sukuk on the achievement of the Sustainable Development Goals (SDGs), with a specific focus on SDG 13 (Climate Action). Furthermore, it seeks to compare the green sukuk frameworks and policy approaches adopted by both countries and provide insights and practical recommendations for policymakers and stakeholders in regions where green finance is still emerging.

METHODS

Descriptive Qualitative methods were designed for this study. In order to answer and obtain this study's research questions and objectives qualitative data has collected from various sources such as other articles, annual reports, conference reports, websites, and etc. collected data are regarding are belongs to two countries Indonesia and Malaysia. Obtained data has analyzed based on research objectives and research questions of the study. Collected data that is regarding the role

of green sukuk of Indonesia and Malaysia organized through specific titles and case studies in the discussion part.

RESULT AND DISCUSSION

Green Sukuk of Indonesia

According to the (Handayani, K., Krozer, Y., Filatova, 2017), Indonesia is being a leading in the issuance of Green Sukuk. proceeds of the 5 year sukuk with the type of Wakalah will be used solely for spending in term of budget allocation, distinguished subsidies, or funding of eligible green projects. Furthermore, this includes a comprehensive range of sectors that promote the existence to a low emission economy and an elastic climate growth, alongside climate mitigation, adaptation and lastly biodiversity(Discussion & Zainal, n.d.). The Indonesia global green sukuk transactions has been distributed with an organized manner into high quality accounts, mostly top tier fund Manager and banks(Abubakar & Handayani, 2020). There are some specific reasons behind Indonesia being as a pioneer for green sukuk(Climate Bonds Initiative, 2019). These reasons are as follow:

Firstly, due to ease of issuance because simple characteristic of sukuk to be used as underlying assets(Fitrah & Soemitra, 2022).

Secondly, familiarity in preparing and due diligence of project since 2014 and familiarity in the issuance process (similar to regular sukuk)(Hania et al., 2022).

Value of Indonesian Green Sukuk

According the green sukuk report published by MoF (Ministry of Finance) of Indonesia, The Government of Indonesia has issued two

sovereign global green sukuk for two times, consecutively in February 2018 and 2019, with the total amount of USD 2 Billion(Financing, 2017). This issuance is comprised of 51% refinancing existing projects and 49% financing new projects ("March 2020," GSR, MoF Indonesia). Mentioned USD 2 Billion have allocated in 5 sectors and govern through 3 ministries transport, Mineral Resources and public work and housing. Following are the 5 sectors in which the green sukuk are allocated.

Green Sukuk Sectors in Indonesia

Table 1. Green Sukuk Sectors in Indonesia

#	SECTOR	PROJECTS LOCATIONS	GREEN SUKUK ISSUNCE	
			$ AMOUNT	%
1	Renewable Energy sector	Jakarta, Central Java, East Java, Aceh, North Sumatera, West Sumatera, Riau, South Sumatera,	41,262,073	5%
2	Resilience to Climate Change for Highly Vulnerable Areas and Sectors/Disaster Risk Reduction, ,	West Java, Central Java, Yogyakarta, North Sumatera, West Sumatera, South Sulawesi, Maluku, Bali	80,217,156	11%
3	Waste and Waste to Energy Management sector	All provinces except East Kalimantan	69,492,775	9%
4	Sustainable Transport sector	North Sumatra, West Sumatra, South Sumatra, Jakarta, West Java,	360,480,724	48%
5	Energy efficiency sector.	Papua, West Papua, East Nusa Tenggara, South Sulawesi, Central Sulawesi, North	202,719,713	27%

		Sulawesi, Southeast Sulawesi, South Kalimantan, North Kalimantan, East Kalimantan, West Sumatera, Riau, Gorontalo,		

5 key sectors for the allocation of Indonesian green sukuk fund are as follow:

Source: (Climate Bonds Initiative, 2019)

Role of Indonesian Green Sukuk in Achivieng of SDGs

The Green sukuk of Indonesia has been proving successfully in term of achieving SDGs specifically goals 7, 8,9, 11, and 13, respectively(Abubakar & Handayani, 2020). Furthermore, green sukuk have provided with a significant impacts of Indonesians lives. Following tables summarize the green sukuk role in term of achieving Sustainable development goals (SDGs):

Table 2. Role of Indonesian Green Sukuk

	Sectors	**Impacts**	**Contribution towards SDGs**
PROJECTS FUNDED BY GREEN SUKUK	All 5 sectors except waste management sector.	Reduction of **3,218,014.41** tonnes carbon dioxide in 2019	**Goal 13**. Climate action
	Sustainable Transport sector	Construction of **691.4** km railway	**Goal 9**. Industry innovation and infrastructure
	Waste and Waste to	**2,056,200** of	**Goal 11**. Sustainable

	Energy Management sector	households benefitting from improved waste management	cities and communities

Source: (Climate Bonds Initiative, 2019)

Green Sukuk of Malaysia

Malaysia is at the lead in the development of Islamic banking, an Islamic capital market, and takaful insurance. It has a strong and comprehensive Islamic financial system with a robust business-driven regulatory regime and legal framework(Qadri et al., 2024).

Malaysia has emerged as the largest sukuk market in the world. The sukuk market has become an integral part of the Malaysian capital market(Abdullah & Humaidi, 2025).

It was 2014, when the Securities Commission Malaysia (SC) launched the Sustainable & Responsible Investment Sukuk Framework in order to facilitate the financing of sustainable and responsible investment initiatives(Yesuf & Aassouli, 2020). The sustainable responsible investment Sukuk Framework was aligned with International Capital Market Association or ICMA's Green Bond Principles framework and was formed in partnership with the World Bank. It is interesting to note that the SRI Sukuk guidelines permit a broader range of eligible projects to be characterized as "green proceeds use" that are not included in CBS's framework. As an instance, a sukuk can be qualified as green if the proceeds are deemed to "improve the quality of life for society(Financing, 2017).

When it comes to the first issuer of green sukuk in Malaysia, in 2017, renewable energy group Tadau Energy issued the first "green"

sukuk, raising US$59m to finance a solar power plant in Malaysia. According to the (Darby & Berhad, 2020)The sukuk was issued under Malaysia's SRI sukuk framework and endorsed by the Shariah Advisory Council; it also benefited from an independent review by the (CICER)Soon, five more green sukuk came to the Malaysian market, all financing solar projects with the exception of one used to finance the construction of an 83-story office building in Kuala Lumpur, Malaysia(Noronha, 2020). Issuance of other projects considered as a Key evidence of the project's success (Discussion & Zainal, n.d.).

Value of Malaysian Green Sukuk

According the(Market, 2020), the value of Malaysian green sukuk is USD1.25 billion in 2019. Tadau Energy, Quantum Solar Park of Malaysia, PNB Merdeka Ventures Sdn Bhd, are leading green sukuk issuer in Malaysia.

Green Sukuk Projects in Malaysia

Following table shows the projects funded by green sukuk through leading Malaysian companies for mitigation of climate change.

Table 4. Green Sukuk in Malaysia

Company	$ Amount	Structure	Sector
Quantum Solar Park	231,312,106	Al Murabaha	Energy
PNB Merdeka Ventures	462,944,664	Al Murabaha	Real Estate
Sinar Kamiri SDN	62,841,460	Al-Wakala Bel Istithmar	Energy
UITM Solar Power	56,716,418	Al Murabaha	Energy
Tadau Energy SDN	58,453,553	Al Ijara	Energy

Source: (Climate Bonds Initiative, 2019)

Role of Malaysian Green Sukuk in Achiving SDGs

Green Sukuk in Malaysia considered as an important and dynamic Islamic capital market instrument in term of achievement of sustainable development goals. Green sukuk has provided its vital role in producing renewable energy and creating social impacts in Malaysia. When it comes to the role green sukuk in Malaysia in term of SDGs achievement, so for green sukuk are vital and providing massive contribution to the goal 7and 7 of SDGs, respectively. Vast amount of renewable energy has been produced through since 2017. Since the inception of green sukuk issuance green an approved issuance size of RM3.7 billion for the purposes of minimizing degradation of environment, promoting the use of renewable sources, lowering or attaining zero emission of GHG, conserving the use of energy and natural resources, and promoting a healthy and improved environment for all forms of life, in order to be eligible for the financing scheme out of which, RM2.4 billion has been issued to finance renewable energy projects and green building and this huge contribution is vital role of sukuk for the attaining of sustainable development goals.

Following table summarized the case studies of Malaysian green sukuk projects for the purposes of producing renewable energy, low carbon transport, sustainable water, and waste management. In addition, following table states the mentioned projects outputs, social impacts, and contribution to the SDGs.

Table 5. Role of Green Sukuk in Malaysia

#	Project	Location	Investment Amount	Investment Sector	Socioeconomic Impacts	Contribution to SDGs
1	Jasin Plant	West Malaysia	USD 307m	Renewable Energy	94,000 MWh per year	SDGs Goal 7th
2	ECRL	Putrajaya, Selangor	USD 10.9bn	Rail, Infrastructure	640 km Road	SDGs Goal 9th
3	Penang Water Supply	Penang, Malaysia	USD 124m	Water treatment	Upon completion of SPRWTS, 1000 million litres of water per day	SDGs Goal 6th
4	SMART	Bukit Bintang	USD 4706m	W. Infrastructure	Mitigate recurring floods in the area	SDGs Goal 11th
5	Waste-To-Energy (WTE)	Port Dickson	USD 74m	Energy from Waste	600 tonnes of solid waste/day; produce from 20 MW to 25 MW of energy	SDGs Goal 11th

Source: (Climate Bonds Initiative, 2019)

Comparison of Malaysia and Indonesia's Roles and Contributions via Green Sukuk

Malaysia and Indonesia have both demonstrated significant commitment to climate change mitigation and sustainable development through the issuance and strategic use of green sukuk. However, their approaches and areas of focus exhibit key differences and complementary strengths.

1. Volume and Value of Green Sukuk Issuance

Malaysia has issued approximately RM3.7 billion (~USD 1.25 billion) in green sukuk since 2017, with RM2.4 billion allocated to renewable

energy and green buildings. In contrast, Indonesia has issued USD 2 billion in sovereign global green sukuk in 2018 and 2019, covering both new projects and refinancing existing ones. While Malaysia's green sukuk market is largely corporate-driven, Indonesia's is government-led.

2. Key Sectors of Investment

Malaysia has focused on sectors such as renewable energy, low-carbon transport, water treatment, waste management, and urban infrastructure. Major projects include the Quantum Solar Park, PNB Merdeka Ventures, and the SMART flood mitigation project. Indonesia, meanwhile, has diversified its green sukuk investments across five main sectors: renewable energy (5%), climate resilience/disaster risk reduction (11%), waste and waste-to-energy (9%), sustainable transport (48%), and energy efficiency (27%). This reflects a broader national strategy towards a low-emission, climate-resilient economy.

3. Contribution to the SDGs

Both countries align their green sukuk projects with multiple SDGs:

- Malaysia primarily contributes to SDG 6 (Clean Water), SDG 7 (Affordable and Clean Energy), SDG 9 (Industry, Innovation and Infrastructure), and SDG 11 (Sustainable Cities and Communities).
- Indonesia makes significant contributions to SDG 7, SDG 9, SDG 11, and SDG 13 (Climate Action). In 2019 alone, Indonesia's green sukuk projects led to a reduction of over 3.2 million tonnes of CO_2.

4. Social and Environmental Impacts

Malaysia's green sukuk projects have led to substantial environmental and social outcomes, such as the generation of 94,000 MWh/year of clean energy, improved waste treatment, and mitigation of urban flooding. Indonesia's initiatives have provided benefits such as improved waste management for over 2 million households, construction of 691 km of sustainable railways, and widespread access to climate-resilient infrastructure across multiple provinces.

5. Institutional Support and Frameworks

Malaysia has established a strong regulatory foundation through the Sustainable and Responsible Investment (SRI) Sukuk Framework (2014), enabling corporate issuers to participate actively. In contrast, Indonesia leverages its sovereign capacity, integrating green sukuk into national budgets and coordinating through multiple ministries to ensure alignment with broader development goals.

In summary, Malaysia leads in private-sector green sukuk issuance with a robust institutional framework and sectoral diversity, while Indonesia leads in sovereign green sukuk issuance, targeting wide-reaching national infrastructure and climate initiatives. Both countries offer complementary models of success that can serve as valuable references for emerging markets aiming to utilize green sukuk for sustainable development and climate action.

RECOMMENDATIONS

Based on the findings of this study, the following recommendations are proposed to strengthen and expand the impact of the green sukuk market in Malaysia:

Firstly, the Government of Malaysia, in collaboration with the private sector and financial institutions, should enhance public awareness and education campaigns about green sukuk and their role in addressing climate change. While Malaysia has made commendable progress in promoting Islamic finance, broader and more targeted awareness is still needed—both domestically and internationally—regarding the urgency of climate action and the potential of green sukuk as a sustainable financing mechanism. Increased understanding among investors, issuers, and the general public will help mobilize greater support for climate-aligned investments.

Secondly, Islamic banks in Malaysia should take a more proactive role in driving green sukuk development. By initiating and designing green projects that qualify for sukuk financing, these institutions can significantly expand the scope and impact of green sukuk. Their involvement would also strengthen the integration of Sharia-compliant finance with environmental sustainability goals, positioning Malaysia as a global leader in ethical, climate-resilient financial innovation.

These steps would not only support the country's sustainable development vision but also serve as a model for other nations seeking to develop effective green finance ecosystems.

CONCLUSION

Green sukuk, as a Sharia-compliant financial instrument, have emerged as a vital tool for financing sustainable development in both Indonesia and Malaysia, with significant contributions toward achieving SDG 7 (Affordable and Clean Energy) and other related goals. In Indonesia, the government-led issuance of sovereign green sukuk reflects a strong national commitment to climate change mitigation and the broader Sustainable Development Goals. These sukuk are strategically aligned with public development priorities, supporting critical sectors such as renewable energy, waste management, disaster risk reduction, sustainable transport, and energy efficiency. The measurable outcomes—such as the reduction of over 3.2 million tons of CO_2 emissions and expanded access to climate-resilient infrastructure—highlight Indonesia's effective use of green sukuk in achieving SDGs 7, 9, 11, and 13.

Malaysia, on the other hand, demonstrates leadership in the private-sector issuance of green sukuk, accounting for a substantial share of the global green sukuk market. The country's projects, which span renewable energy, low-carbon transport, urban flood mitigation, water supply, and waste-to-energy initiatives, align closely with its national sustainability strategy. Malaysia's robust regulatory framework and the issuance of over RM3.7 billion in green sukuk have produced tangible impacts—ranging from clean energy generation to improved urban infrastructure—contributing directly to the achievement of SDGs 6, 7, 9, and 11.

Both countries provide exemplary models of how Islamic finance, particularly green sukuk, can support climate action and

sustainable development. Their experiences offer valuable insights for policymakers and stakeholders in nations with emerging or underdeveloped green finance sectors. The effective design, implementation, and monitoring of green sukuk in Indonesia and Malaysia not only drive domestic progress but also set a global precedent for integrating Islamic finance with environmental and social objectives.

REFERENCES

Abdullah, Z., & Humaidi, M. (2025). *ADVANCING SUKUK MARKETS : Legal Frameworks , Regulatory Developments , and Default Challenges in Malaysia and the United Arab Emirates*. *5*(1), 45–57. https://doi.org/10.21154/etihad.v5i1.10913

Abubakar, L., & Handayani, T. (2020). *Green Sukuk: Sustainable Financing Instruments for Infrastructure Development in Indonesia*. *436*(April 2016), 983–987. https://doi.org/10.2991/assehr.k.200529.206

Billah, S. M., & Adnan, N. (2024). Navigating environmental concerns and geopolitical risks: A study on green sukuk and Islamic equities amid climate crisis and the Russia-Ukraine conflict. *Energy Strategy Reviews*, *53*(December 2023), 101372. https://doi.org/10.1016/j.esr.2024.101372

Climate Bonds Initiative. (2019). Green Infrastructure Investment Opportunities Brazil 2019. *Climate Bonds Initiative*, 1–32.

Darby, S., & Berhad, P. (2020). *SIME DARBY PROPERTY BERHAD Sustainability Sukuk Framework*. *August*, 1–13.

Debrah, C., Chan, A. P. C., & Darko, A. (2022). Green finance gap in green buildings: A scoping review and future research needs. *Building and Environment*, *207*(PA), 108443. https://doi.org/10.1016/j.buildenv.2021.108443

Discussion, R., & Zainal, Z. I. (n.d.). *Green Sukuk*.

Financing, F. S. (2017). *Helping Malaysia Develop the Green Sukuk Market*.

Fitrah, R., & Soemitra, A. (2022). Green Sukuk For Sustainable Development Goals in Indonesia: A Literature Study. *Jurnal Ilmiah Ekonomi Islam*, *8*(1), 231. https://doi.org/10.29040/jiei.v8i1.4591

Golden, C. D., Allison, E. H., Cheung, W. W. L., Dey, M. M.,

Halpern, B. S., McCauley, D. J., Smith, M., Vaitla, B., Zeller, D., & Myers, S. S. (2016). Nutrition: Fall in fish catch threatens human health. *Nature*, *534*(7607), 317–320. https://doi.org/10.1038/534317a

Güçlü, F. (2019). The Rise of Environmental Consciousness in Islamic Finance: Green Sukuk. *Handbook of Energy and Environment Policy*, *October 2019*, 245–259. https://doi.org/10.3726/b16350

Handayani, K., Krozer, Y., Filatova, T. (2017). Assessment of Renewable Energy Expansion in the Java-Bali Islands, Indonesia. *10th BIWAES Biennial International Workshop Advances in Energy Studies: Energy Futures, Environment and Well-Being*, 271.

Hania, B. T., Endri, E., & Indra, I. (2022). Identify the Issuance Problem of Corporate Green Sukuk in Indonesia. *Islamic Economics Journal*, *8*(2), 187. https://doi.org/10.21111/iej.v8i2.8404

Irvine, L., Grifferty, M. P., & Cowman, A. (2014). Green Sukuk: The race to be first. In *Islamic Finance News* (Issue November, pp. 28–30).

Keshminder, J., Kaur Bariam Singh, G., Wahid, Z. A., & Syafiq Abdullah, M. (2019). MALAYSIAN JOURNAL OF CONSUMER AND FAMILY ECONOMICS Green Sukuk: Malaysia Taking the Lead. *Majcafe.Com*, *22*(Special Edition 2), 1–22.

Malaysia International Islamic Finance Centre. (2017). *Sukuk going green: Malaysia continues to drive innovation*. *September*, Malaysia International Islamic Finance Centre. (20.

March 2020. (2020). *Journal of Soft Computing Paradigm*, *2*(1). https://doi.org/10.36548/jscp.2020.1

Market, G. S. (2020). *SUKUK REPORT*. *July*.

Noronha, M. (2020). A new shade of green : Sukuk for sustainability. *THE Economist*, 2018–2021.

Qadri, H. M. ud D., Ali, H., Abideen, Z. ul, & Jafar, A. (2024). Mapping the Evolution of Green Finance Research and Development in Emerging Green Economies. *Resources Policy*, *91*(March 2023), 104943. https://doi.org/10.1016/j.resourpol.2024.104943

Yesuf, A. J., & Aassouli, D. (2020). Exploring synergies and performance evaluation between Islamic funds and socially responsible investment (SRIs) in light of the Sustainable Development Goals (SDGs). *Heliyon*, *6*(8), e04562. https://doi.org/10.1016/j.heliyon.2020.e04562