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Exploring Green Banking Performance of Islamic Banks in Indonesia

Dwi Retno Widiyanti[1], Sarah Hana Hanifah[1*], Indri Supriani[1]

[*]**Corresponding email:** sarahifah002@gmail.com

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Abstract

The sustainable movement in the financial sector, known as green banking, has emerged as a global standard that obligates the financial industry to adhere to social and environmental responsibilities. Indonesian Islamic banks' green banking initiatives are examined in this study. Green Banking Disclosure Index (GBDI) indicators for 13 Islamic commercial banks were collected from their five-year sustainability reports. Bose et al. (2018)'s 21 GDBI indicators were thoroughly analyzed. Jeucken's typology measurement showed banks' four-stage movement from defensive and preventative to aggressive and "sustainable" in 2004. Jeucken's Typology of Banking and Sustainable Development functioned as the assessment framework for evaluating green banking performance. Among the 13 Islamic banks analysed, only six have chosen to publicly disclose their sustainability reports. The banks in question include Panin Dubai Syariah Bank, Muamalat Bank, Aladin Syariah Bank, Aceh Bank, BTPN Syariah Bank, and Mega Syariah Bank. The data reveals that no Islamic banks have reached the "sustainable" stage. Currently, two out of six Islamic banks are positioned in the offensive stage, while the other four are in the preventive stage. It can be posited that these financial institutions have commenced the shift towards a "sustainable" phase. The findings of this study on disclosure indicators in green banking indicate that Indonesian Islamic banks must revise their reporting methods concerning environmentally friendly banking practices. Moreover, considering their crucial role in advancing green banking in relation to sustainable development, Indonesian Islamic banks need to enhance the quality of their publicly accessible sustainability reports.

Keywords: Green Banking; Green Banking Disclosure Index; Indonesia; Islamic Banks; Sustainability Report
JEL Classification: G21, M14, Q56
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[1]Department of Economics, Faculty of Economics and Business, Universitas Brawijaya, Indonesia

I. Introduction

Environmental issues and growing societal expectations have marked a fast-changing global landscape, where the role of financial institutions has transcended traditional banking practices. Currently, a sustainable movement in the financial sector called green banking has become a global norm that binds the financial sector to be socially and environmentally (Mir & Bhat, 2022). The concept of green banking has emerged as a major topic in revolutionary literature (Bukhari et al., 2020), urging banks to integrate environmental factors into their operations, investments, and decision-making processes. It covers a broad range of initiatives, including funding renewable energy projects and incorporating environmental risk assessments into lending decisions. Green banking demonstrates a dedication to integrating financial objectives with wider societal and environmental goals. Thus, green banking can be seen as a part of sustainable banking, which aims to encompass a wider range of environmental and social aspects (Dufays, 2012; Park & Kim, 2020). The International Finance Corporation (IFC) has been at the forefront of establishing the Sustainable Banking and Finance Network (SBFN), which encompasses the latest country-level sustainable finance initiatives. The SBFN now consists of 63 countries, including Indonesia, that have implemented national policies, guidelines, principles, or roadmaps specifically targeting green banking.

Parallel to the rise of green banking, Islamic banking has also gained prominence as a beacon of ethical finance grounded in Sharia principles. By prohibiting practices such as interest and speculation, Islamic banking prioritizes equity, fairness, and social welfare. Its principles of risk-sharing, asset backing, and ethical conduct resonate deeply with the ethos of sustainability and responsible finance.

Currently, according to the Islamic Finance Development Report 2023, the global Islamic finance industry has experienced significant growth of its assets by 11% to US$4.5 trillion in 2022, with Islamic banking accounting for 72% of the total industry's assets. The industry also grew by 163% since 2012 and is predicted to reach US$6.7 trillion by 2027 (LSEG & ICD, 2023). Digitalization and global economic recovery during the transition period of the COVID-19 pandemic are several factors that have had a positive impact on improving the business performance of Islamic banks globally.

As in Indonesia, which has strategically invested in the development of its Islamic financial industry, the performance of Islamic banking financing in 2023 increased by 15.8% year over year, outpacing the rise of national banking financing. Sharia banking assets were next, at Rp831.94 trillion, representing a 33.92% increase. According to the IFDI Report 2023, Indonesia ranks third among the most developed countries in Islamic finance, boasting strong performance in knowledge and governance, as well as a perfect regulatory system within Islamic banking. Its dedication to Environmental, Social, and Governance (ESG) principles has won it a spot in the top five for ESG performance worldwide. With such qualifications, Indonesia emerges as a key participant in Islamic finance, highlighting its importance as a hub for green banking research and activities.

Islamic banks have the potential to adopt green banking more quickly than conventional banks. Islamic banks inherently resonate with green banking (Bukhari et al., 2020), due to their Shariah-compliant nature and shared values, such as ethics and justice, unlike conventional banks. While both can implement green practices, Islamic banks, guided by the Maqasid-Al-Shari'ah, prioritize holistic well-being over mere profit, harmonizing social, environmental, and financial aspects. They also emphasize the rewards, both worldly and in the Hereafter, for ethical conduct. Thus, Islamic banks exhibit a unique potential in seamlessly integrating green banking, emphasizing relationships with Allah, humanity, and the environment to realize the Maqasid-Al-Shari'ah for Maslahah amah (public interest) (Bouteraa et al., 2020).

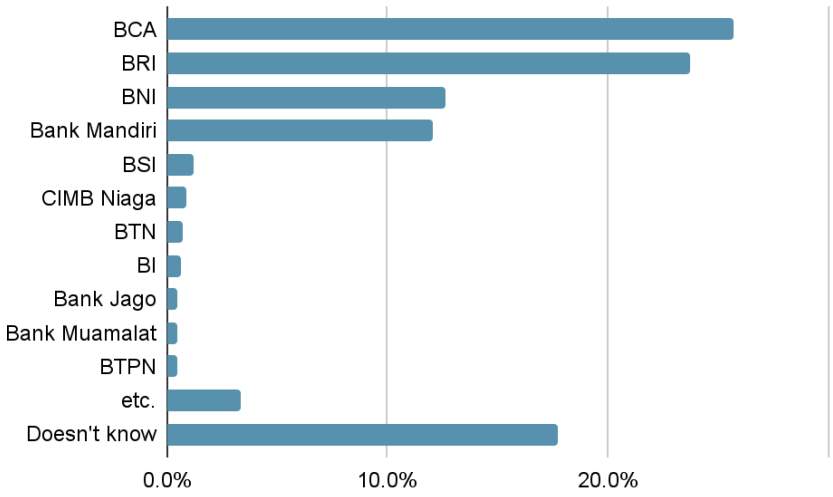

Figure 1. The Bank with the Strongest 'Green Banking' Image
Source: Dihni (2022)

However, as seen in Figure 1, several banks have taken on the reputation of "green banking" in society. Based on the survey, conventional banks (BCA, BRI, BNI, and Bank Mandiri) dominate the banks with the strongest 'green banking' image compared to Islamic banks such as BSI and Bank Muamalat. This is further supported by the research conducted by Ramdani et al. (2023), which reveals that Islamic banking organizations in Indonesia have not fully optimized the implementation of green banking. In Sharia banking, green banking policies do not contradict the Islamic principles, which form the basis of the Sharia banking system (Julia & Kassim, 2020). It is one of the core themes in Islamic teaching (Bouteraa et al., 2020). Thus, the Islamic banking sector should be able to take advantage of this green banking-Islam suitability as an efficient management tactic to attract and seize market share (Bukhari et al., 2020) and lead the way in developing green banking practices (Ramdani et al., 2023).

The public assessment of the 'green banking' image of Islamic banks can be caused by several factors, such as employee environmental awareness, daily operations, customers, bank policies (Sehen Issa et al., 2022), stakeholder conceptions, and management of ecological awareness (I. U. Khan et al., 2023), and also one of the most important points is transparency in disclosing green banking initiatives. (H. Z. Khan et al., 2021) stated that the disclosure of green banking practices positively and significantly affects company value. This is supported by Lindblom (1994) who

stated that organizational legitimacy, which he defined as a firm's public image, is a system that describes how an organization can reveal voluntary information about its sustainability performance.

Several studies have examined banks' disclosure of green banking practices through their reporting. For instance, Shaumya & Arulrajah (2016) made a 16-item tool with four main parts: employee-related practice, daily operation-related practice, customer-related practice, and bank policy-related practice. These parts were used to measure green banking practices for private banks in Sri Lanka. Similarly, Bose et al. (2018) initiated the Green Banking Disclosure Index (GBDI), comprising 21 items of information based on the central bank's regulatory guidance. Hanif et al. (2018) utilized the Green Coin Ratings Indicator, encompassing a total of 17 indicators with 6 main indicators, to measure green banking practices.

Also, Gunawan et al. (2022) made a more complete green banking disclosure list by combining the sustainability disclosure guidelines from the Global Reporting Initiatives with the Measuring Green Banking Practices by Shaumya & Arulrajah (2016). Chen et al. (2022) also used questionnaires with four parts to build a research model based on studies about green banking. The parts were demographic information, green banking practices, green financing, and banks' environmental performance. Although there has been some theoretical work on how banks respond to green banking activities and how they report this kind of information to the public (Bose et al., 2018), there hasn't been much real-world research on these topics.

The concept of reporting on green banking practices has been initiated through a sustainability report, but the lack of universally accepted indicators poses challenges when evaluating and benchmarking green banking initiatives. Having standardized indicators is crucial, as they help keep stakeholders informed and promote sustainable finance practices. However, the adoption of sustainability reports incorporating environmentally friendly practices remains low, as indicated in Figure 2. According to Figure 2, conventional banks have a higher level of environmental disclosure compared to Islamic banks, which is 14%, whereas Islamic banks remain low at just 8%. Overall, conventional banks tend to have slightly higher levels of disclosure than Islamic banks in all categories, although the differences are not significant. Nevertheless, both banks' initiatives to disclose their environmentally friendly practices are still lacking, indicating that they have not fully integrated green banking into their operations.

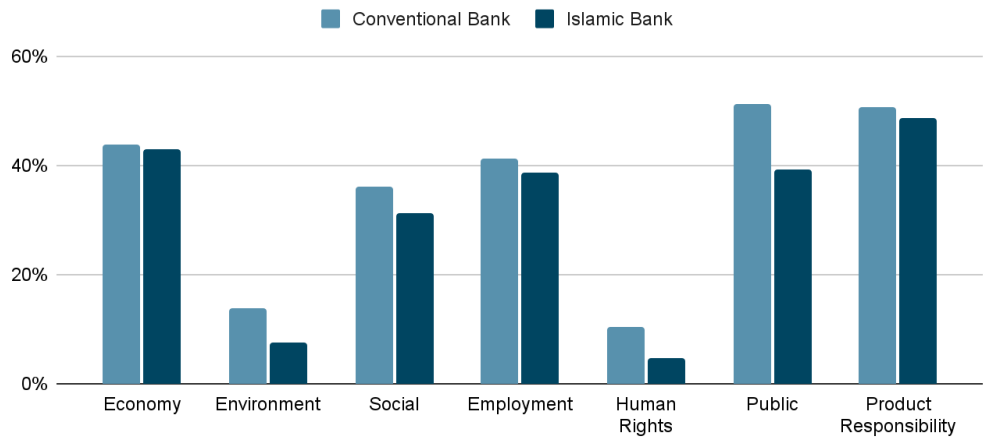

Figure 2. Level of CSR Disclosure in Conventional Banks VS Islamic Banks 2015-2016
Source: Nurrahmawati et al. (2021)

The concept of 'green banking' is not widely familiar among people in Indonesia. Most people are better acquainted with the term 'sustainable' as opposed to 'green banking'. For this reason, there is a document called the sustainability report, but there is no document specifically designated as a "green banking report". The existing research on green banking disclosure has primarily relied on sustainability or CSR reports published by banks (Bose et al., 2018; Chen et al., 2022; Gunawan et al., 2022; Hanif et al., 2020; Shaumya & Arulrajah, 2016). While these studies have presented the results of the performance of banks' green banking operations, they have not clarified whether the institutions in question have achieved the intended sustainability goals. The reviewed papers explore the relationship between green banking and sustainability. Green banking promotes environmentally friendly practices and supports sustainable development through innovative financial products and services (Ziolo et al., 2019).

Banks play a crucial role in transitioning to a low-carbon economy by incorporating environmental data into credit decisions and aligning with UN Sustainable Development Goals (Mir & Bhat, 2022). (Murshudli, 2023) has found that international green banking positively impacts environmental sustainability in developing countries. G20 countries are increasingly using banking regulation to address sustainability challenges, though there is still room for improvement in mobilizing green capital and integrating environmental considerations into bank strategies and risk management (Alexander, 2019). Focus on green banking and sustainability linkage. This research tries to adopt green banking indicators in the concept of sustainability. It utilizes a set of 21 items from the Green Banking Development Index (GBDI) developed by Bose et al. (2018), as well as Jeucken's Typology of Banking and Sustainable Development. This research aims to evaluate the effectiveness of Islamic banking in achieving sustainable banking goals by utilizing green banking practices as an assessment indicator. In addition, this research aims to demonstrate that the use of green banking practices is an efficacious measure for banks to attain their sustainability goals.

This investigation begins by meticulously applying these 21 indicators to the sustainability reports of Indonesian Islamic banks. These reports serve as the foundational data for the subsequent

analysis. The research seeks to understand and evaluate the Indonesian Islamic banks' performance through the lens of GBDI, thereby shedding light on their contributions to the broader objectives of green banking. To further contextualize and categorize these findings, the study employs Jeucken's Typology of Banking and Sustainable Development, offering a holistic view of their sustainability efforts within the broader landscape of banking practices.

II. Literature Review

Green Banking

Green banking is an emerging concept in the financial sector that aims to balance economic growth with environmental protection. It involves adopting eco-friendly practices, leveraging innovative financing techniques, and promoting clean energy technologies (Chitra & Gokilavani, 2020). Green banks use public funds to stimulate private investment in sustainable projects, reducing energy costs and expediting the transition to a low-carbon economy (Chitra & Gokilavani, 2020). It involves integrating environmental sustainability, social responsibility, and economic success into banking operations, goods, and services. Green banking reduces environmental footprints by using renewable energy, reducing carbon emissions, and supporting eco-friendly financial practices. Social responsibility promotes social fairness, community development, and fair labor. By encouraging sustainable investments and supplying financial solutions that support green projects, green banking seeks economic success (Hasan et al., 2022; Ibe-enwo et al., 2019). Environmental protection was its main goal when it began in Western countries in 2003. The US introduced the Green Bank Act till March 2009 to create a government-owned green bank. The green economy (Bukhari et al., 2020) aims to reduce the environmental impact of every economic activity (ResponsiBank, 2014), which underpins green banking. Green banking initiatives build, support, and promote sustainable banking practices and lower bank carbon footprints (Green Banking Report, 2016). Green banking is a financing concept or credit service that prioritizes economic, social, environmental, and technological sustainability to develop the bank's "green finance" portfolios (Hanif et al., 2020). Thus, green banking integrates the four pillars of life nature, well-being, society, and economy to emphasize ecosystem preservation, human well-being, and long-term economic well-being (Lako, 2014).

Islamic Perspective on Green Banking

Green banking and Islam are closely intertwined (Bukhari et al., 2020). The environment is viewed holistically and comprehensively in Islam (Nouh, 2012). Protection of the environment and public welfare has been mentioned in the Qur'an and Hadith, as stated in Q.S. 6:165, which entrusts the maintenance of nature for the sake of life, and Q.S. 28:77, which prohibits corruption in the earth. The principle of responsible consumption and accountable consumption behavior is the foundation of society in Islam (Julia et al., 2016). Bukhari et al. (2020) revealed that research has proven a positive relationship between religiosity and pro-environment attitudes. Islam has been identified as a "green religion" in numerous research (Abdelzaher et al., 2019; Julia et al., 2016). Al-Quran and Sunnah also become "the ultimate green guides" in initiating sustainable development (Julia et al., 2016). So that, the green banking ideology adopted by banks around

the world clearly represents Islamic values (Bukhari et al., 2020; Sharmeen & Yeaman, 2020) and fulfills Maqashid Syariah (Julia et al., 2016). From the Islamic viewpoint, a balanced and sustainable increase in human material and non-material welfare through the application of Islamic values is sustainable development (Julia & Kassim, 2020).

Jeucken's Typology of Banking and Sustainable Development

In 2004, Jeucken developed a banking and sustainable development typology to depict how banks transition to the "sustainable" stage. To get to this point, the bank must first pass through three stages. The premise of this typology is that it grants and encourages banks to achieve this sustainable state. At this point, the bank has fully embraced the agreed-upon concept of sustainable development.

This Banking and Sustainable Development Typology includes first defensive banking: at this stage, banks tend to choose between being inactive or simply being "followers" who comply with laws governing environmental issues and sustainable development. Banks may even try to delay or challenge new environmental laws, as they tend to weigh the impact of losses on the bank's interests directly or indirectly. Second, preventive banking: this stage is different from the previous one; banks are actively pursuing potential environmental cost savings and eco-efficiencies. Internal bank operations, such as the use of the term "environmentally friendly" about paper, energy, water, and other resources, can result in cost savings. At this stage, banks will only consider their internal processes, such as environmental management and credit risk assessments.

Third, offensive banking: in the third stage, banks consider their external activities in addition to their internal ones. They start developing and marketing eco-friendly products. For example, they contribute to the development of environmental investment funds, the financing of sustainable energy, or the signing of the UNEP Banking Charter. At this stage, banks will also volunteer to report on their environmental activities. We can label the attitude as proactive, creative, and innovative. Offensive banks are then continuously looking for win-win solutions.

Fourth, sustainable banking: in this last stage of becoming sustainable banking, while win-win solutions are embraced, the corporate philosophy does not look for the highest financial rate of return but the highest sustainable rate of return while remaining profitable in the long run. Such banks require their shareholders to share the same vision and ambition. Banks also develop a set of qualitative prerequisites as a guide to ensure that all of their actions follow a sustainable perspective.

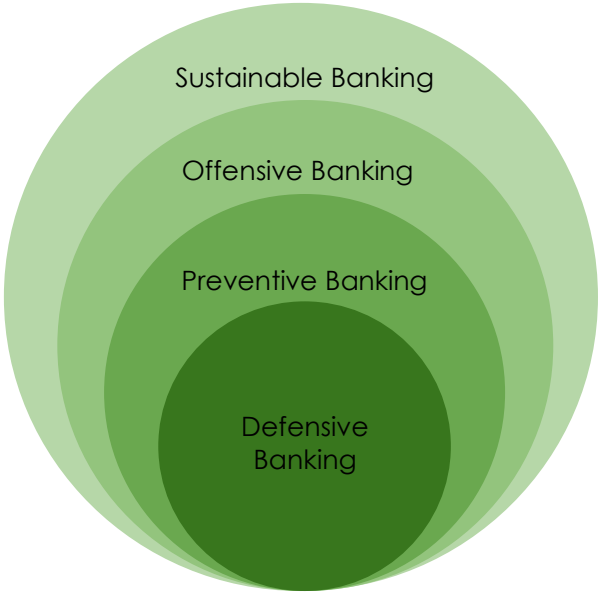

Figure 3. Banking and Sustainable Development Typology
Source: **Jeucken & Bouma (1999)**

Sustainability Report

This section talks about relevant, complete, and up-to-date past studies (Scopus/WoS) on the subject. The section also provides a summary of previous studies, highlighting consensus, resolutions, and unresolved issues that bolster the research. A sustainability report is defined as a report that contains economic, environmental, and social impacts caused by the daily activities carried out by a company (World Bank, 2018) that are more likely to attract responsible investors and maintain positive relationships with stakeholders (Farhana & Adelina, 2019). Sustainability reports also have other terms, such as Corporate Social Responsibility (CSR), non-financial reports, triple bottom line reports, and others (Damayanti & Hardiningsih, 2021).

In Indonesia, the government has made companies follow Government Regulation No. 47 of 2012 about their social and environmental responsibilities and OJK Regulation No. 51/POJK.03/2017 about how to use sustainable finance in financial institutions. These rules require companies to make sustainability reports. Therefore, referring to the regulation, banks that do not implement it will be subject to sanctions. However, the measurement and reporting of sustainability acts are facing challenges due to the lack of standardized methodologies and varying definitions of the indicators in sustainability reports.

Green Banking Indicators

Indicators play a crucial role in enhancing transparency, accountability, and informed decision-making within organizations. The indicator is defined as a measure that gives an overview of a process, project, or product (Rangkuti, 2013). Scientific communities, governments, and policymakers have widely used indicators to measure sustainability (Dizdaroglu, 2017). Indicators are an effective instrument for assessing the effects of environmental concerns and making decisions to achieve sustainability. Choosing an indicator is often a matter of opinion. (Agol et al.,

2014) say that cost-effectiveness, ease of understanding, scientific reliability, and the ability to be used across borders are some of the things that affect the choice of an indicator. Afterwards, (Popal, 2015) defines an index as a collection of different indicators.

The green banking disclosure index (GBDI), developed by Bose et al. (2018), is one of the disclosure indexes used to measure the implementation of green banking by banks. The Green Banking Disclosure Index (GBDI) comprises up to 21 indicators that measure bank activities aligned with green banking goals. Through sustainability reporting issued by banks, this index then identifies, and measures information related to green banking activities disclosed in the report.

Table 1. Green Banking Disclosure Index (GBDI)

Index	Items
GBDI-1	The report provides information revealing either the bank's policies on the preservation of the natural environment or the bank's concerns and awareness of preserving the natural environment and/or policy addressing climate change is available.
GBDI-2	The report indicates that the financing of clients' projects is determined by both financial criteria and environmental considerations. Additional information on financing environmentally sustainable initiatives such as biogas facilities, renewable energy projects, the construction of compressed natural gas (CNG) stations, brick manufacturing, and others. Additional information on monitoring clients' environmental initiatives, such as an effluent treatment facility, recycling facilities, and a smoke and gas abatement unit.
GBDI-3	The report provides information on how to reduce paper waste by encouraging internal communication through email, using double-sided printouts, and recycling paper.
GBDI-4	The report provides information pertains to the adoption of policies and technologies aimed at reducing water and gas wastage in a bank's internal operations, such as the use of water-saving taps.
GBDI-5	The report provides information about the use of environmentally friendly materials, such as recycled paper and solar power systems, which are available.
GBDI-6	The report provides information about energy conservation in business operations, such as adopting energy-saving bulbs, is available.
GBDI-7	The report provides information on measures taken to combat climate change and reduce emissions by trimming down employee business travel.
GBDI-8	The report provides information on the introduction of various new green products, such as online banking, automated teller machines (ATMs), and mobile banking, to reduce carbon emissions.
GBDI-9	The bank is responsible for reporting information on its initiatives and engagement in building networks on environmental issues, such as membership or relationships with "green" groups, including government bodies and NGOs.
GBDI-10	Information on whether the bank has undertaken or plans to undertake studies on the impact that its potential client's business has on the environment before sanctioning financing facilities.
GBDI-11	The report provides information on organizing or plans to organize shortly any seminars, workshops, or training to raise the environmental awareness of the country's citizens.
GBDI-12	The report provides information on whether the bank has been awarded either for its environmentally friendly activities or its contributions to environmental improvements, and for its excellence in environmental reporting practices.

Index	Items
GBDI-13	The report provides information on its clients and value chain partners who have won awards for their initiatives to preserve the natural environment, in which the bank has worked as a co-partner.
GBDI-14	The report provides information on sponsoring facilities harmonious with the environment: restoring and preserving heritage buildings/structures and cash or non-cash contributions to beautifying cities or villages through tree plantation.
GBDI-15	The report provides information about the establishment of a climate change fund.
GBDI-16	The report provides information about setting up green branches.
GBDI-17	The report provides information about internalizing green marketing initiatives, such as "Plant a Tree, Save the Environment," on its letterhead and in other internal communication media.
GBDI-18	The report provides information on the bank's initiatives and engagement to train its employees regarding the green movement, such as education programs, and encourages them to actively participate in green operations.
GBDI-19	The report provides information on the amount of the budget allocated annually for green banking practices.
GBDI-20	The report provides information on the actual amount spent on different green banking activities.
GBDI-21	The annual report should incorporate separate pages for green banking reporting.

Source: Bose et al. (2018)

III. Methodology

Data

This study is qualitative, focusing on Islamic commercial banks registered with the OJK and the Indonesian Stock Exchange (IDX). This study employs a non-probability sampling technique, specifically a purposive sampling technique. The samples were chosen based on the criteria given, specifically Islamic commercial banks that have put out sustainability reports in the last five years since OJK Regulation (OJKR) Article 10 No. 51 of 2017 was made public, which says that banks must make a sustainability report. As a result, six Islamic banks were chosen as samples: Bank Panin Dubai Syariah, Bank Muamalat, Bank Aladin Syariah, Bank Aceh, Bank BTPN Syariah, and Bank Mega Syariah. We obtained data sources for this study from books, journals, or scientific articles relevant to the research topic. Data collection techniques in this literature study include collecting data related to research variables in the form of writing books, scientific articles, and reports. To achieve the objectives of this study, secondary data were collected mainly from the published annual reports and sustainability reports of the selected banks from 2017–2021.

Method

This study employs the content analysis method to examine green banking issues through sustainability reports. According to White & Marsh (2006), content analysis is a systematic method that can be used to analyze written, vocal, or visual documentation either qualitatively or quantitatively. It is used to draw reliable and accurate conclusions about the context in which

text is used. It offers fresh perspectives, enhances researchers' comprehension of specific phenomena, and informs practical decision-making (Krippendorff, 2013). According to Guthrie & Abeysekera (2006), content analysis of annual reports is a way to gather information that involves putting both qualitative and quantitative data into set categories to find patterns in how the data is presented and reported.

In addition, this study utilizes the "data triangulation" method to analyze GBDI items, which incorporates multiple methods or data sources to gain a comprehensive understanding of a phenomenon (Patton, 1999). Denzin (1978) and Patton (1999) identified four types of triangulations: (a) method triangulation, (b) investigator triangulation, (c) theory triangulation, and (d) data source triangulation (Carter et al., 2014). Specifically, it adopts the "data source triangulation" approach. This involves collecting data from different types of sources to gain various perspectives and validate the data (Noble & Smith, 2015). This method, by restricting the data source, broadens the subject's understanding and guarantees the inclusion of all significant information (Carter et al., 2014). These 21 GBDI items are looked at in this study using several secondary sources, such as academic papers, websites, bank policies, regulations from international organizations, and rules and guidelines from different countries.

Steps of Research

The research comprises four primary phases (Smith & Johnson, 2022). The initial phase evaluates the Green Banking Disclosure Index (GBDI) items by an extensive literature analysis, investigating the application and interpretation of GBDI indicators within green banking frameworks (Chen et al., 2021). This analysis entails a comprehensive review of academic journals, books, and databases utilizing keywords like "green policy" and "green finance," succeeded by literature selection, key point extraction, and synthesis (Williams, 2023). The second step integrates GBDI within Jeucken's Typology of Banking and Sustainable Development (Jeucken, 2021). This integration aligns 21 GBDI indicators with Jeucken's four stages: Defensive (fundamental environmental compliance), Preventive (proactive environmental strategies), Offensive (innovative green initiatives), and Sustainable (integration of sustainability into core business practices). Anderson and Lee (2022) include illustrations for each phase, ranging from fundamental environmental legislation to extensive sustainable development pledges. The final stage utilizes content analysis methods to assess GBDI (Thompson et al., 2023). This assessment entails examining sustainability reports from 2017 to 2021, identifying indicators, employing binary scoring (1 for disclosure, 0 for non-disclosure), computing percentages, and consolidating scores. The fourth stage categorizes banks in Jeucken's Typology according to their GBDI outcomes (Rodriguez & Kim, 2023).

Green Banking Disclosure Index (GBDI) Items Description Analysis

GBDI-1: The report provides information revealing either the bank's policies on the preservation of the natural environment or the bank's concerns and awareness of preserving the natural environment and/or policy addressing climate change is available.

The bank's philosophy and commitment to environmental preservation are essential in this matter. This indicator offers a more quantitative representation than mere words or pictures; it suggests a meter related to policy issues (Hammond et al., 1995). GBDI-1 serves as a crucial metric that assesses a bank's dedication to environmental conservation and climate change issues, evaluating both documented policies and overall awareness and initiatives. Banks that achieve high scores on GBDI-1 are more likely to be regarded as responsible and progressive organizations, potentially enhancing their reputation and long-term sustainability initiatives. As the financial risks associated with climate change gain prominence within the banking industry, an increasing number of central banks and regulators are addressing them with greater seriousness (Monnin, 2018). Consequently, sustainability reports frequently include information pertinent to GBDI-1, rendering them excellent resources for stakeholders concerned with a bank's environmental position.

GBDI-2: The report indicates that the financing of clients' projects is determined by both financial criteria and environmental considerations. Additional information on financing environmentally sustainable initiatives such as biogas facilities, renewable energy projects, the construction of compressed natural gas (CNG) stations, brick manufacturing, and others. Additional information on monitoring clients' environmental initiatives, such as an effluent treatment facility, recycling facilities, and a smoke and gas abatement unit.

GBDI-2 is intended to assess the degree to which a bank integrates environmental considerations into its funding decisions. This statistic evaluates the bank's dedication to both financial and environmental issues in funding customer projects. Green finance encompasses all investments in environmental goods and services, along with investments in activities that mitigate environmental and climatic harm (Berensmann, K., & Lindenberg, 2016). Green finance refers to the funding of renewable energy initiatives, green technologies, and pollution mitigation programs, with the objective of decreasing carbon emissions, fostering climate-resilient infrastructure, and promoting environmental sustainability in renewable energy projects (Bahl, 2012; Taghizadeh-Hesary & Yoshino, 2019). Banks, as financial institutions, are primary agents fostering the advancement of green finance (Berensmann, K., & Lindenberg, 2016). Emphasizing environmental considerations and sustainability in financing constitutes an aspect of green banking initiatives (Hanif et al., 2020; ResponsiBank, 2014), indicating that green finance is integral to green banking. This statistic pertains to the extent to which banks provide information regarding their green finance in relation to eco-friendly project financing. GBDI-2 emphasizes the importance of banks in fostering sustainability by integrating environmental criteria into funding choices and endorsing environmentally sustainable enterprises. It also underscores the continuous assessment of clients' environmental actions to ensure alignment with green banking and sustainable development objectives.

GBDI-3: The report provides information on how to reduce paper waste by encouraging internal communication through email, using double-sided printouts, and recycling paper.

GBDI-3 emphasizes evaluating a bank's initiatives to minimize paper waste and foster environmentally sustainable practices in internal communications. The current term for this indication is paperless banking. Iswanto (2019) posits that digitalization may serve as an

efficacious technique for mitigating paper waste, a substantial element of banking waste. The minimization of paper waste by promoting internal communication via email, utilizing double-sided printouts, and recycling paper exemplifies a quintessential green banking strategy. The bank predominantly disposes of paper, resulting in significant waste. Paperless statements are issued electronically to the bank's stakeholders to reduce significant paper waste. Upon enrolling in internet banking, the majority of banks provide consumers with the choice to get their statements electronically through a secure login. Consequently, electronic versions of financial data and statements may be preserved in lieu of physical documents. The receipt of statements online considerably diminishes the possibility of identity theft (Mir & Bhat, 2022). Consequently, this program not only reduces paper consumption for environmental conservation but also enhances the security of banking transaction data. The primary objective of GBDI-3 is to evaluate the bank's initiatives to diminish its ecological footprint by reducing paper waste. By advocating for digital communication, duplex printing, and paper recycling, banks can substantially reduce their paper usage and aid in environmental preservation. Moreover, these practices can result in cost reductions and enhanced operational efficiency, rendering them both environmentally sustainable and financially judicious options for banks.

GBDI-4: The report provides information pertains to the adoption of policies and technologies aimed at reducing water and gas wastage in a bank's internal operations, such as the use of water-saving taps.

GBDI-4 emphasizes a bank's dedication to minimizing water and gas waste in its internal operations via the implementation of policies and technologies. Conserving water and gas is an action associated with the concept of a "Green office." The green office pertains to banking operational activities that include the principle of being "environmentally friendly" about the use of paper, energy, water, waste management, and similar factors (Otoritas Jasa Keuangan, 2018). Implementing green banking practices, such as sustainable technology, is essential for minimizing water and gas waste in a bank's internal operations (Bahl, 2012; Biswas, 2011; Nath et al., 2014). These techniques may result in operational efficiencies, financial savings, and less susceptibility to errors and fraud (Biswas, 2011). The influence of green banking practices on environmental performance differs, with energy-efficient equipment and green policies exerting a substantial effect (Risal & Joshi, 2018). GBDI-4 evaluates a bank's execution of water and gas conservation programs, emphasizing waste reduction and resource utilization. It also assesses the incorporation of water conservation technology and gas emission reduction technologies, including energy-efficient HVAC systems and intelligent thermostats. These efforts frequently result in cost reductions, rendering banks environmentally sustainable and fiscally responsible options. GBDI-4 advocates for banks to adopt proactive measures to mitigate their environmental footprint and foster responsible resource utilization.

GBDI-5: The report provides information about the use of environmentally friendly materials, such as recycled paper and solar power systems, is available.

GBDI-5 focusses on evaluating the degree to which a bank integrates sustainable materials and technologies into its operations. “Green offices” and “green buildings” accurately characterize this indicator. When banks utilize recycled products, such as stationery, marketing materials, and

papers, to reduce deforestation, this practice can be classified as an aspect of the green office (Otoritas Jasa Keuangan, 2018). GBDI-5 includes various eco-friendlier technologies and materials. This may encompass energy-efficient lighting, heating, and cooling systems, together with sustainable construction materials that diminish energy usage and environmental effect. During the renovation or construction of a building, if the bank opts for sustainable building materials or eco-friendly products that mitigate the project's environmental impact, this practice is referred to as green building (Hanif et al., 2020; Nursabna et al., 2023). Green building, referred to as green construction or sustainable building, is a method that prioritizes environmental responsibility and resource efficiency over a building's life cycle (Mishra et al., 2013; Zhang, 2013). This methodology, characterized by intensive communication among the design team, architects, engineers, and clients, enhances conventional building design considerations (Zhang, 2013). The goal of this indication is to signify the utilization of eco-friendly products and materials that banks can employ to satisfy the requirements of these companies. The goal of this indication is to signify the utilization of eco-friendly products and materials that banks can employ to fulfil the requirements of these organizations.

GBDI-6: The report provides information about energy conservation in business operations, such as adopting energy-saving bulbs, is available.

GBDI-6 assesses a bank's dedication to energy conservation within its operational practices. The conservation of energy is an essential component of sustainable business practices, particularly in banking operations. In Indonesia, Government Regulation (PP) Number 70 of 2009 defines energy conservation as a systematic, organized, and integrated endeavor to protect domestic energy resources and enhance their utilization efficiency. Banks can preserve power and energy by implementing measures such as deactivating lights in outside areas during daylight when natural light is enough and switching off electronic devices when not in use (Riadi, 2017). These behaviors may manifest in numerous forms, including internet banking and the deployment of solar-powered ATMs (Pillai & D, 2017). This indicator evaluates a bank's implementation of energy-efficient technologies, including LED lighting, and its provision of employee training on energy conservation practices. It also examines banking issues related to energy conservation, as implementing these regulations can enhance environmental preservation, decrease operational expenses, and cut carbon emissions. Instructing personnel on energy conservation techniques is essential for effective projects.

GBDI-7: The report provides information on measures taken to combat climate change and reduce emissions by trimming down employee business travel.

GBDI-7 evaluates the bank's initiatives to address climate change and mitigate greenhouse gas emissions, including the restriction of employee business travel. The banking sector can significantly contribute to climate change mitigation by affecting the emissions of other business entities (Bowman, 2010). Major private enterprises can formulate extensive corporate travel plans aimed at minimizing emissions, particularly with staff business travel (Robèrt, 2009). The World Bank, by its lending practices and policy influence, can significantly mitigate greenhouse gas emissions from transport (Schipper et al., 2000). Jaggi (2014) advocates for the use of online "webinars" for brief meetings, accommodating participants who would otherwise need to travel

considerable distances, and promotes carpooling and public transportation as alternate methods. GBDI-7 recognizes the significance of technology in diminishing the necessity for physical travel. It assesses if the bank encourages telecommuting or the utilization of virtual meeting platforms to save travel and related emissions. These techniques are especially pertinent in an age where remote work and digital communication have become prevalent. Presently, individuals commonly employ video conferencing services that facilitate internet communication through cloud computing technologies. Consequently, this activity impacts the reduction of energy use and the minimization of carbon emissions.

GBDI-8: The report provides information on the introduction of various new green products, such as online banking, automated teller machines (ATMs), and mobile banking, to reduce carbon emissions.

GBDI-8 evaluates the bank's initiatives to implement innovative green products and solutions aimed at mitigating carbon emissions. Green goods in banking can be quantified as digital banking that employs information technology (Otoritas Jasa Keuangan, 2018), including e-mail, contemporary applications, e-billing, and the utilization of digital information technology to promote bank products and services. Kasali (2005) defines green products as items manufactured by producers that are perceived as safe, pose no risk to human health, and do not have the potential to harm the environment. Technological capabilities (regarding R&D activities and highly qualified personnel), green design initiatives (Rehfeld et al., 2007), and green capabilities (defined as a firm's capacity to integrate, coordinate, develop, and reconfigure its competencies and resources for effective environmental management and innovation) are critical precursors to green product innovation. Additional antecedents encompass the quest for a technological advantage (Triebswetter & Wackerbauer, 2008) and environmental leadership, which is characterized as the process by which an individual mobilizes others to achieve environmental objectives. Consequently, green goods in the banking sector, including internet banking, automated teller machines (ATMs), and mobile banking, can substantially aid in diminishing carbon emissions and fostering sustainability. GBDI-8 advocates for banks to provide online and mobile banking services, hence diminishing carbon emissions and energy usage. It also promotes the proactive use of eco-friendly products, in accordance with sustainability objectives.

GBDI-9: The bank is responsible for reporting information on its initiatives and engagement in building networks on environmental issues, such as memberships or relationships with "green" groups, including government bodies and NGOs.

GBDI-9 assesses the bank's disclosure of information regarding its diverse environmental programs and activities. Disclosing information regarding a bank's initiatives and involvement in establishing networks on environmental matters is crucial for openness and accountability. Green Banking is a collaborative endeavor involving banks, government entities, non-governmental organizations (NGOs), international financial institutions (IFIs), international governmental organizations (IGOs), central banks, consumers, and business sectors to attain its objectives (Masukujjaman & Aktar, 2013). The significance of green banking in fostering sustainable industrial networks has been emphasized, proposing that green banks can galvanize other industrial participants to adopt sustainable development methods (Paluszak & Paluszak, 2016).

Since the late 1980s, the World Bank and Asian Development Bank have markedly intensified their attention to environmental issues, particularly regarding poverty and the environment (Turnham, 1991). This transition has been shaped by the increasing impact of global NGO networks that have highlighted concerns regarding environmental consequences and social equity (Nelson, 1997). The bank's dedication to sustainability may be demonstrated through transparent disclosures regarding its engagement with environmental organizations, collaborations, and ecological initiatives. This exemplifies trust among stakeholders and motivates others in the sector to engage in ethical actions. The GBDI-9 indication pushes banks to proactively establish networks and cultivate partnerships with organizations aligned with their environmental objectives, thus enhancing awareness and promoting good change.

GBDI-10: Information on whether the bank has undertaken or plans to undertake studies on the impact that its potential client's business has on the environment before sanctioning financing facilities.

GBDI-10 assesses if the bank has established protocols and policies to examine the potential environmental effect of the commercial activities it contemplates for financing. This indicator pertains to the Bank's Environmental Impact Analysis (AMDAL) policy in Indonesia. Banks have acknowledged the significance of assessing the environmental impact of their clients' business operations prior to extending finance, in accordance with environmental sustainability goals and risk management policies. In Indonesia, environmental policy regulations in the banking sector are governed by Law No. 10/1998 concerning banking, which mandates that banks observe the principle of prudence in their business activities, particularly in fund distribution, and emphasizes the importance of Environmental Impact Analysis (EIA). Furthermore, Bank Indonesia (BI) Regulations outlined in BI Circular Letter No. 15/28/DPNP and No. 13/10/DPBS, which reaffirm PBI No. 14/15/2012, mandate that banks assess the environmental management initiatives of debtors or potential debtors to evaluate the quality of the assets (credit) extended, ensuring compliance with an AMDAL or the Company Performance Rating Program in Environmental Management (PROPER) issued by the Ministry of Environment. Consequently, GBDI-10 underscores the necessity for banks to evaluate the environmental impact of their clients' economic activities, enabling informed decisions regarding financing projects that adhere to sustainability, risk management, responsible lending practices, and environmental preservation.

GBDI-11: The report provides information on organizing or plans to organize shortly any seminars, workshops, or training to raise the environmental awareness of the country's citizens.

Numerous banks and financial institutions conduct environmental awareness seminars, workshops, and training sessions to showcase their commitment to corporate social responsibility (CSR) and sustainability. Effective environmental education necessitates the collaboration of several partners and stakeholders within a research implementation framework that integrates science, decision-making, and local culture and environment (Toomey et al., 2017), including financial institutions. Environmental education programs are often structured to influence knowledge, attitudes, and behaviors (Ardoin et al., 2020). Manolas et al. (2017) indicate that although citizens recognize "green" bank programs, economic considerations may impede their involvement. Wiradimadja (2023) emphasizes the significance of sustainable programs, indicating

that inadequate infrastructure and economic incentives may result in the failure of these projects. These studies jointly underscore the necessity for comprehensive and sustainable environmental initiatives that consider both awareness and economic issues. GBDI-11 assesses the bank's engagement with particular citizens, aligning with environmental and social responsibility objectives, thereby bolstering its reputation as a community and planet-oriented institution.

GBDI-12: The report provides information on whether the bank has been awarded either for its environmentally friendly activities or its contributions to environmental improvements, and for excellence in environmental reporting practices.

GBDI-12 assesses if the bank has been honored or acknowledged for its initiatives in environmental sustainability. This indicator pertains to the word "Green Rewards". Nath et al. (2014) assert that Green Rewards is an ethical, environmentally conscious enterprise with a clear vision: to incentivize enterprises for their commitment to sustainable practices. The company is deemed to have engaged directly with nature and its ecosystems. Types of green incentives in corporations encompass accolades for sustaining natural ecosystems, certifications, and similar recognitions. The indicator evaluates whether the bank has been acknowledged for its substantial contributions to environmental enhancements. SWA Media Group organized the Indonesia Green and Sustainable firms Award (IGSCA) event to recognize firms in Indonesia that operate sustainably. The IGSCA assessment criteria encompass Sustainable Economy, Social Inclusion, Employee Welfare and Comfort, Environmental Management, and Ethical and Compliance Standards. GBDI-12 underscores the importance of acknowledging and incentivizing banks for their dedication to environmental sustainability and exemplary reporting, hence cultivating trust and promoting green projects.

GBDI-13: The report provides information on its clients and value chain partners who have won awards for their initiatives to preserve the natural environment in which the bank has worked as a co-partner.

GBDI-13 underscores the importance of banks participating in the environmental initiatives of their clients and partners, noting the advantageous results that occur when these initiatives receive awards, which benefit the bank, clients, partners, and the community. Award-winning initiatives frequently exert a substantial positive influence on local communities and the environment (Jones & Gripaios, 2000). Chew et al. (2016) underscores the significance of ethical banking practices, which can be improved through collaborations with recognized environmental initiatives. The bank's participation in award-winning initiatives distinguishes it from competitors and establishes it as a preferred partner for sustainable collaborations. Receiving awards indicates to investors and stakeholders that the bank adheres to sustainability trends and values (Lyon et al., 2013). It has the potential to attract investors who prioritize social responsibility and environmental consciousness. Research indicates that environmental awards receive favorable responses from capital markets in both the United States (Klassen and McLaughlin, 1996) and in developing countries (Dasgupta et al., 2001). GBDI-13 highlights the bank's function as a facilitator and advocates for sustainability within its network.

GBDI-14: The report provides information on sponsoring facilities harmonious with the environment: restoring and preserving heritage buildings/structures and cash or non-cash contributions to beautifying cities or villages through tree plantation.

Such sponsorships can bolster neighborhood welfare and elevate the bank's reputation. Research indicates that the connection between CSR and sponsorship may be classified as the utilization of marketing strategies and mix elements to capitalize on the relationship between the sponsor and the sponsored entity (Weeks et al., 2008). The environmental aspect of CSR has become increasingly significant as stakeholders demand that sponsors engage in efforts to mitigate climate change and reduce their carbon footprint (McCullough, 2015). Consequently, the sponsorship of environmental initiatives within a CSR linkage strategy may be more pertinent and attractive to sponsors. Organizations that regularly communicate their environmental corporate social responsibility initiatives often showcase efforts aimed at either enhancing the environment (e.g., planting trees in arid regions for ecological advantages) or mitigating environmental damage (e.g., safeguarding trees from deforestation) (Ku et al., 2012). Uhrich et al. (2014) and Flöter et al. (2016) discovered that sponsorship associated with corporate social responsibility (CSR) enhances individuals' perception of the sponsor brand's CSR, thereby augmenting brand credibility and fostering a favorable attitude towards the sponsor, mediated by the activation of persuasion knowledge and the sponsor's CSR perception. The GBDI-14 underscores the banks' function as stewards of environmental responsibility and dedication to sustainable operations. It evaluates the extent to which banks support historic restoration and preservation initiatives, safeguarding cultural sites. The bank's active involvement in conservation, cultural preservation, and community enhancement benefits local communities, showcasing its commitment to corporate social responsibility and sustainable practices.

GBDI-15: The report provides information about the establishment of a climate change fund.

GBDI-15 emphasizes the bank's dedication to climate change by creating a climate change fund that offers financial assistance for initiatives aimed at lowering emissions, improving resilience, and fostering environmental sustainability. This proactive measure by banks directs resources to tackle climate-related issues. International agreements have identified two strategies for combating climate change: (1) mitigation (diminishing the sources or augmenting the sinks of greenhouse gases) and (2) adaptation (addressing the impacts of climate change) (Locatelli et al., 2016). There exists a distinction between adaptation and mitigation in the financial resources allocated to assist developing nations in addressing climate change (Illman et al., 2013). A climate change fund is generally established to finance projects and efforts designed to mitigate the effects of climate change and adapt to its consequences. International climate discussions have been committed to mobilizing $100 billion annually for developing nations to implement climate initiatives. Funding is anticipated to originate from affluent nations through bilateral, regional, and multilateral avenues, in addition to private funds generated by public initiatives (UN, 2023). Buchner et al. (2013) assert that bilateral financial institutions and multilateral development banks supply the predominant portion of public funding for climate change initiatives. Five notable funding avenues for climate change adaptation exist. The World Bank's Pilot Program for Climate Resilience, the European Commission's Global Climate Change Alliance, the United

Nations Framework Convention on Climate Change's Adaptation Fund, the Global Environmental Fund, and the Green Climate Fund. Through the establishment of a climate change fund, banks exhibit dedication to environmental sustainability, endorse climate initiatives, and integrate with corporate social responsibility and sustainability objectives.

GBDI-16: The report provides information about setting up green branches.

GBDI-16 underscores the bank's commitment to environmental sustainability through the establishment of green branches. These branches exemplify eco-friendly and sustainable practices in the banking industry. Their efforts diminish the bank's environmental impact and simultaneously enhance awareness, serving as a model for customers and the wider community. A green branch should optimize natural light, utilize renewable energy sources, implement energy-efficient bulbs and equipment, reduce water and electricity consumption, and recycle water, among other practices. This can occur in various ways, such as utilizing online banking as an alternative to branch banking for the payment of online bills rather than submitting them at banks (Prabhu, 2021). A 'Green Branch' refers to a bank branch that has been specifically designated as such (Lalon, 2015). Green branches are structured to comply with or surpass environmental certification standards, including LEED, indicating a dedication to superior environmental performance. Establishing green branches represents an investment in sustainability and serves as a strategic initiative that benefits stakeholders, the community, and the environment, demonstrating the bank's commitment to environmentally responsible practices.

GBDI-17: The report provides information about internalizing green marketing initiatives, such as "Plant a Tree, Save the Environment," on its letterhead and in other internal communication media.

GBDI-17 assesses the extent to which the bank has integrated environmental messages into its communications. Internalizing green marketing serves to enhance environmental awareness and exhibit the organization's dedication to sustainability. Internal marketing aligns employees with the company's mission and operations, fostering a positive brand image that can influence customer experience. Hadi & Budi (2022); Nguyen & Nguyen (2018) found that an improved green brand image of the bank will increase consumer purchasing intention (Hadi & Budi, 2022; Nguyen & Nguyen, 2018). The American Marketing Association (AMA) identifies three essential elements of green marketing: commerce, social marketing, and environmental considerations. Environmental consciousness and ecological advocacy are the factors in the green marketing strategy (Boztepe, 2012). This metric evaluates whether a bank's marketing integrates environmental consciousness. Integrating such words into stationery and internal communications effectively illustrates the bank's dedication to sustainability and promotes the adoption of eco-friendly practices among workers. It urges banks to advocate for green initiatives via internal channels, cultivating a culture of environmental accountability and sustainability.

GBDI-18: The report provides information on the bank's initiatives and engagement to train its employees regarding the green movement, such as education programs, and encourages them to actively participate in green operations.

GBDI-18 underscores the bank's dedication to cultivating a culture of environmental stewardship and sustainability among its workforces. The environmental impact of an organization is influenced by its institutional setting (Bryant et al., 2020) and supply chain (Ghadge et al., 2020). The efficacy of strategic initiatives depends on the collaborative effort and the aggregate behaviors of the employees (Carmeli et al., 2017; Strauss et al., 2017). A culture that endorses the green movement is likely to yield improved outcomes and, potentially through self-selection, attract personnel who are also more supportive of the green movement (Hartman et al., 2009). Consequently, GBDI-18 emphasizes the necessity of enhancing environmental consciousness among personnel. Through the provision of training and educational tools, the bank enhances employees' comprehension of the importance of sustainable practices and encourages them to embrace environmentally friendly habits in both professional and personal contexts. These programs enhance environmental sustainability and bolster the bank's reputation as a responsible and progressive institution.

GBDI-19: The report provides information on the amount of the budget allocated annually for green banking practices.

GBDI-19 assesses if the bank allocates a designated financial amount annually for green banking initiatives. This budget is allocated for various activities and initiatives aimed at promoting environmental sustainability and minimizing the bank's environmental footprint. Budget allocations for green banking practices differ across banks, with certain institutions designating substantial amounts (Islam & Das, 2013), while others exhibit inadequate funding (Shakil et al., 2014). The Bank of Bangladesh, in its capacity as the Central Bank, mandates that banks allocate a substantial portion of their annual budget for green banking initiatives and establish a specialized green banking unit. Annual budgets must allocate substantial funds for green banking, encompassing provisions for green finance, a climate risk fund, and expenses related to marketing, training, and capacity building (Aubhi, 2016). The allocation of budgets for green banking is typically integrated into a bank's sustainability and corporate social responsibility initiatives, with specific distributions differing according to strategic priorities and industry emphasis. GBDI-19 promotes the allocation of funds by banks towards green practices, thereby enhancing their social responsibility and supporting overarching environmental and sustainability objectives. This prompts banks to systematically disclose their financial commitments.

GBDI-20: The report provides information on the actual amount spent on different green banking activities.

This pertains to the GBDI-19 indicator, which influences bank budget allocations for sustainable banking practices. The GBDI-20 indicator denotes the degree of accountability in budget allocation. The expenditure by banks on various green banking initiatives differs, with certain research suggesting a substantial deployment of resources (Aubhi, 2016; Islam & Das, 2013). Nonetheless, the country's general contentment with green banking methods is still low (Islam & Das, 2013). GBDI-20 assesses banks' expenditure on environmentally sustainable banking initiatives, fostering openness and accountability. It may encompass financial allocations for Sustainable Lending, Operational Sustainability, Employee Training, Marketing, Technology Investments, etc. The fundamental elements of GBDI-20 are openness and accountability,

highlighting the necessity of monitoring and documenting banks' financial obligations to green banking projects. This promotes transparency among banks regarding their green banking strategies.

GBDI-21: The annual report should incorporate separate pages for green banking reporting.

GBDI-21 suggests that the bank includes a distinct and dedicated section in its annual report for green banking reporting. This section is specifically allocated for detailing the bank's environmental and sustainability initiatives, activities, and performance so that stakeholders can easily access and understand the bank's contribution to environmental conservation and responsible banking practices. There is a need for a separate conceptual framework for environmental accounting and reporting in the financial sector (Masud et al., 2017). In Indonesia, the Financial Services Authority Regulation (POJK) No. 51/POJK.03/2017 says that financial service institutions, issuers, and public companies must use sustainable finance. The sustainability report, which is presented separately from the annual report, includes information about social and environmental responsibility. Thus, according to this policy, banks in Indonesia should have issued reports related to sustainable activities such as green banking that are separate from their annual reports. By using separate pages for green banking reporting, the bank can effectively communicate its environmental initiatives, successes, and strategies to stakeholders, reinforcing its commitment to sustainability and responsible banking practices. Research provides evidence that sustainability reports get a higher response than integrated reports (Permatasari & Narsa, 2022). Therefore, GBDI-21 reinforces the importance of transparency and accountability in green banking reporting.

The discussion allows us to formulate a concise description that encompasses the indicators inside the Green Banking Disclosure Index (GBDI), as illustrated in Figure 5.

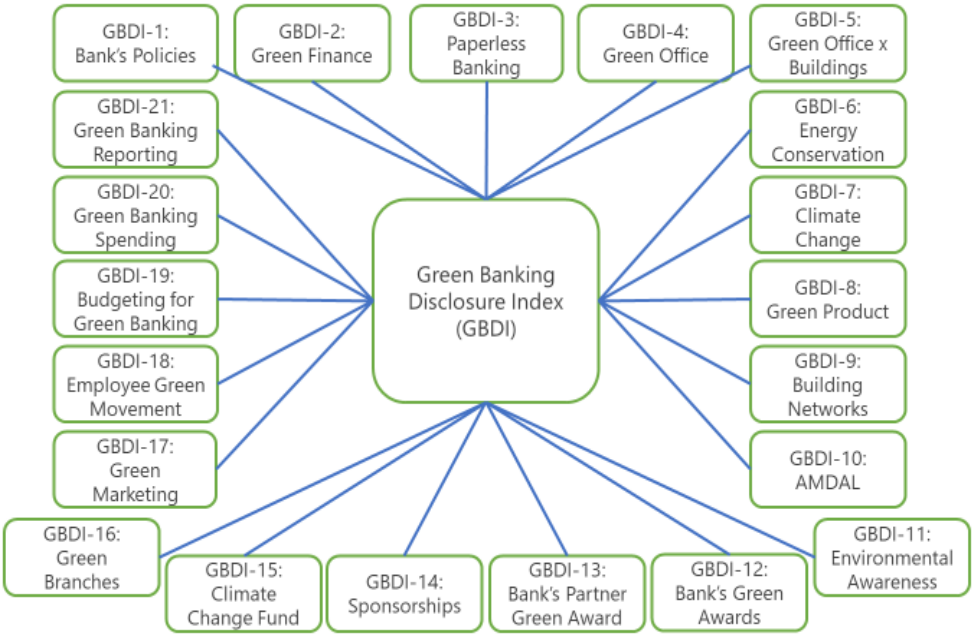

Figure 4. Brief Definition of 21 Indicators of Green Banking Disclosure Index (GBDI)

IV. Results and Discussions

GBDI into The Jeucken's Typology

This study aims to classify the 21 GBDI indicators established by Bose et al. (2018) according to Jeucken's typology of Banking and Sustainable Development. Consequently:

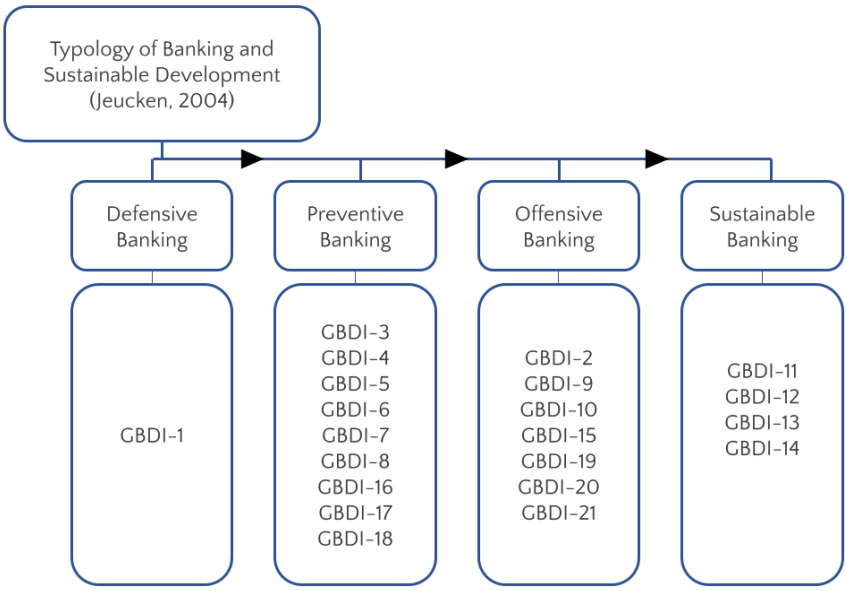

Figure 5. GBDI on The Typology of Banking and Sustainable Development

Where Do the Six Islamic Banks Stand According to The Jeucken's Typology?

Table 2. outlines the technique employed in this study to gather data from reports for the evaluation of green banking performance, utilizing the GBDI indicators. This investigation found disclosed data pertinent to GBDI, as illustrated in the example columns. This study uses content analysis to assess the information supplied by banks in their reports.

Consequently, data from 2017 to 2021 indicates that the six banks have consistently increased their disclosure of green banking activities, demonstrating their ongoing commitment to advancing sustainable development. The conclusion of this study emphasizes 2021 as the most recent data derived from bank reporting. GBDI-1 indicates that all banks have communicated their initiatives and policies regarding the preservation of the natural environment. It can be concluded that they have experienced a period characterized by defensive banking practices. Upon examining the GBDI-3 to GBDI-8 and GBDI-18, it is evident that the average identified for these indices exceeds 90 percent. It is noteworthy that GBDI-16 and GBDI-17 have been classified as low. The current status indicates that the phase of preventive banking remains incomplete, suggesting that banks continue to operate within this phase. These banks have indicated a necessity for sustainability in their credit and investment practices, as highlighted by GBDI-2 and GBDI-10. Their annual reports on sustainability-related green banking activities are evident in the GBDI-19 to GBDI-21 documentation. This indicates that these banks have begun transitioning to

the subsequent phase, characterized by offensive banking strategies. The remaining indexes, including GBDI-9, GBDI-15, and GBDI-11 through GBDI-14, are categorized as low, with values under 25 percent or nearly zero. It appears that they may not be adequately prepared to transition into fully sustainable banks at this time.

Table 2. Data Extracted from Samples

No	Sample	Description	Reports Available (2017-2021)	Key Data Extracted	Example
1	Bank Muamalat	The first Islamic bank in Indonesia	• [5] Sustainability Report 2017-2021 • [5] Annual Report 2017-2021	Specific metrics disclosed related to GBDI	GBDI 3 (Paperless Banking); GBDI 8 (Green Product).
2	Bank Panin Dubai Syariah	A bank that owns Dubai Islamic Bank as a shareholder	• [2] Sustainability Report 2020-2021 • [5] Annual Report 2017-2021	Specific metrics disclosed related to GBDI	GBDI 2 (Green Finance)

3	Bank Aladin Syariah	The first purely digital bank in Indonesia	• [1] Sustainability Report 2021 • [5] Annual Report 2017-2021	Specific metrics disclosed related to GBDI	GBDI 1 (Bank's Policies) Aladin STRATEGI KEBERLANJUTAN [1] SUSTAINABILITY STRATEGY [1] KERANGKA KERJA DAN STRATEGI KEBERLANJUTAN SUSTAINABILITY FRAMEWORK AND STRATEGY Business Focus: Retail Banking SME Financing
4	Bank Aceh	A special regional Islamic bank in Aceh Province	• [5] Sustainability Report 2017-2021 • [5] Annual Report 2017-2021	Specific metrics disclosed related to GBDI	GBDI 4 (Green Office); GBDI 14 (Sponsorships) Kinerja Lingkungan Environment Performance 1. Pelestarian Lingkungan 1. Conservation Environment Pengelolaan Penggunaan Energi [G4-EN3] Green Office , Pengelolaan Penggunaan Air [G4-EN27] [G4-EN3]

5	BTPN Syariah	The only one, bank for financial inclusion	• [3] Sustainability Report 2019-2021 • [5] Annual Report 2017-2021	Specific metrics disclosed related to GBDI

GBDI 5 (Green Building); GBDI 9 (Building Networks)

Berikut adalah ringkasan berdasarkan mitra kerjasama

Mitra Kerjasama	Jumlah Titik
Aisyiyah-Muhammadiyah	2
Dompet Dhuafa	298
Fatayat NU	86
Lakoesdam NU	103
PKPU-Human Initiative	96
Waste4Change	16
WWF	39
YPKKB	11
Total	651

Di samping itu dilaksanakan juga pemilahan sampah yang bekerja sama dengan WWF dan Earth Hour dimana program tersebut melibatkan 60 sahabat daya dan berhasil mengumpulkan 590 kg sampah.

6	Bank Mega Syariah	A bank under the CT Corp Group	• [2] Sustainability Report 2020-2021 • [5] Annual Report 2017-2021	Specific metrics disclosed related to GBDI	GBDI 17 (Green Marketing); GBDI 18 (Employee Green Movement) Selanjutnya untuk contoh kampanye keberlanjutan dilakukan melalui kalender dengan tema penghematan sumber daya maupun kepedulian terhadap lingkungan, sebagai berikut: Pada pertengahan 2021, Pandemi Covid-19 di Indonesia telah memasuki gelombang kedua. Berbeda Selanjutnya, sebagai bentuk program peningkatan kapasitas intern di lingkungan Bank Mega Syariah maka telah dilaksanakan pelatihan keuangan berkelanjutan yang diselenggarakan pada awal Juni 2021 yang turut dihadiri oleh seluruh Direksi, Kepala Divisi, dan Kepala Department. Selain itu, untuk beberapa program terkait kampanye *awareness* kepada karyawan sudah sempat dijalankan, di antaranya melalui aktivitas *training* Service Excellence yang juga membahas terkait kepedulian lingkungan di dalam sesi materinya. Selain itu kampanye juga dilakukan melalui penggunaan screen desktop dan juga kalender yang bertemakan kepedulian lingkungan. Sebagai contoh kampanye melalui screen desktop, setiap karyawan diwajibkan untuk memasang gambar yang mengkampanyekan terkait penghematan sumber daya maupun kepedulian terhadap lingkungan, sebagaimana sebagai berikut:

Source: Author

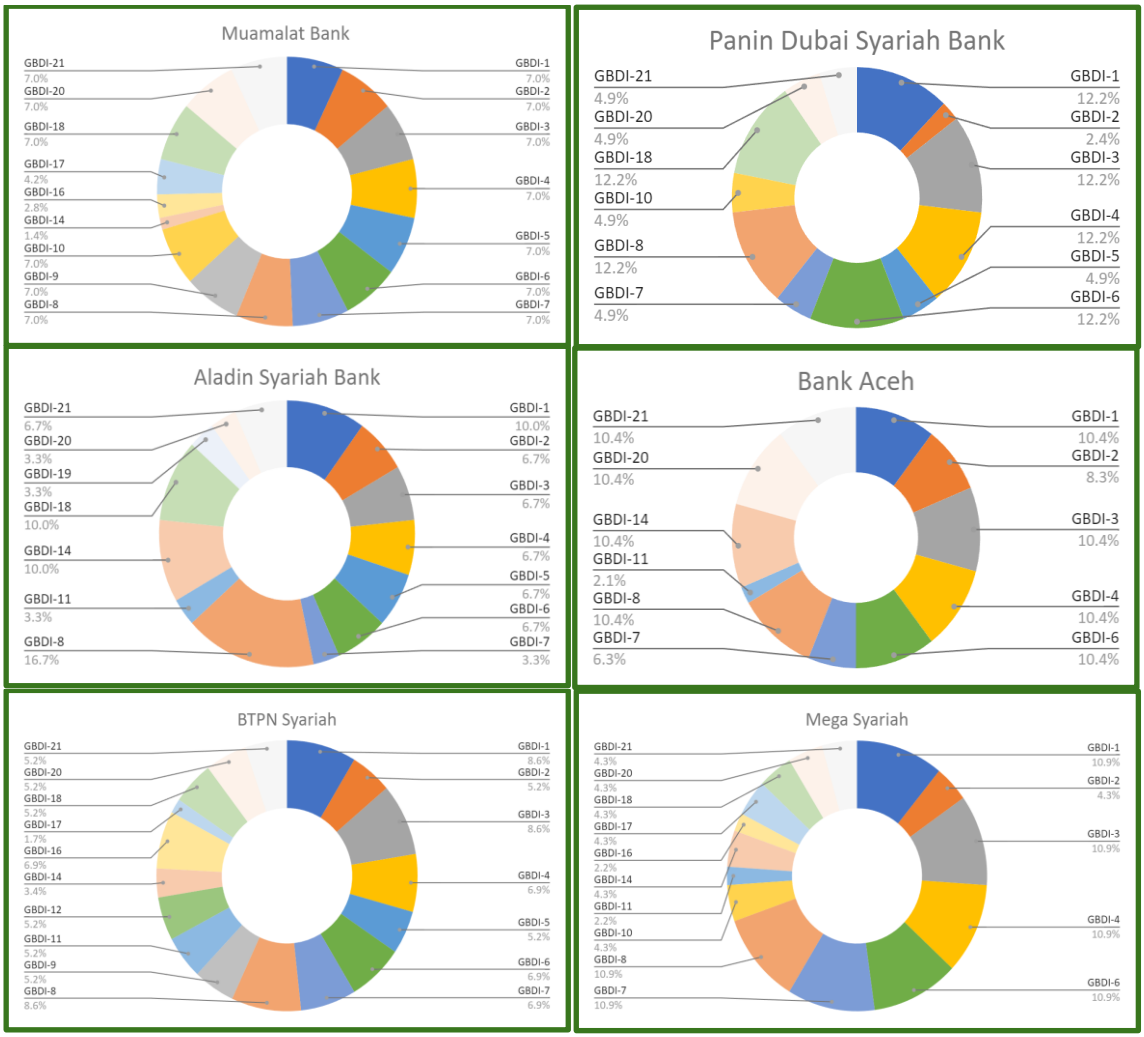

Figure 6. GBDI Results at Each Islamic Banks in 5 Years

Over a span of 5 years, Figure 6 presents data on the GBDI indices reported by each bank from 2017 to 2021. Bank Muamalat, recognized as the first Islamic bank in Indonesia, has revealed a total of 16 indexes. Based on Jeucken's typology, it is positioned within the phase of offensive banking. Bank Panin Dubai Syariah, which has Dubai Islamic Bank as a shareholder, has revealed a total of 12 indexes and is currently operating in the preventive banking phase. Bank Aladdin Syariah, recognized as the first fully digital bank in Indonesia, has revealed 14 indexes and is currently operating in the preventive banking phase. Bank Aceh, a specialized regional Islamic bank in Aceh Province, has revealed a total of 11 indexes and is currently operating in the preventive banking phase. BTPN Syariah, recognized as the sole bank dedicated to financial inclusion, has revealed 17 indexes and is currently operating in the offensive banking phase. Bank Mega Syariah, part of the CT Corp Group, which operates across a broad spectrum of sectors including finance, retail, media, and transportation, has revealed 15 indexes and is currently in the preventive banking phase.

V. Conclusion and Recommendation

Green banking practices significantly contribute to the advancement of sustainable development. The green banking disclosure indicators established by Bose et al. (2018) effectively characterize and quantify a bank's capacity and efforts in integrating and executing green banking practices within its operational framework. The alignment of these indicators with the values of the Sustainable Development Goals is evident. Jeucken's (2004) typology identifies four distinct phases in the evolution of sustainable banking: (1) defensive banking; (2) preventive banking; (3) offensive banking; and (4) sustainable banking. According to recent GBDI identification results, only two out of six Islamic banks are currently in the offensive banking phase, while the remaining four are positioned in the preventive banking phase. The organization is progressing with the initiative to integrate sustainability into their internal banking operations. These banks have incorporated sustainability criteria into their environmentally and socially responsible credit and investment risk management practices and have also documented their activities related to green banking. From this perspective, it is logical to assert that banks have initiated the transition process to advance to the next phase.

The limitations of the study are characterized by a small sample size, comprising only six Islamic banks that have accessible sustainability reports, which may not fully encapsulate the sector as a whole. The analysis is confined to recent years, potentially failing to capture long-term trends effectively. Certain elements of green banking might be neglected because of the subjective nature of content analysis and reliance on the GBDI framework. Additionally, the research might only offer a fixed viewpoint on existing practices and fail to reflect ongoing developments.

It is essential for practitioners to improve green banking practices through the incorporation of sustainability criteria across all banking operations. This approach should promote innovation and collaboration, while also ensuring the regular disclosure of green banking performance through standardized indicators, such as those established by Bose et al. (2018). It is essential for regulators to create precise guidelines and frameworks, ensure adherence to these standards, and engage with stakeholders to formulate nationally standardized reporting metrics. This study, while offering practical and theoretical insights, has notable limitations that require attention in future research endeavors. This research is fundamentally based on a comprehensive review of the reports from Islamic banks. Future empirical studies employing quantitative methods will provide detailed and statistical insights into the role of Islamic banks in fostering economic growth. Secondly, we propose that future research employs the Analytical Network Process (ANP) to evaluate the sustainability of Islamic banks, taking into account their challenges, solutions, and issues. This process engages practitioners and experts, and the findings of the study may significantly improve the initiatives of Islamic banks in fostering economic sustainability.

Author Contributions

Conceptualization, D. R. W., S. H. H., & I. S.; Literature review, D. R. W., S. H. H., & I. S.; Methodology, D. R. W. & S. H. H.; Investigation, S. H. H., & I. S.; Analysis, D. R. W., S. H. H., & I. S.; Original draft preparation, S. H. H., & I. S.; Review and editing, S. H. H., & I. S.; Visualization, S. H. H.; Project administration, S. H. H.

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Conflicts of Interest

The authors declare no conflicts of interest regarding this research.

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