

Implementation of Green Banking at PT Bank Mandiri (Persero) Tbk

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Abstract

The issue of environmental damage is an issue that is impossible to avoid by any industry that is running a business. The banking sector plays an active role in helping to overcome even more severe environmental damage. No exception in Indonesia, the government through its regulators already has regulations that must be obeyed by all banks that carry out their operations in Indonesia. The purpose of this study was to determine the implementation of green banking at PT Bank Mandiri (TBK). This research method is descriptive qualitative analysis and literature study using secondary data in the form of annual Sustainability Reports. The results showed that PT Bank Mandiri (TBK) has successfully implemented Green Banking implementation in all aspects of its business for the past 3 years, both in terms of company operations and products related to "Green" and Sustainable aspects by contributing to sustainable financial products and services, and is committed to supporting government efforts in the transition to a low-carbon economy.

Keywords: green banking, green finance, climate change, literature review, bank mandiri

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1. Introduction

Environmental problems triggered by exploitative activities on the environment carried out by humans are getting worse every day if left unchecked. The escalating constraints on resource availability and the grave consequences of environmental pollution have elevated the significance of sustainable resource utilization and environmental conservation to a matter of global concern (Wang et al., 2021). Of all the economic sectors, manufacturing is the most significant source of climate change, water pollution, air pollution, and waste (Rehman et al. 2021). Environmental damage caused by industrial activities since the Industrial Revolution is a serious global problem in the world. Various environmental policies and regulations have been implemented in recent decades to ameliorate these environmental impacts (Chen, 2011).

Most losses associated with climate finance relate to transition risks resulting from uncertainties in the technological, political and policy environments. However, losses can also result from physical damage caused by climate-related events (Edmans and Kacperczyk, 2022). Environmental damage in every country inevitably affects the economic life of a country. Therefore, nowadays all industries attach great importance to issues related to the environment. Environmental issues are increasingly important to the manufacturing industry as decision makers face increasing public sensitivity, increasingly stringent environmental regulations, and growing shareholder pressure to preserve the natural environment (Leonidou, 2013). Green securities, green investments, climate finance, carbon finance, green insurance, green credit, and green infrastructure bonds as part of the main green financial products from banks. The determinants found in this study that influence banks' green finance policies include environmental and climate change policies, interest rates, religion, risk, social inclusion and social justice, and banking regulations (Frimpong, 2020).

The banking sector actively contributes to reduce the impact of damage to the environment. A diverse range of actors, encompassing banks, institutional investors, research institutions, public institutions, central banks, financial regulators, international financial institutions, and universities, are collaboratively advancing the growth and development of green finance (Berensmann and Lindenberg, 2016). As key economic intermediaries, banks facilitate the flow of capital between savers and borrowers. Their product offerings include savings vehicles, loan products, investment options, financial advisory services, payment solutions, guarantees, and real estate holdings and trusts. These core activities generate two main sources of income, namely interest income and fee income (Bouma, 2001). Banks play an active role in maintaining sustainability by developing products or running company operations with due regard to Environmental Impact Assessment (EIA).

Organizations and consumers have understood the importance of the environment for human survival, especially in the business community, which has an obligation to integrate environmental protection in its business operations. The banking industry must now consider environmental aspects in its behavior and operations, namely green banking (Khodijah, Fasa and Suharto, 2023). The implementation of green banking in Indonesia's banking sector will inevitably face numerous challenges. Green investments are difficult to make in Asian country for many reasons. Factors impeding the growth of green finance include: challenging investment conditions, an unfavorable regulatory and legal environment, inconsistencies in policy implementation, cumbersome licensing procedures, limited awareness of environmental and climate risks, a deficiency in staff training for assessing such risks within the financial industry, a shortage of staff with expertise in green lending, a scarcity of viable investment projects, inadequate environmental risk analysis, and insufficient disclosure requirements pertaining to environmental, social, and governance factors (Volz, 2018).

The Indonesian Financial Services Authority (OJK), as an independent state institution that functions to organize an integrated regulatory and supervisory system for all activities in the financial services sector, plays an active role in encouraging the implementation of green banking in Indonesia through a series of comprehensive regulations and initiatives. As reported on the OJK website (OJK: 2023), this effort aims to create a sustainable financial sector and support environmentally friendly development. The development of these regulations and initiatives demonstrates OJK's commitment to sustainability issues and adaptation to global developments. As one of the banks operating in Indonesia, PT Bank Mandiri (TBK) has implemented and implemented the policies issued by OJK and Bank Indonesia regarding the application of economic sustainability in its operations and products.

Bank Mandiri is the bank with the largest assets in Indonesia through 2023 with total assets of Rp2,258 trillion (CNBC: 2024). Bank Mandiri was formed as part of the government's banking restructuring efforts following the Asian economic crisis in 1997. The bank was formed through the merger of four government-owned banks, namely Bank Bumi Daya (BBD), Bank Dagang Negara (BDN), Bank Ekspor Impor Indonesia (Exim Bank), and Bank Pembangunan Indonesia (Bapindo). The purpose of this merger process was to strengthen the banking sector, which was under severe pressure during the crisis. Following the merger, Bank Mandiri modernized its operational systems and developed products and services to meet the increasingly diverse needs of its customers. Today, Bank Mandiri has grown into one of the leading financial institutions in Indonesia, offering a wide range of services from retail, corporate, micro, to sharia banking (Bank Mandiri, 2023).

Bank Mandiri has made sustainability an integral part of its business strategy, with a strong commitment to the United Nation Sustainable Development Goals (UN-SDGs). Through sustainable financial products and services, Bank Mandiri contributes to the SDGs targets and acts as a government partner in the transition to an equitable low carbon economy. This commitment is reflected in our support for the achievement of the SDGs, ENDC targets, and Indonesia's Net Zero Emission vision. Bank Mandiri also strives to implement sustainability practices and ethics in accordance with its vision and mission, and develop financing that is aligned with relevant regulations (Bank Mandiri, 2023).

Based on the background of the problems described above, the author is interested in exploring and examining the application of Green Financing at Bank Mandiri in Indonesia.

2. Literature Review

"*2.1 Green Finance*

Green Finance prioritizes environmentally sustainable businesses and energy-efficient industries by providing preferential financing. It encourages and supports the development of environmental infrastructure, including renewable energy projects, clean water supply systems, wastewater treatment facilities, solid waste and hazardous waste disposal plants, biogas plants, and biofertilizer production facilities. Consumer loan programs can be implemented to promote environmental practices among customers (Lalon, 2015). For green economists, equity and justice are at the core of what we do and take precedence over considerations such as efficiency. Many contributors to the green economy have a history of working in development economics, and those without a history of working in development economics share a concern for building an international economy that looks after the interests of all the world's people equally (Cato, 2012). In short, green finance is the financing of environmentally friendly activities, green technologies and projects that reduce pollution (Bahl 2012).

The environmental impacts generated from banking consist of internal impacts and external impacts. While banks exhibit a relatively low internal environmental impact due to limited energy, water, and paper consumption compared to other sectors, their overall size necessitates consideration of their environmental footprint.

Externally, the environmental impact of banking products is indirect. Unlike other industries that directly pollute, banks' environmental impact stems from the activities of their customers who utilize their products. This indirect impact makes it difficult to quantify the environmental consequences of a bank's external operations. Moreover, until recently, banks felt that external environmental concerns would require interference in the activities of their clients (Bouma, 2001).

The application of green finance in banking sector, although now commonly applied, still has some barriers. Despite its potential to significantly benefit the environment, society, and climate change mitigation efforts, the growth of green finance is hindered by several challenges. These include a lack of public awareness, inconsistent definitions of green finance, a lack of coordinated policy support, inconsistent policy implementation across sectors, and inadequate incentives for investors and financial institutions willing to invest in climate solutions (Ozili, 2022). The primary objective of green finance is to enhance the flow of capital from financial institutions to economic actors engaged in projects and activities that promote environmental conservation and contribute to the realization of sustainable development goals (Lee and Baral, 2017; Force, 2015). It is becoming increasingly common to refer to 'green' banking products as 'traditional' financial products, services or instruments can be 'green' if they are used to raise funds to be used for environmentally friendly investments, projects or activities (Li et al, 2018).

The challenges of implementing green finance are according to Berensmann and Lindenberg (2016) who identified several microeconomic challenges in green finance. Obstacles to the growth of green finance include: the difficulty of incorporating environmental costs into economic decision-making, information asymmetries between investors and borrowers, insufficient analytical capabilities within the financial sector, a lack of clear definitions for "green" within the context of finance, mismatches between short-term financing needs and the long-term nature of green investments, the short-term investment horizons of most savers and investors, inadequate coordination between financial and environmental policies, and a lack of clarity regarding the level of government support for the transition to a green economy.

The concept of green banking is closely related to the term green finance. Green finance refers to loans provided by financial institutions to borrowers, on the condition that they do not negatively impact the quality of the environment or the social conditions of the community. However, green banking does not only focus on the financial aspect rather, it also includes various programs that aim to protect the environment. (Khodijah, Fasa and Suharto, 2023).

2.2 Green Banking Regulation in Indonesia

Adapted from the official OJK website (OJK: 2023), as an independent state institution, the Financial Services Authority (OJK) organizes an integrated regulatory and supervisory system for all activities in the financial services sector. Previously, the financial sector supervision function was divided among various institutions in Indonesia. In this context, OJK plays an important role in promoting sustainable finance. With a strategic responsibility, OJK is involved in the development and implementation of green banking in Indonesia, ranging from drafting regulations, supervision, to education and socialization. Regulations related to green banking in Indonesia continue to evolve in line with the increasing awareness of the importance of sustainability.

Here are some important regulations that serve as the foundation for the implementation of green banking in Indonesia:

- Bank of Indonesia Regulation (PBI) No. 7/2/PBI/2005 on Asset Quality Assessment of Commercial Banks and Bank Indonesia Circular Letter (SEBI) No. 7/3/DPNP dated January 31, 2005. These regulations emphasize how important it is for commercial banks to pay attention to the efforts made by debtors in protecting the environment, especially in the assessment of asset quality. Thus, this is the initial basis for banks to consider environmental aspects in the credit granting process.
- Bank of Indonesia Regulation (PBI) No. 14/22/PBI/2012 and its revision, PBI No. 17/12/PBI/2015. This regulation requires banks to facilitate access to credit for Micro, Small and Medium Enterprises (MSMEs) by setting a minimum portion of 20% of the total loan portfolio starting in 2018. This regulation provides encouragement for real sector financing that has the potential to support environmentally friendly activities, particularly related to MSMEs.
- POJK Number 51/POJK.03/2017 on the Implementation of Sustainable Finance for Financial Services Institutions, Issuers, and Public Companies. This POJK is the most comprehensive legal basis on sustainable finance in Indonesia. It requires Financial Services Institutions, including banks, Issuers and

Public Companies to adopt the principles of sustainable finance covering various environmental aspects. In addition, this POJK also regulates the preparation of sustainability reports.

- POJK Number 60/POJK.04/2017 regarding the Issuance and Requirements of Green Bond Securities. This POJK was issued in response to the increasing need for financing for environmentally sound projects that support sustainable development. This clear regulation is expected to facilitate the issuance of green bonds in Indonesia and expand access to financing for environmentally friendly projects.
- Indonesia Sustainable Finance Roadmap Phase 1 (2015-2019) and Phase 2 (2021-2025). This roadmap sets out the direction and steps to implement sustainable finance in Indonesia, including green banking practices. This document will be continuously updated to keep it relevant to the latest developments.
- Launch of the Indonesia Carbon Exchange and issuance of several regulations by OJK in 2023 which include: OJK Regulation No. 14 of 2023 on Carbon Trading through Carbon Exchanges, OJK Regulation No. 17 of 2023 on the Implementation of Governance for Commercial Banks, specifically on climate risk, and OJK Regulation No. 18 of 2023 on the Issuance and Requirements for Sustainable Asset-Backed Securities-Based Bonds and Sukuk.
- OJK launched the Taxonomy for Indonesian Sustainability Finance (TKBI) in 2024. TKBI classifies economic activities that support Indonesia's Sustainable Development Goals, covering economic, environmental and social aspects. TKBI Can be identified as a sustainable activity Enhance reputation Attract more international capital and financing.
- OJK Develop Climate Risk Management & Scenario Analysis (CRMS) by 2024 for banks and risk-based supervisory guidelines for supervisors in order to implement climate-related financial risks.
- Law No. 32/2009 on Environmental Protection and Management. This law provides a comprehensive legal basis for environmental protection in Indonesia, as well as a framework for green banking regulation.
- Government Regulations and Ministerial Regulations related to the environment. Various government regulations and ministerial regulations governing the Environmental Impact Analysis, waste management, as well as other environmental aspects, are also very relevant in implementing the concept of green banking.

2.3 Bank Mandiri

According to Bank Mandiri's official website (Bank Mandiri: 2023), Bank Mandiri was formed as part of the banking sector restructuring efforts following the Asian monetary crisis in the late 1990s, the Indonesian government established Bank Mandiri. The establishment was formalized on October 2, 1998 through Government Regulation No. 75 of 1998 by merging four state-owned banks, namely Bank Bumi Daya (BBD), Bank Dagang Negara (BDN), Bank Ekspor Impor Indonesia (Exim Bank), and Bank Pembangunan Indonesia (Bapindo). Bank Mandiri's operations began in July 1999, after almost all the shares of the four banks were transferred to Bank Mandiri, complemented by an injection of funds from the government. The main objective was to establish a more solid, efficient and competitive financial institution in the regional and international arena, and to make a positive contribution to Indonesia's economic growth.

Bank Mandiri is one of the largest State-Owned Enterprises in the banking sector in Indonesia, based on asset size. With more than 37,000 dedicated employees, we serve the needs of businesses and individuals across the archipelago through a wide range of financial products and services. For more than 25 years, Bank Mandiri has contributed to Indonesia's development through a variety of lending, mortgage, transaction services, savings and investment products, including the financing of national development projects. Bank Mandiri was formally established based on Deed No. 10 made on October 2, 1998 before notary Sutjipto, S. H. This establishment was also approved by the Minister of Justice of the Republic of Indonesia, under number C2-16561. ht. 01. 01th 98, dated October 2, 1998, and announced in the State Gazette of the Republic of Indonesia No. 97 on December 4, 1998, as well as additional State Gazette of the Republic of Indonesia No. 6859 (Bank Mandiri, 2023).

Bank Mandiri has a noble vision to prosper the country. In the long term period of 2020 to 2024, the bank is committed to be your preferred financial partner. “This vision emphasizes Bank Mandiri's commitment to building long-term relationships based on trust, both with business and individual customers. By promoting services that meet international standards, Bank Mandiri strives to provide innovative financial solutions for all its customers. The bank wants to be recognized for its superior performance, quality human resources and solid teamwork. In addition, Bank Mandiri plays an active role in driving Indonesia's long-term growth, while continuing to provide high returns for its shareholders.

Bank Mandiri affirms its solid commitment to support sustainable development in Indonesia, while making a positive impact on society. In addition to providing financial services, Bank Mandiri plays an active role in achieving the development agenda through the implementation of sustainable social and environmental responsibility. This commitment is an integral part of our efforts to create value for all stakeholders. As of December 31, 2023, Bank Mandiri's shareholding composition consists of 52% owned by the Government of the Republic of Indonesia and 48% owned by the public, consisting of 8% owned by individuals in Indonesia, 5% local institutions, 1.4% local retail investors, and 33.6% foreign ownership (Bank Mandiri, 2023).

Bank Mandiri is strongly committed to supporting the achievement of the United Nations Sustainable Development Agenda (UN-SDGs), with the aim that no one will be left behind in development by 2030. Through financial products and services, as well as social and environmental responsibility activities, the Company contributes directly and indirectly to the 17 UN-SDGs targets, which have been integrated in Bank Mandiri's Sustainability Strategy. Significant contributions to the UN-SDGs through financial products and services based on sustainable finance focus on several targets, among others: Sustainable Cities and Settlements, Good Wellbeing, Quality Education, and Poverty Eradication and Decent Work for Economic Growth.

Bank Mandiri is committed to implementing sustainable finance principles in line with Environmental, Social and Governance (ESG) aspects and believes that sustainable finance is indispensable to creating a low carbon and equitable economy. In this regard, Bank Mandiri plays a role as a government partner and agent of change, striving to have a positive impact on society. This sustainable finance approach supports the Bank's efforts in achieving sustainable business growth. Bank Mandiri's commitment is also reflected in its support for the achievement of Sustainable Development Goals (SDGs) and Enhanced Nationally Determined Contribution (ENDC) targets, to realize Net Zero Emission (NZE) in Indonesia by 2060 or even sooner.

Bank Mandiri is committed to implementing sustainability practices and ethics in line with their vision as "Your Best Financial Partner" and mission of "Seamlessly integrating our financial products and services into customers' lives through simple and fast digital banking solutions." With consistent determination, Bank Mandiri strives to achieve its sustainability vision of becoming Indonesia's Sustainability Champion for a Better Future. "With consistent determination, Bank Mandiri strives to achieve its sustainability vision to become Indonesia's Sustainability Champion for a Better Future. One of the strategic steps taken is to develop financing that complies with POJK 51/2017, the ENDC roadmap, NZE Indonesia, as well as the ESG framework that refers to best practices in this field (Bank Mandiri, 2023).

Job-shop production refers to a manufacturing environment that produces goods in small batches according to customer specifications. Usually, one or several types of products are deliverable, while the incoming orders may differ in the design, quantity, process flow, or urgency (Henrich 2005). Flexibility is allowed in terms of switching between machines, methods, and resolving problems in production. Depending on the nature of business, each of the workers hired may need to possess a certain range of skills to handle different tasks or machines, whereas the total number of workers may be adjusted in response to the varying demand. In practice, transferability of permanent workers and recruitment of temporary or contract workers will help make such adjustment feasible, thus admitting of the idea of WOZIP.

2.4 Methodology

In this study, the research method used is a type of qualitative research using a descriptive approach. Qualitative research is considered an artistic method because its execution often involves a degree of creative flexibility and less rigid structure. It is also known as an interpretive method, as the core of the research lies in the researcher's subjective interpretation of the field data (Sugiyono, 2013). The descriptive approach in research focuses on describing the characteristics of a phenomenon systematically and accurately. This approach answers the question "what" related to the phenomenon under study, not "why" (Sekaran and Bougie, 2009).

The data used in this study uses secondary data in the form of sustainability reports for the past 3 years issued by Bank Mandiri. Secondary data refers to information that can be gathered from various sources, including published records, company websites, archives, and more. This type of data often encompasses details about a company's background. Other types of written information, including company policies, procedures, and regulations, can be accessed through organizational records and documents. The data gathered from established sources are referred to as secondary data (Sekaran and Bougie, 2009).

3. Results and Discussion

Through the continuous implementation of POJK and the company's awareness to maintain its brand image as the largest banking company in Indonesia that cares about environmental issues, Bank Mandiri has played an active role in promoting sustainable economic growth by developing financial solutions that support customers in the transition to a low carbon economy and implementing responsible financing practices.

3.1. Sustainable Banking

Bank Mandiri is committed to implementing sustainable finance principles by providing comprehensive support for sustainable economic growth. This commitment is realized through synergy between economic, social and environmental aspects. In this case, the Sustainable Banking pillar becomes the foundation for the distribution of sustainable financing and funding.

Portfolio Types	**Year**		
	2021	**2022**	**2023**
Green Portfolio	-	106	129,2
Sustainable Portfolio	205,1	228,8	264,1
Social Portfolio	-	122	134,9
Total	**205,1**	**456,8**	**528,2**

Table 1. Sustainable Finance (In trillion rupiah)

3.2 Sustainable Financing

To support an economy that is balanced between financial, economic and social benefits, Bank Mandiri develops sustainable financial products and services that are appreciated by businesses and communities. Bank Mandiri's lending not only facilitates the funding of businesses oriented towards environmental protection and clean energy transition, but also contributes to the development of a low-carbon and inclusive economy. As an important part of sustainable financing, Bank Mandiri is also committed to providing financial services for MSMEs. The joint commitment of all stakeholders has led to new funding opportunities, including those based on Environmental, Social and Governance (ESG) aspects. In order to realize this, Bank Mandiri has developed a sustainable finance framework that is in line with international standards, including funding characteristics and objectives.

Types of Funding	Year		
	2021	**2022**	**2023**
Renewable Energy	4,281	6,149	9,727
Sustainable Management of Living Natural Resources and Land Use	88,537	92,956	102,413
Environmentally Friendly Transportation	2,028	3,107	3,926
Sustainable Water and Wastewater Management	1,214	0,867	1,171
Products that Can Reduce Resource Use and Produce Less Pollution (Eco-Efficient)	-	3,307	5,354
Environmentally Sound Buildings that Meet Standards/ Certifications	0,205	0,016	6,617
Other Environmentally Sound Business Activities	5,255	5,067	8,776
Micro, Small, and Medium Enterprise Activities	103,547	117,295	126,101
Total	**264,080**	**228,764**	**264,080**

Table 2. Sustainable Finance Activities (In billion rupiah)

3.3 Sustainable Fund Raising

Bank Mandiri is committed to contributing to accelerating the achievement of a low carbon economy by providing banking solutions that support environmentally friendly business practices for debtors. One of the facilities offered is the Green Facility, which is specifically designed to fund projects and initiatives that have a positive impact on the environment. This funding follows the Green Loan Principles of the Loan Market Association (LMA). This green financing plays an important role in achieving several Sustainable Development Goals (SDGs), with a focus on financing projects related to environmental and social aspects. As an institution that acts as “First Movers on Sustainable Banking” Bank Mandiri consistently raises sustainable funds, which is one of the strategic initiatives not only to strengthen the funding structure, but also to encourage more environmentally friendly development.

Between 2021 and 2023, Bank Mandiri has raised funds through various sustainable instruments, including the issuance of Bonds (Sustainability Bond and Green Bond) and Environmental, Social, and Governance (ESG) Repurchase Agreement (Repo) transactions. This step was taken to support the development of a sustainability-focused financing portfolio. In 2021, Bank Mandiri successfully issued its first Sustainability Bond and raised USD300 million. The funds are used to finance or refinance projects that have environmental and social impacts in accordance with the criteria in Bank Mandiri's Sustainability Bond Framework. Furthermore, in 2022, Bank Mandiri executed an ESG Repo transaction worth USD500 million with two partners. This transaction is an important milestone for Bank Mandiri, as it is the first ESG Repo in Indonesia and one of the leading in Southeast Asia. The funds obtained from this transaction are allocated for financing or refinancing assets that meet ESG criteria.

In 2023 Bank Mandiri actively introduced retail investment products that are in line with ESG principles. An example of this initiative is the offering of Green Sukuk Indonesia and Green Bonds, which are products issued by the Government of Indonesia based on the framework of The Republic of Indonesia Green Bond and Green Sukuk, resulting in Bank Mandiri obtaining investments from ESG Mutual fund products of Rp 17 Billion, Green Sukuk of Rp 3,047 Billion, and Green Bond of Rp 180 Billion. This year Bank Mandiri also launched two ESG-based Mutual Fund products, namely Batavia Global ESG Sharia Equity USD, which invests in issuers that focus on ESG or have a high ESG score, and the FTSE Indonesia ESG Mandiri Index Fund, which is the first mutual fund in Indonesia to use the FTSE Indonesia ESG index.

3.4 Responsible Financing Approach

In an effort to demonstrate its commitment to sustainable finance, Bank Mandiri has adopted an environmental and social risk evaluation process as part of its credit decisions. This step is taken to ensure that projects or businesses receiving financial support from Bank Mandiri comply with applicable environmental and social regulations. In addition, Bank Mandiri also actively engages in dialog with various stakeholders, such as the government, communities and businesses, to enhance mutual understanding of the importance of sustainable finance. Thus, Bank Mandiri not only functions as a financial service provider, but also as an agent of change that contributes to sustainable development in Indonesia. These actions reflect Bank Mandiri's responsibility in supporting the sustainable finance agenda in a comprehensive and sustainable manner.

3.5 Environmentally Friendly Operations

PT Bank Mandiri (TBK) has designed a strategy to reduce the carbon footprint of its operational activities, both for the medium and long term, which includes:

1. Sustainable Business Mindset
2. Measurement and monitoring of carbon emissions from operational activities
3. Implementation of carbon neutral concept, i.e. Green Operations, which includes
4. energy use efficiency, use of low emission office equipment, construction of environmentally friendly buildings, as well as Carbon Offsetting through Nature Based Solutions and purchase of carbon units.

As part of the effort to implement an environmentally friendly work culture, Bank Mandiri encourages all employees to prioritize digitalization in work processes and mechanisms. This is done through optimizing infrastructure to compile documents between work units and conducting hybrid coordination more intensively. In addition, Bank Mandiri also supports the organization of events in all work units that prioritize the use of environmentally friendly materials and products, and have a positive impact on community empowerment. These efforts include reducing the use of plastic, paper, and disposable materials, good waste management, and the involvement of Bank Mandiri's MSME partners.

Type of Operation	**Year**		
	2021	**2022**	**2023**
Energy Consumption (Gjoule)	1.780.390,41	1.616.331,35	1.640.506,582
Water Usage (m3)	576.756	636.945	702.017
Environmental Conservation Cost	Rp2.744.725.100	Rp2.155.015.195	Rp24.750.000.000
Paper Consumption (Reams)	47.466	38.178	34.126
Hazardous Waste Management (kg)	1.200	4.400	1.520

Table 3. Sustainable Operations

3.6 Emission Control from Financing Activities

PT Bank Mandiri (TBK) has become a member of the Partnership for Carbon Accounting Financials (PCAF), which offers guidance for calculating Greenhouse Gas (GHG) Emissions from financing and investment activities. Based on calculations taken from the debtor's emission report and other available data sources, it was found that emissions from Bank Mandiri's financing and investment activities reached 18.1 million tCO_2e, consisting of Loan Asset emissions of 13.5 million tCO_2e and Other Asset emissions of 4.6 million tCO_2e. The calculations made during this reporting period will continue to be improved and adjusted to the applicable standards and regulations, including data availability and quality.

4. Conclusion

PT Bank Mandiri (TBK) has contributed to sustainable financial products and services, and is committed to supporting the government's efforts in the transition to a low-carbon economy. Bank Mandiri also strives to implement sustainable practices and ethics in accordance with its vision and mission, and to develop financing that is in line with regulations issued by regulators and the Indonesian government. In carrying out operations and financing distribution, Bank Mandiri strives to carry out an Environmental Impact Analysis by paying attention to environmentally friendly policies. The implementation of Green Banking in sustainable investments and sustainable business activity category portfolios has been running as it should. However, Bank Mandiri does not have a sustainable business activity category portfolio that Prevents and Controls Pollution, Energy Efficiency and Climate Change Adaptation.

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