A Review on Green Finance Methods in the Islamic Countries and Presenting Green Finance Guidebook

A Review on Green Finance Methods in the Islamic Countries and Presenting Green Finance Guidebook

Phase 1: Experience of Selected Islamic Countries

Islamic Chamber Research and Information Center (ICRIC)

Iran Chamber of Commerce, Industries, Mines and Agriculture (ICCIMA) with cooperation of

Project Manager: Saman Ghasemi

Published in: Fall 2024

Contents

Foreword

In today's world, climate change and environmental erosion have become one of the fundamental challenges of the global economy. Population growth, excessive consumption of resources, and irresponsible industrial activities have put increasing pressure on the environment. In the face of these challenges, the concept of "green economy" has been proposed as a new and necessary approach to combine economic growth with preserving natural resources and reducing negative environmental effects.

A green economy can play a role in reducing emissions and preserving biodiversity by sustainable exploitation of renewable resources and reducing the consumption of non-renewable resources. This approach, in addition to improving the environmental situation, provides valuable opportunities to create employment, reduce poverty, and improve the quality of life in communities. Especially in sectors such as renewable energy, sustainable transportation, and smart agriculture, the green economy can lead to sustainable economic growth and social justice.

Green financing is one of the tools to achieve these goals. This type of financing is made possible by directing capital to environmentally friendly projects. Financial resources can be used in various ways, such as issuing green bonds, environmental loans, and investing in renewable energy and water resource management, and play a key role in achieving sustainable development.

Islamic countries with rich and cultural resources based on justice and responsibility have great potential to develop green projects and deal with climate change. These countries can play an effective role in this field by using renewable energy sources such as solar and wind energy, as well as relying on religious teachings about environmental protection.

This research, with the topic of "Green Financing Methods in Islamic Countries," investigates the role of governments, financial institutions, and the private sector in facilitating green financing and highlights the challenges and opportunities of Islamic countries' progress in this field.

The contents of the plan can be implemented as a tool for policymakers and economic activists in Islamic countries, especially in banks and financial institutions, to develop new and efficient policies for the development of the green economy. It is hoped that this research will draw a worthy horizon for the development of international and regional cooperation in the field of green economy and help to achieve the goals of sustainable development so that Islamic countries can take effective measures in the direction of destructive climate changes and promote sustainable development.

Mr. Samad Hasan zadeh

The President of ICCIMA,

The Chairman of ICRIC Board of Directors

Chapter I:
Green Finance Platform:
Key Element to Sustainable Development

1. General Information on Green Finance System in the World

1.1 Importance of Sustainable Development and Green Economy

Sustainable development is defined as a combination of economic, social and environmental goals to maximize the human wellbeing without compromising the ability of future generations to meet their own needs.[1] The above definition was first introduced by the World Commission for Environment and Development. The development that meets the needs of the present time without compromising the needs of those who come in the future. Based on this definition, two concepts of "needs", particularly the basic needs that are prioritized and the concept of "limits" that are imposed based on economic, social and environmental status, are referred to; which by itself indicates that the sustainable development goals should be defined and tailor-made by each country. Meanwhile, one of the concepts introduced to the economic literature in 70s was "green economy or green growth" and "green product". Green Economy is used versus Brown Economy2; when fossil and non-renewable resources are used excessively, then the economy is called Brown Economy.

So far, a variety of definitions and interpretations have been made about green economy. Green Economy could be studies at two micro and macro level economy. At micro level, it is an economy in which the factories and small enterprises produce green products. In terms of macro economy, the issue is more complicated; since, production of green products alone is not enough; but the production needs to be compared on the scale of the use of non-renewable resources.

Based on the EU, a green economy offers growth, creates job and eradicates poverty through investment in nature, aiming at long-term survival of the Earth. According to UNEP, green economy seeks to further promote convergence between the three dimensions of sustainable development. Development of economic system is to strengthen and improve natural capital, the earth as well as increasing economic productivity and reducing social disparities. In view of the above definitions, green economy could be recognized as the key to sustainable development. In other words, achieving sustainable development is subject to transition to green economy.

1.2 Importance of green finance system and its costs

Green finance is a set of policies, institutional arrangements and infrastructures, which direct financial resources towards the green industry through loans, private shares, issuing bonds and debentures, insurance and other financial services, leading to expansion of productive economic investments and increasing income, thereby, it results in economic growth and reduction of income inequality. As a general rule, green finance includes the following:

- Public and private finance of green investments in the following areas:
    - Environmental goods and services, including water management or protecting species diversity and nature
    - Prevent, minimize and make up damages to the environment and climate, including improvement of energy efficiency or construction of dams and water barriers
- Financing public policies that covers projects and measures aimed at reducing environmental damage and compliance with the standards.

[1] United Nations

[2] Verreault

- Components of the financial system related to green investment; such as the Green Climate Fund or financial tools for green investment including legal, economic and institutional frameworks.

So far, no all-inclusive, yet clear-cut, definition has been introduced of green finance due to lack of providing definition in most publications as well as significant variance between definitions provided in the literature of effective finance systems. However, it seems that Lindenberg (2014) has provided a comprehensive definition of green finance based on definitions provided by Hohne et al. (2012), Zadek and Flynn (2013) and Bunke et al.

Financing private and public green investments (including capital and preparation costs) are discussed for environmental services and goods (such as water management and biodiversity protection), prevention, minimizing and compensating damages to climate and environment, financing public policies (including operational costs) that encourages innovations and projects for adjustment and reduction of losses to the environment. The benefits and challenges of green finance are provided in Table (1-1) and (2-1):

Table (1-1): Benefits of Green Finance

Title	Description
Promoting the spread of environmentally friendly technology and infrastructure	Investing in environmentally friendly technologies, such as clean energy, may help reduce costs and accelerate widespread technology dissemination. It provides an opportunity at national level to reach environmentally friendly infrastructures. Thereafter, the governments are responsible for infrastructure development leading to better long-term resource management, which in turn increases the competition in the country and directs the private capitals to the domestic green market.
Creating a comparative advantage	Low carbon green growth, inescapable from the current voluntary nature, changes to a mandatory strategy in response to the pressures caused by Climate changes and other environmental and economic crises. Today, when environmental standards become stricter, the expansion of green finance means a comparative advantage.
Creating value	Businesses, organizations and companies can create added-value by promoting and raising awareness about green finance in their portfolio. Therefore, they can make their business green and, as a result, attract investors who have knowledge about environment and like-minded customers.
Expanding economic prospects	Governments expand their economic prospects by breaking into new markets that have a high potential to create employment. Since governments are mainly interested in promoting the welfare of different generations, green financing mechanisms are attractive, especially in supporting projects and developments that bring sustainable benefits, particularly in medium and long-term arrangements.

Considering wide range of estimations about requirements of green investment finance, the public financial resources will not suffice green development finance. Therefore, a huge amount of public capital is needed. Nevertheless, public green finance is still facing a lot of economic challenges. Notwithstanding certain progress ahead, green finance development is yet being challenged.

Table (2-1): Green Finance Challenges

Challenges				Experiences
	Banking	Market Bonds	Institutional investors	Experience of countries to face challenges
Foreign impacts	insufficient compensation for positive externalities of green projects; Inappropriate punishment for negative externalities of polluting projects Inadequacy of price signals			In addition to financial and environmental policies: guarantees, special loans, acceptance of risk management principles, green labeling, etc.
Mismatch of accrual dates	Lack of suitable financial tools for long-term green projects			Green bonds, transforming into bonds and securing loans
Ambiguity of green definitions	Lack of green loan definition	Lack of green bonds definition	Lack of green asset definition	Developing green definitions and indicators
Information asymmetry	lack of information about borrowers; high risk aversion	lack of information and Monitoring use of income	Lack of information about assets (environmental impacts and risk)	Guidelines on Voluntary Disclosure of Environmental impacts and related financial risks, credit approval Green bonds, risk reduction, policy signals, experimental projects, key investments (Langar)
Lack of analytical capacities	Lack of capacity to assess impact on credit risk	Lack of capacity to assess impact on credit risk	Lack of capacity to assess impact of asset evaluation	Risk modeling, training, ranking, indicators

Inappropriate pricing and failure to price risks, market deviations and defects/shortcomings, competitive goals, limited capital and inadequate awareness are legal gaps.

1.3 Process of greening finance system in different countries, relevant needs and opportunities[3]

We need to harmonize the financial world with green growth in order to achieve the ambitious goals of the Paris climate agreement 2030 Plan. Since financial pressure is a persistence phenomenon in many parts of the world, mobilization of private capital is also vital to meet the global investment needs of 5-7 trillion dollars per year. Meanwhile, international politics is always progressing. In 2016, China launch Green Finance Studies Group[4] in G20, Germany has continued China's initiative both in GFSG and in other 20G course of business. Finally, Argentina has declared its intention as the 20G president to continue the work of its predecessors. To this end, Financial Stability Board, Task Force on Climate Financial Disclosure (TCFD) is following up its recommendations to analyze possible risks and currently, it has been extended for one year to support capacity building and its implementation.

The concerns and relevant initiatives on sustainable development finance could be examined in three areas in which the green finance solutions are developed:

A) To prevent finance in illegal actions or to use feeble implementation

Feeble implementation of environmental, economic and social policies and regulations can lead to social conflicts and market effects, which in turn results in financial loss to lenders and investors and even unrelenting economic risks. In this regard, green finance as a part of proper governance

[3] United Nations Environment Programme, 2016

and integration is considered for adopting necessary legal requirements in order to overcome the weak points in environmental laws and regulations.

B) Opening opportunities for green investments

In many countries, opportunities for green financing such as renewable energies, energy efficiency, agricultural development and productivity of small and medium enterprises (SMEs), as well as insurance markets, are potentially acceptable in business point of view. However, due to the obstacles of demand for investments (unpreparedness of enterprises, absence of assets registration, lack of sufficient knowledge, corruption, political uncertainties) or obstacles in supply (lack of accountability by finance institutions, short-term, lack of credit information, failure to seize the opportunities), they are not satisfied in terms of finance.

C) Solutions for business problems

Many developing countries are under tension due to the need to expand electricity supply and reduce fossil fuel intensity. Also, the financial sector of small and medium enterprises is an area in which unnecessary approaches may lead to a reduction in total loans, higher rates of non-performing loans and financial instability.

1.4 Green Finance in Islamic Countries

The main goal of the Islamic financial sector is to promote and upgrade sustainable development through the principles of fairness, equality, ethics and achieving long-term benefits and involving in activities for the good of people (Karina, 2019). Considering environment pollution and damages, Islamic financial industry based on environment and sustainable development is one of the social solutions. The capacity of Islamic finance to attract new sources of finance that are not fully leveraged by green finance is gradually emerging as an important value scheme. This strengthens the reason for using Islamic financial resources to include green elements in financing.

In view of the ability of Islamic money make a commitment for the green turn of events, the Supreme Security Council in collaboration with the World Bank and IOSCO Asia and Pacific Group held a one and a half day meeting on "Outfitting Islamic Finance for Green Future". The above meeting discussed the solutions to use Islamic money to help environmental changes in line with moderation and diversity, including use of Islamic money tools to finance Sustainable power and energy proficiency. This is the second partnership of SC, the World Bank and International Organization of Securities Commissions (IOSCO) as one of the coordinators (Pathan et al., 2023).

1.5 Role of Government and Private Sector in Financing Green Economy

❖ Government

Governments should set effective, predictable and environmentally active policies in order to minimize market failures and facilitate accelerated green finance. They are able to use extensive policy packages, including environmental regulations, pricing and financial policy amendments; but interventions to support greening financial markets are possible through:

A) Creating smart and efficient motivate systems to hasten green finance
B) Applying limited effective public facilities
C) Supporting coordination, capacity building and provision of information.

❖ Private Sector

Private sector is the most important mechanism in national and local economies, enjoying high-quality facilities and high potentials, playing a key role in creating business in transition to green economy. Growth of green financial markets is an emerging opportunity for private sector investors and project developers. Billions of dollars of additional capital are needed to fill the financing gap in order to safeguard the world valuable ecosystems; in such a context, private sector investment could be the main source of such budget.

- Public Private Partnership

Developing platforms of economic growth is inevitable for all countries; nevertheless, limited resources and ineffective public sector are barriers to achieving the desired development. Therefore, the governments try nowadays to make policies, to direct and to supervise in their governance and entrust the management of a variety of affairs to the non-public sector. Also, the experience of world countries shows that Government and private sector partnership programs, which are generally referred to as "cooperation between the government and economic enterprises for development" is a suitable option. There are various methods for partnership of private and public sectors. Private sector's partnership in operation and maintenance, design and construction, turnkey delivery of project, implementing development and operation plan, hire purchase, gradual privatization, leasing, development, operation or purchase, construction, transfer, commissioning; construction, ownership, commissioning, transfer and construction, ownership and commissioning are among public private partnership methods in supplying public goods.

Chapter II

The Role of Banks in The Economy and Green Financing

2.1. Green banking

The banking sector can play a prominent role in the relationship between economic growth and environmental protection by promoting environmentally sustainable, socially responsible, and responsive institutions. Green banking is a tool to achieve sustainable development. By formulating and directing credit policies to prevent the destruction of natural resources, reduce industrial pollutants, support rare ecosystems, increase the productivity of all production factors, and reduce greenhouse gas emissions, banks can be part of the set of economic and monetary policies in the path of sustainable development, which is referred to as "green banking" in banking literature today. The term green banking was first proposed in 1970, and simultaneously with the focus on sustainable development in the 1990s, its human and environmental aspects were strengthened by focusing on the needs of the future generation, but it was officially started in 2003 with the aim of protecting the environment. Considering the importance of the topic, the first chapter of this project, which is dedicated to green banking, first explains the concept of green banking and also briefly introduces services, products, and tools. In the following, it also studies the advantages and challenges of green banking and then examines the experiences of Islamic countries such as Bangladesh in this field.

2.1.1. The concept of green banking and its implementation steps

Today, every organization and company deals with the environment in its activities with a friendly approach. The banking sector also plays an important role in creating jobs, generating wealth, eradicating poverty, entrepreneurial activities, etc. through various social and economic activities. In recent years, green banking activities have received the attention of researchers, and it is a method of financial support to save energy and the environment. The word "green" in green banking mainly shows the bank's responsiveness to the environment and environmental performance in business operations. Therefore, the term "green banking" generally refers to banking processes that take into account the methods of financing environmentally friendly projects. In other words, green banking is a type of banking that pays attention to environmental and social factors while performing banking operations. The term "green banking" means the adoption of banking strategies that guarantee sustainable economic development.

Marcel Jeucken (2001) has introduced four stages in the transition of banking to green banking. These stages include defensive banking, preventive banking, offensive banking, and finally green (sustainable) banking, which is discussed in table 2.1:

Table 2.1. Stages of green banking implementation

Steps	Description
Defensive banking	At this stage, banks are not active and resist environmental laws and requirements because it affects the interests of banks. At this stage, paying attention to environmental issues and related costs is one of the avoidable costs.
Preventive banking	Due to various forces such as pressure by government, non-governmental organizations, society, etc., banks involve environmental issues and risk management activities in their daily business activities.
Offensive banking	At this stage, in addition to internal activities, banks also consider environmental issues in their external activities. At this stage, banks are marketing environmental projects and developing them.
Green banking (sustainable)	At this stage, all bank activities are stable. Despite the high profits, banks do not invest in environmentally destructive businesses. The main motive of banks is not to obtain the highest rate of return, but the most important motive is to obtain the highest sustainable rate of return. Some examples of these banks are: Triodos Bank in Holland and Co-operative Bank in England.

2.1.2. Indicators of a green bank

A bank can take various paths to preserve the environment, some of which are given below.

- Paying attention to the preservation of the environment in the payment of facilities

Among the types of facilities in the field of environment, it is possible to provide facilities and loans for production units in compliance with environmental issues, provide facilities and loans for the provision of standard cars in order to prevent the entry of non-standard cars, provide facilities for the provision of public vehicles, and provide facilities for the reconstruction of buildings over 25 years old.

- Creating bonuses for green depositors

Every economic activity requires a bank deposit. By creating special services, banks can provide facilities to depositors who somehow provide their deposit balance while preserving the environment. For example, if a large organization places its deposit with the bank and this organization pays attention to preserving the environment in its activities, the bank can motivate other organizations that have not yet put environmental protection on their agenda by providing special services to encourage the environmentally friendly organization.

- Investing in environmental projects

Banks, among the leading industries, have moved towards green banking by making appropriate arrangements. Meanwhile, one of the main missions of banks is to collect small deposits and make large investments. If the bank considers the preservation of the environment during the analysis of an investment, this investment will benefit the environment in addition to the bank's profit.

- Informing about environmental protection

Big banks have branches in all streets, cities, and villages, and many people visit bank branches, bank websites, etc., so banks, due to their presence in all areas of society and communication with all people, can inform and affect many people in the field of environmental issues. Since people's relationships with banks are formed on the basis of "trust," this work can make positive use of people's trust in the bank to increase their awareness while increasing people's trust in the bank by observing the bank's participation in informing about a positive matter.

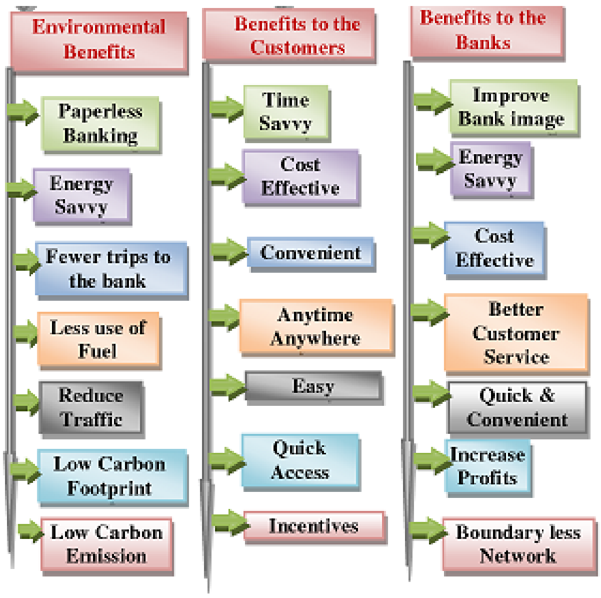
- Creating a culture of environmental protection in all branches of the bank

Banks should make environmental protection a culture by creating environmental protection thinking among their managers and employees and going beyond paper instructions. In fact, the ideal state for a green bank is a state where there is a culture of environmental protection among all people and departments in such a way that there is no need for laws and guidelines. Among the measures taken by banks, we can mention the culture of green banking. Among these cases, we can mention the reduction of fees in case of using banking services in electronic form, advertising of green banking, and promotion of green life in other dimensions to customers.

2.1.3. Advantages and challenges of implementing the green banking system

Today, in the world, the banking system, along with other institutions, is responsible for the restoration and protection of the environment, and the expectations of the environmental groups in the world from the banking system have emerged not as a voluntary action but as a mandatory social duty. In general, the benefits of green banking can be studied in three areas, as shown in Figure 1.2.

Figure 1.2. Benefits of green banking



Source: Gobinda Deka (2015)

In general, green banking operations in different countries have faced significant success. However, it faces problems and challenges, the most important of which can be summarized as follows:

- Green banking and environmental risks

Banks are always exposed to risks related to the environmental process, which can put them in the direction of losing reputation and profit. Banks may not be able to recover the money they have paid to finance their customers; consequently, they may face credit risk or risks related to the bank's reputation. Therefore, the risk to banks from commercial lending activity is high. Therefore, in addition to the debts that are the result of the bank's own operations, bigger risks are created by banks' lending, which can be classified in the form of non-repayment of the loan by the borrower, the risk of collateral value reduction, the risk of market changes due to environmental concerns, and decreasing the credit value of banks.

- Negative environmental effects of banks

Banks and the environment are closely related. On the one hand, environmental risks can create challenges for banks and lead to economic losses. On the other hand, banks can directly or indirectly have positive effects on the environment. It may seem that banks have no direct impact on the environment, but this is not true. The vital role of banks in the development of financial projects and its effects on the environment should not be ignored. The types of environmental effects of banks are divided into two categories:

A) Internal environmental effects of banks

The direct effects of banks are related to their internal operations that may lead to increased greenhouse gas emissions, such as energy consumption from lighting, use of computers, ATMs, water, waste disposal, and business trips. The direct effect of energy, waste, and paper of banks on the environment is much less compared to other sectors, but since the size of the banking sector is large, their effect on the environment as a whole sector cannot be ignored.

B) Environmental external effects of banks

2.1.4. Green banking services and products

In the green banking system, there are efficient and effective tools that minimize the impact of negative effects on the environment. Among these tools, the following can be listed:

A) Green credit

If banks promote green credit as a strategy and thereby promote concepts related to green credit, including resource efficiency, environmental protection, and sustainable development; support green growth economies, low-carbon economies, recycled models, and businesses through innovation; and manage environmental and social (E&S) risks, the result will be optimizing the credit structure and strengthening credit policies and related processes, improving services, and contributing to the transformation of the economic growth model.

B) Green loan

A green loan means giving a loan to a project or business that is environmentally sustainable. Of course, providing banking facilities for the creation and expansion of green projects requires the creation of a specialized banking network to cover the cost of financing green projects and reduce the risk of green financing by providing targeted services.

C) Green mortgage

The green loan for the purchase of housing, or the loan for the purchase of housing with the ability of productivity and energy management, with an interest rate significantly lower than the market rates, is given to bank customers as an incentive factor. This loan is given to customers who buy houses with energy efficiency and take measures to strengthen the houses and provide equipment with energy efficiency and renewable energy. Banks can also pay green loans for housing purchases by taking into account the costs of changing the energy consumption technology of homes from conventional systems to renewable methods.

D) Green car loan

A green car loan is another part of green banking activity, which can bring many benefits to the environment by encouraging customers to buy dual-fuel vehicles or vehicles with environmentally friendly fuel and powered by solar batteries. Green car loans are mostly used in Europe and Australia with lower interest rates than car loans.

E) Green Certificates of Deposits

Green Certificates of Deposits are new certificates that use money invested in energy efficiency in professional environmental projects. Most of the money from certificates of deposit is used to finance various solar energy projects. The maturity of these certificates of deposit is between one and two years, and they pay a higher interest rate than regular certificates of deposit to attract new investors.

F) Green credit card

The green credit card, which is issued by many credit card companies to environmental non-governmental organizations, takes about 1.5 percent of each transaction, whether money transfer or cash purchase made by the cardholder, as financial aid for associations. Credit cards typically have an annual percentage rate (APR) of 15 to 22 percent, and many have an annual subscription fee. The Visa Green Credit Card, which is only available in the Netherlands, is the first credit card in the world that offers a unique program to clean up environmental pollutants. The goal of this program is to clean up all the greenhouse gases caused by production.

G) Green personal deposit account

Another activity related to environmental benefits is the innovation of providing annual financial assistance to programs for maintaining environmental stability and energy based on the deposit accounts of individuals. For example, in Australia, a green deposit account has been created, which is of special interest and support. Customers of a bank in Australia called Westpac are encouraged to directly support local farmers and the Sustainable Agriculture Program by opening a Land Conservation Deposit Account.

H) Online banking

Online banking is the easiest tool for green banking and helping the environment. Online banking saves money. In this way, customers can save money and pay their expenses on time, avoid standing in line, and save time by paying bills from home through the Internet.

2.2. Reviewing the experiences of different countries in greening the banking system

Taking advantage of the experiences of Islamic countries can have a useful and major contribution in modeling and implementing solutions to make the best possible use of the country's potential. Therefore, in this section, after examining the experience of different countries regarding green banking based on various indicators presented in the table below, the experience of green banking in Bangladesh as a developing Islamic country, which according to a certain rule in its vision and mission, has played a special role in green banking with the aim of moving towards low-carbon green development without harming economic growth and social development, is investigated. In the field of green banking, the group of Islamic countries that are members of the Sustainable Banking Network (SBN), which includes 5 emerging countries, are active in the field of green banking with the aim of improving social and environmental conditions. In short, the experience of these countries shows that countries active in the field of green banking face challenges in formulating their strategies, including defining and measuring sustainable banking, obstacles to sustainable banking in the way of the main business of banks, creating business drivers for sustainable banking, and improving the flow of information to create banking. Also, based on these experiences, it was stated that in order to successfully implement green banking, it is necessary to consider the issue of risk management in terms of environmental and social indicators (E&S) in the lending operations of banks, as well as how banks lend to environmentally friendly businesses, so that the financial stability of the country does not suffer in this process.

In general, it can be stated that in order to select Islamic countries to examine their experience in implementing green banking, according to table 2.2, the green banking system of 5 countries—Bangladesh, Indonesia, Morocco, Nigeria, and Türkiye—in terms of environment, society, risk management, lending process, policy (regulatory instruction), industry leadership, and mixed leadership (industry leadership and policymaking) have been studied. The results show that 5 countries considered factors such as environment, society, risk management, and lending processes in greening the banking system, but in terms of policy (regulatory instructions), only Bangladesh, Indonesia, and Morocco succeeded.

In terms of industry leadership, Türkiye was also active, and in the mixed field (industry leadership and policy making), only Nigeria was active. In this regard, there are also scales for the performance of green banking, including banking, expanding the financial sector, improving information and consultation, a national sustainable financial development roadmap, developing a specific roadmap for sectors, inter-firm cooperation, capacity building and coordination, capacity building for FIS, information disclosure requirements, supervision by the regulatory body, monitoring and evaluation, marketing incentives for green lending, and incentive awards, examined in these countries.

In a general summary, it can be said that most of these countries have used the mentioned scales, and only Türkiye has performed poorly compared to other countries. Finally, on this basis, among the emerging and developing Islamic countries, the experiences of Bangladesh and Pakistan were further investigated.

Table 2.2. Summary of dimensions and indicators included in the implementation process of green banking in different countries

	Bangladesh	Indonesia	Morocco	Nigeria	Türkiye
environmental	X	X	X	X	X
social	X	X	X	X	X
Risk management	X	X	X	X	X
Lending process	X	X	X	X	X
policy (regulatory instruction)	X	X	X		
Industry leadership					X
Mixed (leadership in industry and policy making)				X	
Scale					
Banking	X	X	X	X	X
Expansion of the financial sector		X	X		
Improving information and advice	X	X	X	X	X
National sustainable financial development roadmap	X	X	X	X	X
Development of a road map specific to the departments	X	X		X	
Inter-firm collaborations	X	X	X	X	
Capacity building and coordination	X	X	X	X	
Capacity building for FIS	X	X	X	X	X
Disclosure requirements	X	X	X	X	X
Supervision by the regulatory body	X	X	X	X	
Monitoring and evaluation	X	X	X	X	X
Marketing incentives for green lending	X	X	X	X	
Incentive awards		X		X	

2.2.1. The experience of Bangladesh

A) Status of green banking in Bangladesh

Among the countries, Bangladesh is the most vulnerable to climate change and faces many environmental problems such as air pollution, water pollution and water shortage, and deforestation and loss of biodiversity. For this reason, environmental sustainability and resilience are essential for a developing country like Bangladesh. Climate change is a key element of socio-economic development; that's why Bangladesh Bank started green banking activities in 2011.

This bank is the first central bank in the world that has played a special role in green banking according to a specific rule in its vision and mission. The authorities of this bank developed a green banking policy on February 27, 2011 through the application of various innovations in green activities. The purpose of which is to provide detailed guidelines for all commercial banks to adopt green banking policies to protect the environment and ensure sustainable banking activities. Considering the adverse effects of climate change and advanced measures around the world, Bangladesh Bank has shown a deep commitment to the vision of a green world through green initiatives. Bangladesh Bank's green activities focus on domestic and non-domestic activities. The term "in-house activity" refers to internal or office building-bound activities related to network expansion, office automation, green day-to-day activities, etc. In the field of e-commerce, in order to provide services to customers, banks have covered online banking facilities, including bill payment, money transfer, and exchanges at the local level through the Internet. On the other hand, Bangladesh Bank has taken a major step in encouraging and implementing IT-based advancement in the overall banking sector. The movement in green banking has been noticed since 2013. This year, nine new green banks were introduced, which are known as the fourth generation of banks. According to the studies, Bangladesh Bank is expected to be among the leading Asian countries in 2050 in terms of financial well-being and social and environmental responsibility.

B) Objectives of Bangladesh Green Banking

The main objectives of green banking in Bangladesh are to move towards low-carbon green development without compromising rapid economic growth and social development. The aim of the Central Bank of Bangladesh in green banking is financial support in efforts to increase energy efficiency, reduce carbon emissions, and other environmental pollution caused by energy consumption. In addition, it is expected that this institution will take measures to reduce the country's dependence on foreign energy sources, combat climate change, and create more jobs by providing clean energy production facilities.

Other goals of this institution are:

- Avoiding creating waste and prioritizing the environment and society

- Focus on environmentally friendly initiatives through financial innovation and ensuring sustainable development.

- Using organizational resources by accepting their responsibility

- Minimizing the use of paper as much as possible inside and outside the bank.

C) adopting policies in the field of green banking

According to the experiences of green banking in the country, the strategic framework and policy of green banking for banks have been designed in the following way:

- Stage I

• Policy-making and governance rules

The bank should set general rules and adopt green banking strategies and policies through the board of directors. In the case of Bangladeshi banks, a powerful committee including some of the directors of the board of directors has been formed, and in the case of foreign banks, a powerful committee including the regional head of the global office and members of senior managers including the CEO can take the responsibility of reviewing environmental policies, strategies, and plans. Banks are required to establish a separate green banking unit or a unit that takes responsibility for designing, evaluating, and managing green banking matters. The senior executive officer must take responsibility for the administration of the unit. This unit periodically submits its report to the main committee (powerful committee).

- Including environmental risks in the core risk management

In order to comply with green banking policies, banks must follow the guiding principles of environmental risk management (ERM). The bank should use environmental risks and climate change as a part of the existing credit risk method to evaluate the borrower. This includes considering environmental risks in checklists, audit guidelines, and reporting templates. This helps to be checked in the Environmental Due Diligence Checklists (EDD) for environmental hazards caused by its sources such as climate change (storms, droughts), animal diseases/pathogens such as bird flu, solid wastes such as food waste, animal waste, animal carcasses, sediments, sewage discharge, hazardous materials, etc.

- Implementation of environmental management inside the bank

Banks must prepare the amount of water, paper, electricity, energy, etc. consumption of their offices and branches. Then they should take the necessary measures to save electricity, water, and paper. In order to efficiently use electricity, water, paper, and recycling equipment, a "green office" manual or at least a set of general instructions should be provided to employees. Instead of relying on printed documents, online communication should (where possible) be used extensively for administrative management and ensure that printers are set up for double-sided printing to save paper. Banks should use small fonts and waste paper for drafts to reduce ink consumption and avoid disposable cups. They should also install electronic equipment such as lamps, coolers, fans, and automatic computer switches with high energy efficiency and plan solar energy in their place to save electricity consumption. They should also replace natural lamps with energy-saving lamps in bank branches and offices. For optimal use of energy and reducing fuel consumption, the bank should encourage employees to use low-consumption cars.

- Introduction of green financing

For the bank, financing eco-friendly economic activities and industries with high energy efficiency have a higher priority. Environmental infrastructure such as renewable energy projects, clean water supply projects, wastewater treatment facilities, solid and hazardous waste disposal facilities, biomass-based power plants, and biofertilizer production plants should be encouraged and financed by the bank. It can also be used to encourage customers to give loans in cases of environmentally friendly performance.

- Establishment of a climate risk fund

The bank should finance economic activities in areas prone to storms and floods and drought-prone areas at normal interest rates without paying additional fees. However, in order to create a climate change risk fund, banks must assess environmental risks to finance sectors in different regions. This action is for emergency cases. In this way, the bank guarantees regular financial flow to these vulnerable areas and sectors. The fund can be considered as a part of corporate social responsibility expenses.

- Introduction of green marketing

Green marketing is the marketing of products that do not seem to harm the environment. Green marketing includes a wide range of activities, including product modification, production process changes, packaging changes, and advertising modifications. This refers to the process of selling products and/or services based on their environmental benefits. The product or service may be environmentally friendly in itself, or its production or packaging may be environmentally friendly. Green marketing is expected to help develop awareness among the common people.

- Online banking

Online banking makes it possible to conduct banking transactions or bill payments through the Internet in a secure environment. Banks help the environment by eliminating paper waste, reducing fuel consumption and carbon emissions, and reducing printing costs and postage costs.

- Supporting employee training, consumer awareness, and green events

Developing employees' awareness and training them in the field of environmental and social risks and related issues should be a continuous process and part of the bank's human resources development. Developing the awareness of consumers and customers should also be placed in the public relations department as a continuous activity of the bank.

- Report on green banking activities and disclosure

Banks should report initiatives/activities to Bangladesh Bank and publicize them on their respective websites.

- Stage II

- Environmental policies specific to each economic sector

Banks need to prepare strategies for designing specific policies for environmentally sensitive sectors such as agriculture, leather, fisheries, textiles and clothing, renewable energy, paper, sugar, and dairy factories, construction and housing, engineering and basic metals, materials, chemicals (fertilizers, pesticides, and pharmaceuticals), rubber and plastic industries, hospitals and clinics, chemical trading, brick production, etc.

- Green strategic planning

The bank should determine the goals that it wants to achieve through strategic planning. The bank should determine the set of achievable goals and strategies and publish them in the annual reports and websites of green financing and operation of the bank's environmental management department. For the operation of the bank's environmental management, the goal should include the amount of energy efficiency in the form of using renewable energy, reducing electricity, gas, and gasoline consumption, reducing greenhouse gas emissions (GHG), issuing electronic declarations, electronic payment of bills, saving paper, environmentally friendly buildings, etc. Regarding green financing, the goal should include reducing loans for some activities harmful to the environment, as well as allocating a certain percentage of loans to environmentally friendly activities and providing environmentally friendly financial products.

- Creating green branches

The green branch should make maximum use of natural light, renewable energy, energy-saving lamps, etc., and reduce water and electricity consumption and use recycled water. Such a branch of a bank is called a "green branch." A green branch will be allowed to display a special symbol approved by Bangladesh Bank. The criteria for issuing "Green Branch" certification will be announced by Bangladesh Bank in a certain period of time.

- Improving the performance of the environmental management department

The strategies of reuse, recycling of materials and equipment, resource reduction, and waste reduction and resource use should be part of the environmental management of the second phase. Banks should conduct more virtual meetings in the form of video conferences (instead of physical travel) in order to save money and energy.

- Setting up the environmental risk management plan and guiding principles

In order to evaluate and monitor working capital projects and loans, the bank must follow the environmental risk management guidelines. In addition to complying with national regulations, the bank may even consider higher environmental standards that are internationally acceptable. In this regard, the green initiatives of a group of banks will not only be effective but will also bring a competitive advantage. The consensus of banks can lead to the creation of standards and guiding principles to improve green banking methods.

- Detailed programs for training customers

Customers should be encouraged and influenced by environmental laws and perform environmental activities in line with the efficient use of resources. Banks should implement detailed programs to educate customers.

- Disclosure and reporting of green banking activities

Banks should publish independent green banking reports regarding past performance, current activities and future plans. Detailed and up-to-date information on banks' environmental activities and performance of major customers should be disclosed.

- Stage III

• Designing and introducing innovative products

In addition to avoiding the negative effects on the environment caused by banking activities, banks are expected to introduce innovative green products that are friendly to the environment in order to solve the main environmental challenges of the country.

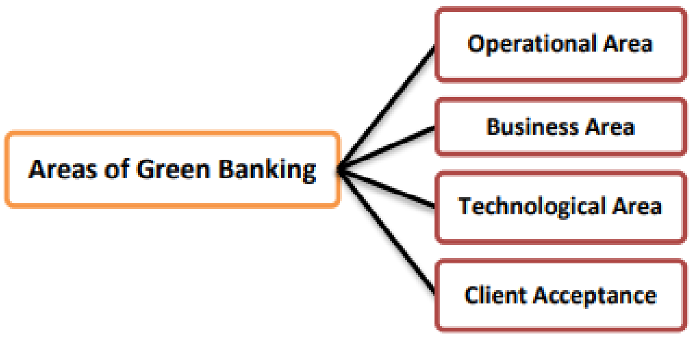
- Report in standard format with the approval of supervisor outside the bank.

In order to report to their shareholders, banks should prepare their independent annual green report based on internationally accepted formats, such as the format prepared by "Global Report Initiatives." Arrangements should also be made for the verification of these publications by an independent institution or an acceptable third party.

D) Green banking areas in Bangladesh

Success in innovation and product flow of green banking and facilitating the provision of demand-based services depends on 4 factors: operational area, business perspective, technological advancement, and customer acceptance. These factors are shown in Figure 2.3:

Figure 2.2: Areas of green banking in Bangladesh



Source: Sanjoy Pal, Aminul Haque Russel (2015)

 Operational area

This area includes maintaining the internal policy of green banking and implementing this issue in its operational processes, such as using the back of printed pages, which minimizes the cost of the branch.

 Business area

This area is for supporting banks and other non-banking financial institutions. Therefore, supporting other business organizations creates a stronger business community to make the country a better place to live. Business initiatives can be highly regarded by the international community.

 Technology field

The whole world today is moving in the direction of technology. Technological advancements of different dimensions have brought different nations together under one roof. Green finance is the right hand of industrialization. The industry leads to river pollution by creating a lot of toxic waste, just as brick making creates a lot of smoke, green banking makes it possible to produce bricks using advanced technologies.

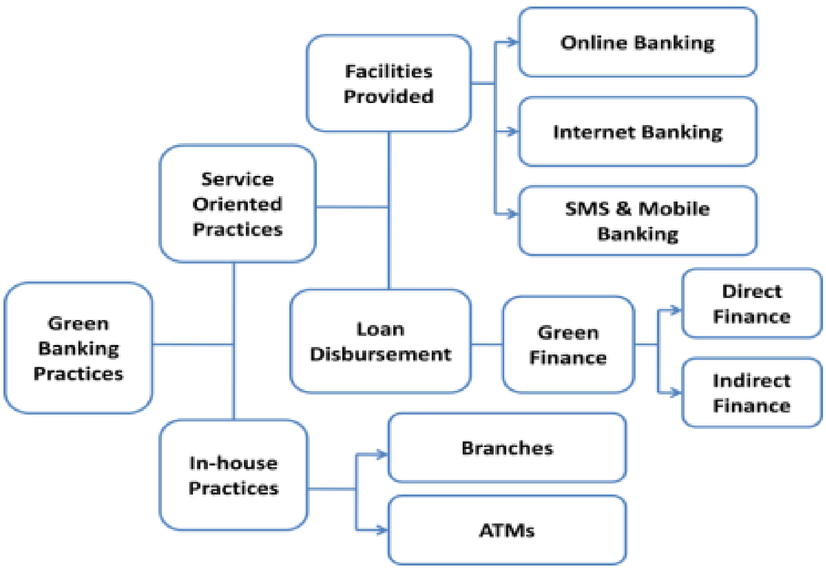
 Receiving customers

Customers accept products that are not harmful to them. Green banking is trying to reduce the consumption of paper that is associated with cutting down trees, reducing oxygen and increasing carbon dioxide. Therefore, the activity of green banking is through raising public awareness in matters that customers accept more.

D) Green banking experience in Bangladesh

The chart below shows the actual performance of Bangladesh. Green banking is currently being used internally and service-oriented by financial institutions. Services in one category include online banking, internet banking and mobile banking, and in another category, in the form of loan payments. Internal methods are used in the form of ATM systems and branches using solar energy to generate electricity for official and service purposes.

Figure 2.3. Application methods of green banking in Bangladesh



Source: Sanjoy Pal, Aminul Haque Russel (2015) o Indicators to analyze the trend of green banking in Bangladesh

Based on the latest information from the Central Bank's[1] 2023 quarterly reports on green banking, five indicators have been selected to analyze the trend of green banking, which are classified as follows[2]:

1) Total number of branches

2) Number of online branches

3) Number of branches with solar energy

4) Number of accounts using internet banking

5) Number of ATMs with solar energy

Based on this, in the following, the mentioned indicators will be explained in six banks of Bangladesh:

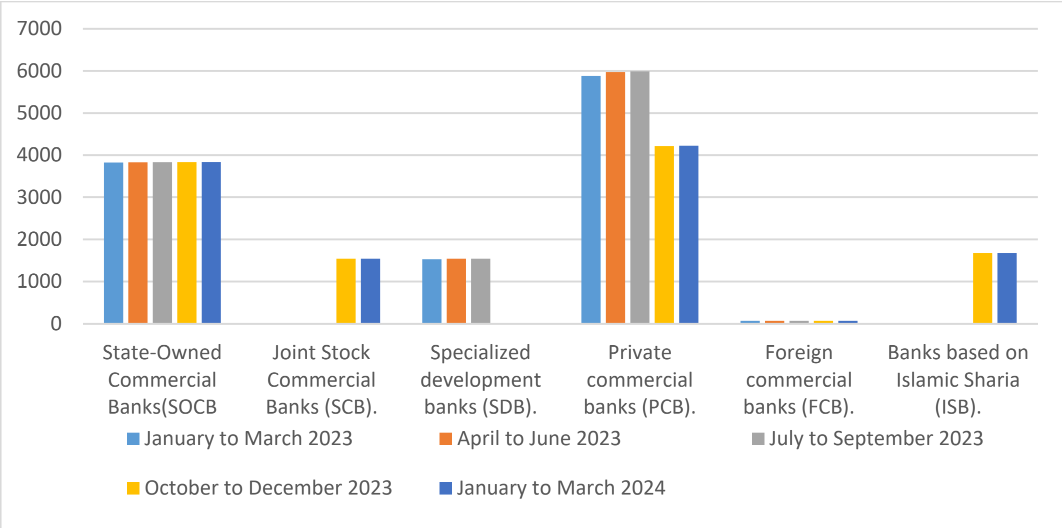
1) Total number of branches

In general, banks are service-oriented and focus on customer demand. Customers deposit their money in the bank to withdraw from the bank whenever they need it. According to the information of Bangladesh Green Banks, Diagram 2.1 shows the total number of branches in quarterly form in 2023 and the first quarter of 2024. Private commercial banks have the most branches. The total number of branches of this bank in July to September 2023 was 5,986, which, of course, faced a decrease in the first quarter of 2024 and reached 4,223 branches. Meanwhile, state-owned commercial banks are in the next rank in terms of the number of branches. Foreign commercial banks had the lowest number of branches with 69 branches in the entire period under review.

[1] Quarterly Review Report on Sustainable Finance of Banks & Finance Companies 2012-2023

[2] In order to better evaluate the development process of banking institutions in the path of green banking, in the mentioned report, the process was examined with the help of participants. For this purpose, the participants were selected as follows from six categories of financial institutions in order to achieve the best results: State-Owned Commercial Banks (SOCB)
Stock Commercial Banks (SCB)
 Specialized Development Banks (SDB)
 Private Commercial Banks (PCBs)
 Foreign Commercial Banks (FCB)
 Islamic Sharia-based banks (ISB)

Chart 2.1. The total number of branches in the green banking system of Bangladesh 2023 to the first quarter of 2024 (seasonal)



Source: Quarterly Review Report on Sustainable Finance of Banks & Finance Companies 2023&2024

The comparison of the total number of branches in the first quarter of 2023 and the first quarter of 2024 also shows that the total number of branches of state-owned commercial banks and private commercial banks is higher than other banks during the period under review. In this regard, private commercial banks have had the highest performance. They had 5881 branches in January to March 2023, which of course reached 4223 branches in 2014 during the same period. While, in January to March 2023, state-owned commercial banks had 3824 branches, this amount has increased to 3833 branches in January to March 2024. Foreign commercial banks have the worst situation in banks. Based on this, the total number of branches increased from 11297 branches in the first quarter of 2023 to 11345 branches in the first quarter of 2024.

2) Online branches

Today, through online banking, people can deposit money at any time and receive it from any ATM. Online banking has saved the use of paper and human resources. Chart 2.2. shows the online branches of Bangladesh Green Banks by quarter in 2023 and the first quarter of 2024. Private commercial banks and public commercial banks had high performance compared to other banks. Private commercial banks have the highest performance in April to June 2023 with 6032 online branches. Foreign commercial banks had the lowest number of branches in the third quarter of 2023, with 56 branches. The number of specialized development bank branches in this period has been constant and equal to 1421 branches.

Chart 2.2. The number of online branches in the green banking system of Bangladesh from 2023 to the first quarter of 2024 (seasonal)

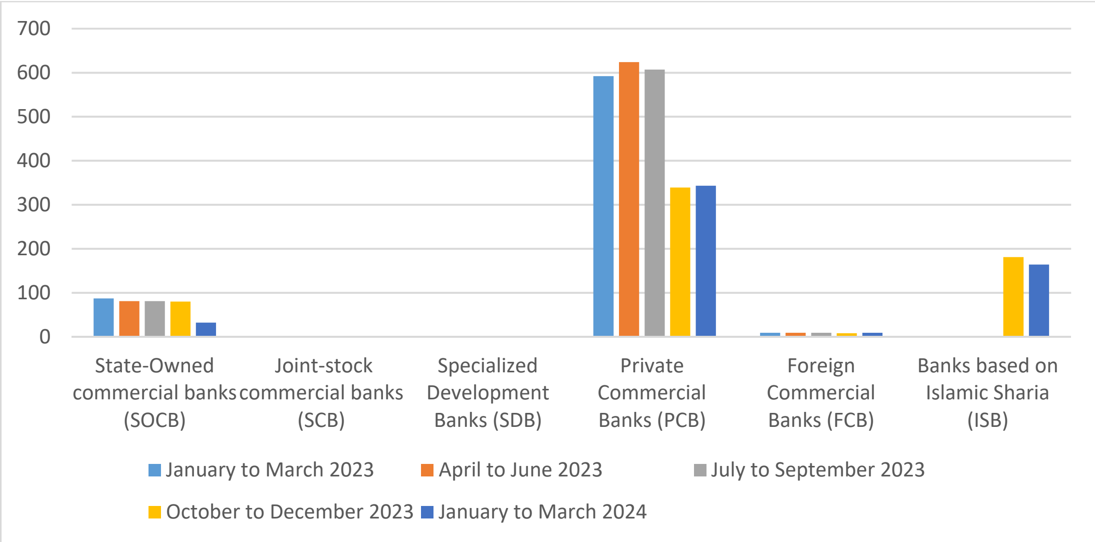
Source: Quarterly Review Report on Sustainable Finance of Banks & Finance Companies 2023&2024

In the green banking system of Bangladesh in the period under review, the number of online branches has increased from 11,107 in 2023 to 11,073 in 2024, which shows a decrease of 34 branches. In the meantime, according to Chart 2.2, private commercial banks have performed best in online banking. However, it has increased from 5,865 branches in the first quarter of 2023 to 4,110 branches in the first quarter of 2024. After that, state-owned commercial banks allocated 3,752 branches out of 3,824 branches to online banking in 2023 from January to March, which reached 3,838 branches in the first quarter of 2024, which is equal to the total number of branches in this period. In 2024, the share of online banking branches has increased greatly and shows a great performance for providing online facilities to customers.

3) Branches with solar energy

Solar energy is known as one of the most widely used energy sources in the world, and it reduces greenhouse gas emissions and reduces dependence on non-renewable energy sources. For this reason, many countries, including Bangladesh, use it in the green banking system. Chart 2.3 shows the solar-powered branches seasonally in Bangladesh Green Banks in 2023 and the first quarter of 2024. Private commercial banks had a remarkably high performance compared to other banks, and during the period under review, with 624 branches, they had the most solar energy branches in the second quarter of 2023. Still, foreign commercial banks had the weakest performance.

Chart 2.3. The number of branches with solar energy in the green banking system of Bangladesh from 2023 to the first quarter of 2024 (seasonal)



Source: Quarterly Review Report on Sustainable Finance of Banks & Finance Companies 2023&2024

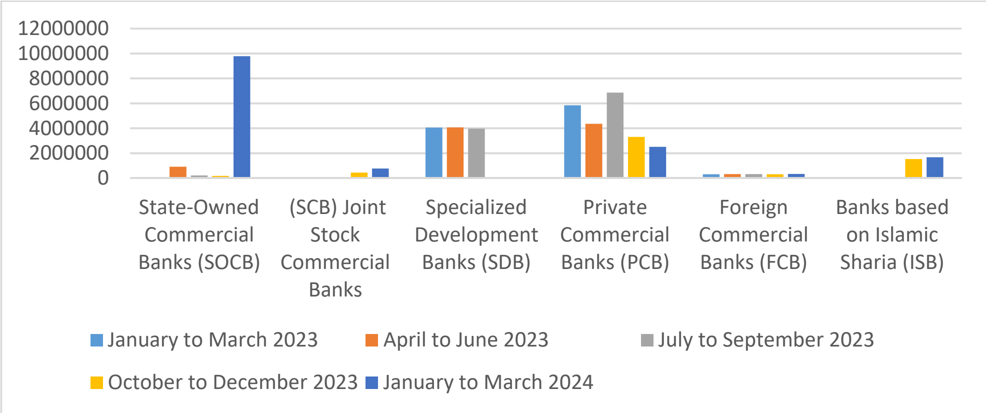
The number of bank branches that work with solar energy has increased from 688 branches in the first quarter of 2023 to 548 branches in the first quarter of 2024.

4) Internet banking

Internet banking is slightly different from online banking. This difference is in providing "banking facilities using the client's personal computer.".

The password is given to the customer, and he can change the password without going to the branch. He can view the daily balance and print the relevant invoice. This facility minimizes the use of paper and time.

Chart 2.4. Total number of bank accounts with internet bank accounts in Bangladeshi banks from 2023 to 2024



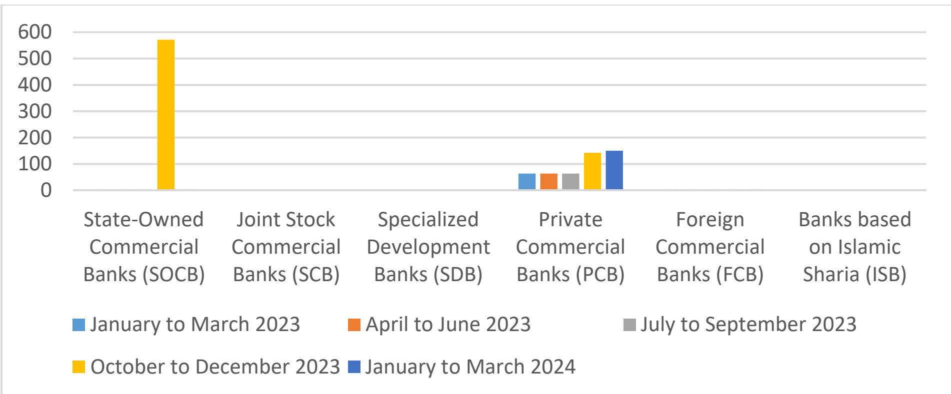
Source: Quarterly Review Report on Sustainable Finance of Banks & Finance Companies 2023&2024

In the first quarter of 2023, 910,066 user accounts were covered by internet banking in state-owned commercial banks. This number reached 9,785,972 accounts in the first quarter of 2024. Private commercial banks accounted for the most internet accounts during the period under review, although the downward trend in the creation of these types of accounts is quite evident.

Solar ATMs

Chart 2.5. shows the number of ATMs with solar energy sources from the first quarter of 2023 to the first quarter of 2024. In the fourth quarter of 2023, state-owned commercial banks used 571 solar-powered ATMs, which accounted for the largest number of such devices during the period under review. During the nine months of 2023, private commercial banks used 63 devices whose electricity was solar energy. In October to December 2023, this number has increased to 141 and in the first quarter of 2024 to 150 devices.

Chart 2.5. Number of ATMs with solar energy source from the first quarter of 2023 to the first quarter of 2024



Source: Quarterly Review Report on Sustainable Finance of Banks & Finance Companies 2023&2024

F) Suggested initiatives to Bangladesh banks for more sustainable green banking

1. New and emerging opportunities

1.1. Green commercial properties

The purpose of this department is to increase products and services in line with the development of the green commercial building sector in Bangladesh during the period of significant growth of that sector. Today in Bangladesh, the real estate sector is one of the most attractive areas of investment. Increasing urbanization has become an acute problem for the country. It is predicted that by 2025, about 50% of the people of Bangladesh will live in urban areas. Currently, there is a severe shortage of housing supply in all urban areas. If a new building is required, Bangladesh Bank can provide incentives to develop approved green buildings.

Following the announcement of construction criteria—which is more appropriate to the economic and social conditions of the country—by the "Energy Management and Environmental Design" institution, the policy lever of voluntary building production must be firmly maintained and be responsible for the rating system of green construction, approving new constructions, and providing educational and research programs in accordance with the criteria of that institution.

1.2. Entering the carbon market

Investment in carbon markets is growing. Carbon market products and services are developing rapidly. Especially among Asian, European, and Japanese banks, many banks consider climate change to be the most important environmental issue they face.

If risk-taking and market-making, Bangladesh is a good opportunity to invest in emissions trading markets in the region and the world. Most importantly, learning how to identify and determine future revenue streams associated with greenhouse gas trading will better position Bangladeshi groups to take advantage of appropriate project financing opportunities.

A bank that acquaints shareholders in general and employees in particular with the intricacies of the carbon market can improve its reputation while ensuring accurate identification and pursuit of future carbon market opportunities.

1.3. Clean technology

In the coming decades, exploiting clean energy and environmental technology opportunities will require innovative financing packages. Global investment in cleantech companies expanded rapidly in 2006 amid a market assessment of the environmental sector. Clean technologies include recycling, renewable energies (wind energy, solar energy, biomass, hydropower, biofuels, etc.), information technology, green transportation, electric motors, green chemistry, lighting, and many other applications. It is a means of generating electricity and fuel, with less environmental consequences and minimizing pollution.

2. The opportunity to be a pioneer

Considering the market value of carbon neutrality is an ideal that should be considered when selling products and services needed by customers. Carbon neutrality, or having a zero carbon footprint, refers to achieving zero carbon emissions through the measured amount of carbon released with an equivalent amount of compensation or the purchase of enough carbon credits to offset the difference. Neutralization is used in carbon dioxide emission processes related to transportation, energy production, and industrial processes such as carbon neutral fuel production. Carbon neutrality, in the case of a product or level of activity, has become an accepted practice for many organizations and individuals, while representing unparalleled opportunities for product development in the retail banking space.

3. Opportunities arising from stakeholder coordination

3.1. Producers

Banks' cooperation with contractors and manufacturers to provide green financing products introduces them to the entire product value chain, from beginning to end. This enables the bank, while strengthening the relationship between the customer and the institution, to design the product according to the needs and long-term goals of its customers.

3.2. Government

The bank should regulate the development of green financing products and services according to the country's environmental or energy policies, goals, or incentives. Collective government/private sector environmental and economic goals will help share risk and resources between the government, the bank, and solar energy manufacturers and contractors. At the same time, in the participation process, the presence of these different groups will help to spread the key messages of the environment and related products to a wide range of audiences.

3.3. Non-governmental organizations

Banks should cooperate with reputable non-governmental organizations or academic groups active in the field of environment to develop green financial products and services. This can be done through creating friendly relations, contracting complementary items in product packaging, setting up group lessons and training workshops for customers, or developing environmentally friendly criteria in lending.

4. Marketing opportunities and strategies

4.1. "Green" brand

Banks should consider business structure for green financing products and services. Historically, a number of financial institutions have weakened their brand power. However, this is changing as top executives uncover the intangible brand values. According to the CEO of UniCredit, the brand name is very important and is capable of inducing some internal and external attitudes and behaviors towards the stakeholders (employees, customers, shareholders, suppliers, and local communities). A structured "green" brand approach where global business and brands are on one side and a local brand strategy on the other, while providing confidence in local communities that products are tailored to their needs and desires, plays an important role. It also plays a role in obtaining customer loyalty and attraction. A suitable and consistent brand name for innovative products and services can play an important role in overcoming knowledge limitations and perceptual barriers that sometimes arise from being "green."

4.2. Stakeholder research

This area is concerned with conducting market research and analysis on environmental issues as well as customer segment needs and wants. This information is used to ensure which segment of customers are most likely to consider environmental products as a complement to their lifestyle, interests, and financial goals. This data can also be used in a database that is able to provide green options/recommendations (based on customer profile) for those looking for different financial solutions.

4.3. Maximum attraction of stakeholders and marketing

Overcoming perceived barriers and stimulating demand for "green" products is done through creative and educational marketing campaigns. Stakeholder participation and marketing are important to sustain green banking in Bangladesh. The ways of attracting participation and marketing are as follows:

1) Announcing the nomination of the annual green leadership award;

2) sustainable superiority in green power;

3) Market Development Award;

2.2.2. The experience of Pakistan

Green banking, an umbrella term for sustainable banking practices, is particularly notable in Pakistan due to the country's vulnerability to climate change. Integrating environmental responsibility into all banking operations, including lending and resource management, is critical to mitigating climate risks in Pakistan. Green banking in Pakistan is aligned with societal preferences, as customers in the country tend to patronize banks that support eco-friendly initiatives. However, despite these benefits, there are risks associated with reduced attractiveness among customers who are less enthusiastic about green banking activities (Khan et al., 2024). To achieve this, banks in this country offer green financial services such as green credit financing and loans to support environmental companies and projects. In addition, digitalization and new technologies also play an important role in reducing environmental impacts by providing measures such as paperless transactions. Considering the importance of the issue, some prominent and active banks in the field of green banking in Pakistan will be introduced below:

• State Bank of Pakistan (SBP)

In Pakistan, despite lower CO2 emissions per capita, environmental challenges persist. The role of the State Bank of Pakistan (SBP) in promoting green banking practices and addressing these challenges is very important (Khan et al., 2024). SBP introduced the Green Banking Guidelines (GBG) in 2017, which reflects the banking industry's shift towards climate resilience. The GBG defines responsibilities, management structures, and frameworks for implementation. In this regard, three key issues of environmental risk management, supporting green businesses, and reducing the environmental effects of the banking sector appear (Waqas & Khan, 2024). SBP has made significant progress in understanding the importance of greening Pakistan's financial system (Akram and Rappai, 2023). SBP mandates commercial banks to set environmental exposure limits and works with international bodies to develop standardized green banking frameworks, demonstrating its commitment to environmental sustainability.

- Habib Bank Limited (HBL)

HBL introduces its green products in consulting sessions or customer meetings. The bank shows special attention to certain customers, especially those interested in green savings such as green funds. Customers' familiarity with HBL's green banking and financing is increasing over time. In terms of technology adoption and digitization, most of HBL's customers have a positive attitude towards digital developments. However, some young and old customers may face challenges in adapting to these changes. Considering the importance of green banking for the main actors of the financial sector, such as HBL, the evolution and adoption of sustainability are emphasized to create wider social changes. Green offerings increase HBL's appeal to existing and potential customers.

- Allied Bank (ABL)

Allied Bank has significantly integrated sustainability into its savings division, using sustainable tools to select investments and offer environmentally friendly products. Although the bank is developing green mortgage and green bond products, these products are yet to be launched (Khan et al., 2024).

Despite the customer's interest in sustainability, awareness of the bank's green offerings is still low. Hence, this bank makes efforts to improve marketing on different platforms. The bank's business plan calls for setting up local offices across Pakistan to cater to customers who prefer physical services for their convenience and security. In areas where digitization is more practical, Allied Bank is increasing its digital services. Recognizing the growing importance of sustainability, the bank is strengthening its internal expertise in this area.

- Askari Bank Limited (AKBL)

Askari Bank demonstrates a strong commitment to sustainable and environmentally friendly practices, facilitated by its dedicated Group Sustainability Team, which is responsible for overseeing sustainability-related projects and initiatives within and outside the Bank. The team prioritizes ensuring the bank's operations are aligned with environmentally friendly practices and actively works to minimize greenhouse gas emissions and transition operations towards sustainability. The bank's customer base includes three main categories: larger companies, smaller companies, and private individuals. Larger companies typically show a higher level of awareness about sustainability issues. In contrast, smaller businesses may lack the same depth of sustainability knowledge and expertise. However, increasing pressure to adopt sustainable practices is encouraging a move toward greener operations. Private customers usually show some level of sustainability awareness; however, they may not actively seek out greener financial options such as savings, loans, and investments without asking the bank. This non-participation can be caused by a limited understanding of the banking sector and its relationship with sustainability.

Askari Bank offers green financial products such as green mortgages and green funds, which are recognized to varying degrees among different customer segments. Larger companies, because of their deeper knowledge, are usually more interested in these offerings compared to smaller businesses and individuals who may be less aware of the breadth of green products available. Sustainability is of considerable importance in Askari Bank. The bank's greener initiatives are primarily aimed at meeting the demands of customers and investors and aligning with global sustainability requirements.

With regard to the wide and diverse interpretations of green banking and sustainability, Askari Bank creates continuous challenges along with efforts to effectively reduce the greenhouse gas emissions of its customers. However, bank employees are optimistic about Askari Bank's potential to contribute to greener initiatives both locally and globally, leveraging its position as a leading financial institution and investor.

2.2.3. The experience of Türkiye

In Türkiye, banks play an important role in sustainable financing. Combating climate change and the financial sector was the main theme of the 5th Sustainable Development Forum held on September 29, 2017. Such voluntary organizations show that the Turkish business and financial sector has increased sustainability awareness. In the field of "sustainable development" banking, these organizations carry out activities such as financing energy efficiency, taking into account environmental and social impacts during lending processes, financial inclusion, financing sustainable agriculture, supporting women's entrepreneurship, etc. Seven banks3 operating in Türkiye have signed the United Nations Global Compact and agreed to include environmental and social risk assessment as part of the loan evaluation process and include it in their respective policies, as well as projects valued at $50 million and above. For example, Türkiye Sustainable Energy Financing Facility (TurSEFF) is a program created to provide financing for sustainable energy and resource efficiency investments by the public and private sectors. The project was developed by the European Bank for Reconstruction and Development (EBRD).

Conclusion

Green economy is one of the new approaches in dealing with environmental challenges that can facilitate the realization of sustainable development. The goal of implementing green economy is to design new and innovative policies based on economic knowledge in order to improve human living conditions. In line with the move towards the green economy, green financing is

---

[3] Akbank, Garanti Bankası, ING Bank, Türkiye İş Bankası, Yapı Kredi Bankası, an Türkiye Sinai ve Kalkınma Bankası.

considered a strategy for the financial sector, which includes the financing of private and public green investments in the fields of environmental services and goods, prevention, minimization and compensation of damages to the climate and environment, ultimately the financing of public policies, and today it has been noticed all over the world. In line with the goals of sustainable development, tools are considered to create a green financing mechanism, and one of these tools is green banking, which plays a vital role in improving the level of environmental sustainability. Considering the importance of this issue, the experiences of different Islamic countries in greening the banking system were reviewed. First, in order to select countries and examine their experience in implementing green banking, the green banking system of 5 countries, Bangladesh, Morocco, Nigeria, Indonesia, and Türkiye have been studied in terms of environment, society, risk management, lending process, policy (regulatory guidelines), industry leadership, mixed (leadership in industry and policy-making).

In a general summary, it can be said that most of these countries have used the mentioned scales and only Türkiye has performed poorly compared to other Islamic countries. Finally, among emerging and developing Islamic countries, the experience of Bangladesh and Pakistan was further investigated. Among the effective strategies in the implementation of green banking in Bangladesh is the development and expansion of the financial market and the creation of specialized institutions. Including environmental risks in the core of risk management, reporting green banking activities and disclosing them, creating green branches are among the important programs and actions in these areas. Also, the experience of the Islamic countries that are members of the Sustainable Banking Network (SBN) in the field of green banking also shows that active countries in formulating their strategies face challenges such as defining and measuring sustainable banking, obstacles to sustainable banking in the way of the main business of banks, creating business drivers for sustainable banking and improving the flow of information to create sustainable banking. In this regard, topics such as risk management in terms of environmental and social indicators (E&S) in the lending operations of banks and also how banks lend to environmentally friendly businesses should be considered due to the importance of this issue using the experience of Islamic countries as a checklist for the lending priority of banks is defined and designed. In the relevant checklist, both the financing ecosystem and the monitoring companies have been seen.[4]

[4] In the discussion of the green financing system, the components of the financing ecosystem that are directly present in financing have been taken into consideration. In the meantime, organizations such as the Association of Investment and Financing Consultants, which are considered as an intermediary link for financing and facilitate communication between investors and financiers, are not considered part of the financing ecosystem. Also, the energy audit companies and the energy optimization association and like that, which are in some way to help the private sector and determine the criteria and standards, are actually considered complementary to green projects and are not considered part of the financing ecosystem.

Chapter III

The Role of the Financial Market in The Green Economy

3.1. The role of the capital market (green sukuk) in green financing

Financial markets are at the core of the current globalized economy through which banks and investors allocate capital to different sectors. The capital allocated in the present will shape the ecosystems and patterns of production and consumption in the future. The capital market offers a cheaper and longer-term source of financing. Sukuk is considered as an Islamic financial bond issued in accordance with the laws of Islamic Sharia, which is used as an important financial tool for equipping and managing resources in Islamic countries.

Meanwhile, green sukuk is considered as a new source of climate financing for cities, municipalities and infrastructure projects with less carbon in different sectors and offers an opportunity for the private sector to pay attention to development priorities. Green financing refers to the positive transition of the global economy towards sustainability through the financing of public and private green investments and public policies that support green actions. In the following, the concept of sukuk, common types of sukuk, benefits of green sukuk, challenges of issuing green sukuk, and the experience of the Islamic country of Malaysia in issuing green sukuk and the mechanisms used to issue green sukuk are examined.

3.1.1. Concept of sukuk and its structure

Sukuk in Arabic is the plural of "Sak", which is a document of ownership of an asset. The Accounting and Auditing Organization for Islamic Finance Institutions (AAOIFI) defines sukuk as financial securities with a value of one year, which indicates the common ownership of the assets of a specific project or a specific investment activity and even the resulting contractual rights for sukuk holders[5].

One of the innovations of the last decade in the field of Islamic financing is the issuance of Islamic securities, which are based on Islamic contracts and are considered a suitable alternative to usurious securities, especially bonds. The general objectives of issuing Islamic securities are: means of providing financing free of lucre, providing capital, providing liquidity, converting assets into securities. The summary structure of Islamic securities is as follows[6]:

5 Green Sukuk for Financing Renewable Energy Projects,Turkish jurnal of Islamic Economics,2018

6 Mojtaba Kavand, Classification of Islamic Financial Instruments (Sukuk), Islamic Research, Development and Studies Center, Securities and Exchange Organization

Table 3.1. Structure of Islamic securities (Sukuk)

New Islamic financial instruments based on sukuk	Non-profit tools	No returns	Endowment bonds- loan bonds
	Profit tools	Tools with certain returns	Lease bonds - Murabaha bonds - Istisnaa bonds - Salvage bonds - Interest bonds - Ja'ala bonds - Power of attorney bonds
		Tools with expected returns	Partnership papers - Mudarabah papers - Farming papers - Musakat papers

Each type of sukuk is based on various Islamic contracts such as rental contracts, Murabaha, Istisnaa, Ja'ala, Power of attorney, sale, Mudarabah, partnership, etc. In designing a type of sukuk, several contracts are usually used at the same time.

The meaning of the basic contract is the type of legal relationship between the sukuk holders and the borrower, and basically the name of the sukuk is also from this point of view. The period of issuing Islamic securities means the same period or interval between the time of issuing the securities and the maturity date.

3.1.2. Definition of green sukuk

A green sukuk is a type of Islamic financial instrument that is used by issuers to finance investments in renewable energy or other environmental assets such as solar parks, biogas projects, wind energy projects, and infrastructure projects and the transmission of electricity produced from renewable energy sources. This certificate shows ownership or income from that property. This financial asset should bring environmental benefits. Despite the wide potential, the green sukuk market has not accelerated mainly due to reasons such as the lack of knowledge at the levels of issuers and investors about the process and benefits of bond issuance, complexities and pricing, lack of framework, lack of consensus among government units regarding policy coordination, lack of bankable green projects, and so on. The issuance of the world's first green sukuk by 3 energy companies in Malaysia has led to the growth of the green sukuk market and has significantly promoted clean technology flows. These actions are in line with Malaysia's agenda to achieve the goal of "Green Technology Pole" by 2030.

3.1.2.1. Benefits of green sukuk

Islamic financial instruments can play a great role in the growth and development of banking and the Islamic capital market and a significant contribution in achieving the lofty goals that the Holy Islamic Shari'ah has considered for the economic and living areas of Islamic societies. They can provide benefits such as the best way to provide capital for large economic projects and activities, a very good solution for investing investors' surplus financial resources, liquidity management of Islamic banks and financial institutions, a very suitable tool for risk and uncertainty management, a very suitable tool for fair distribution of wealth and revenues, and access to the financial resources of traditional investors interested in green projects as well as Muslim investors.

3.1.2.2. Countries experience and case studies in the field of using green sukuk

- Malaysia's experience in using green sukuk

Malaysia has been undergoing political reforms for a long time in the direction of sustainable development. The process of "greening" the Malaysian economy began in the early 1970s, when regulations were introduced to manage pollution from the palm oil industry. Since then, the importance of environmental protection in Malaysia's economic development has been recognized as a goal in the country's five-year development plan (World Bank, 2019).

An analysis of green bonds and sukuk, especially in Malaysia, reveals their vital role in supporting sustainable environmental projects that are in line with Shariah principles. These tools are vital not only for establishing conventional and Islamic financial relationships but also for addressing the wider socio-economic challenges caused by climate change (Ahmed Naseri, 2024).

The growth of green sukuk has helped promote the Islamic finance sector in Malaysia and strengthened Kuala Lumpur's position as an innovative center for Islamic banking and financing (Liu and Lai, 2021).

Meanwhile, factors such as legitimacy, competitiveness, and environmental responsibility play an important role in issuing green sukuk in Malaysia (Abdullah and Kashminder, 2022). Proceeds from the issuance of Malaysia's green sukuk have been used to finance renewable energy projects, including the construction of large-scale solar photovoltaic power plants and the implementation of energy efficiency initiatives in government buildings. These projects not only helped reduce greenhouse gas emissions but also created job opportunities and supported the development of the sustainable energy sector in the country (Bin Zulkafli, 2024). Figure 3.1. explains the process of green sukuk structure.

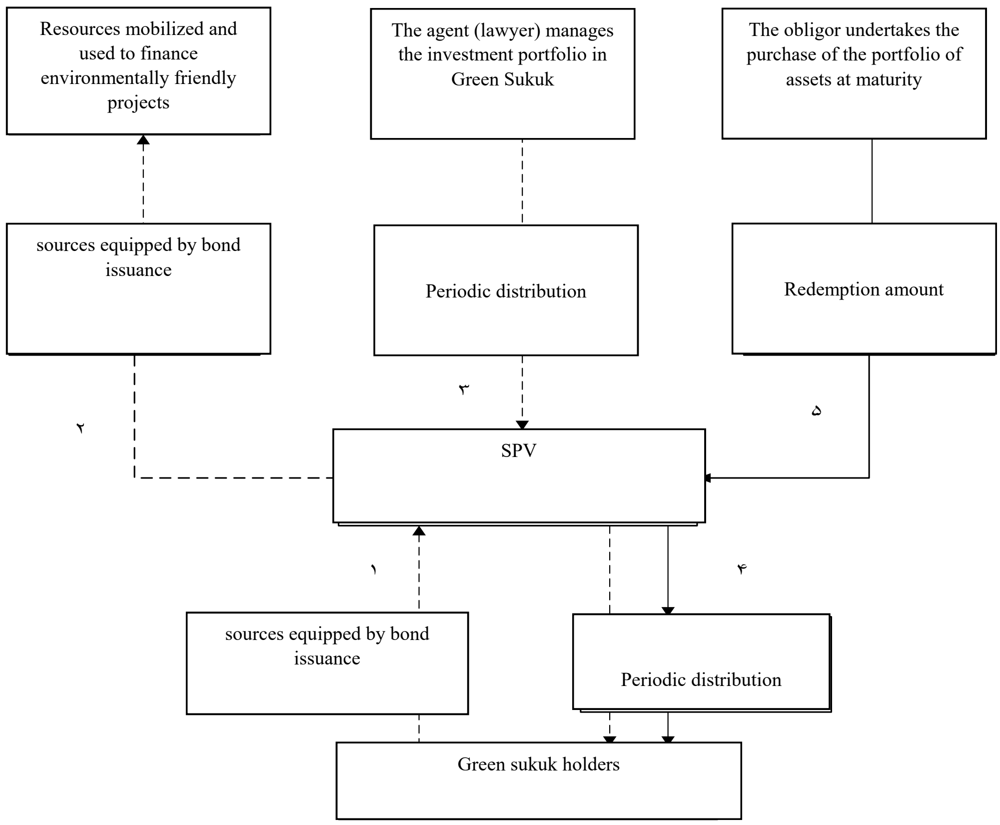


Figure 3.1. Green Sukuk structure process

The growth of green sukuk in Malaysia is in line with Securities Commission Malaysia's (SC) vision and objectives. The SRI Socially Responsible Investment Sukuk Framework was developed by the Securities Commission of Malaysia in 2014 to facilitate the financing of socially responsible investment (SRI) projects. In July 2017, Malaysia marked a new milestone in green finance and the global sukuk arena with the issuance of the world's first green SRI sukuk by Tadau Energy Co. As of April 2018, there were five green sukuk with an approved issuance volume of RM3.7 billion, of which RM2.4 billion was issued to finance renewable energy and green building projects (Table 3.1).

Table 3.1. Issuance of green sukuk in Malaysia until April 2018

Exporter	Program size (Million RM)	Date of issue	Issued amount (Million RM)	Use of proceeds
Tadau Energy	250	July 27, 2017	250	Financing of 50 megawatt (MW) solar power plants in Sabah
Quantum Solar Park	1000	October 6, 2017	1000	Financing three 50 MW solar power plants in Kedah, Melaka and Terengganu
Merdeka PNB investment	2000	December 29, 2017	690	Financing of an 83-storey office space, which is part of the PNB118 Merdeka Tower project in Kuala Lumpur
Sinar Kamiri	245	January 30, 2018	245	Financing of 49 MW solar power plant in Perak
UiTM solar energy	240	April 27, 2018	222.30	Financing of 50 MW solar power plant in Pahang

Source: SC

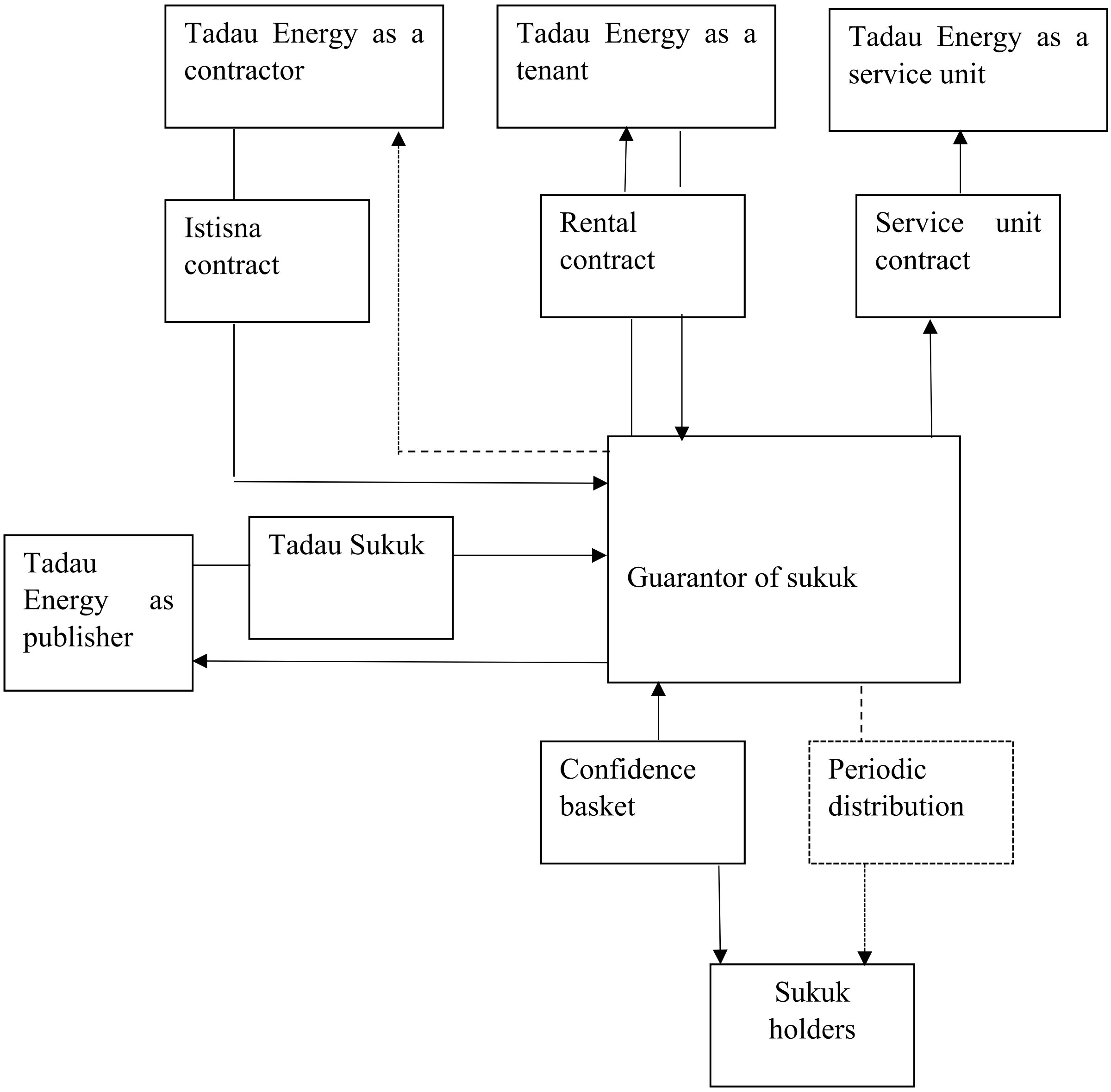
A) Tadau Energy Sdn. Bhd. (Solar Photovoltaic)

On 27 July 2017, TADAU Power Company issued 250 million ringgit sukuk under SRI sukuk. The completion of this project took 10 years. Tada Energy Company used financial resources to finance the construction of a 50 MW solar electric power generation plant. Tadau Energy signed the electricity purchase contract with Sabah Electricity Company. In addition, Tadau Energy was responsible for the financing, design, installation, testing, and commissioning of solar power plants (PV). The first bond redemption was valued at RM14 million, 2 years after the Power Purchase Agreement (PPA) entered into on 12 December 2016 between TADAU Energy (the sukuk issuer) and Sabah Electricity Company (SESB). Tada Energy acts as a sukuk issuer, and investors as sukuk holders refer to underwriters or to sukuk buyers in the secondary market at the time of issue. Hybrid sukuk is operational in two different stages:

1) At the time of starting and during the construction of the asset

2) After the completion of the asset and at the time of exploitation

Istisnaa sukuk agreement is used in both stages. The Istisnaa agreement is primarily used for infrastructure and development projects that require advance payment of funds in full or in installments for asset construction. While the sukuk rental agreement is used for the structure of sale and rent after sale, and payments are made based on rental rates. In addition, rental agreements are classified into purchase agreements, rental agreements, service agreements, and purchase commitment agreements.


Tadau Energy as a contractor
Tadau Energy as a tenant
Tadau Energy as a service unit
Istisna contract
Rental contract
Service unit contract
Tadau Energy as publisher
Tadau Sukuk
Guarantor of sukuk
Confidence basket
Periodic distribution
Sukuk holders

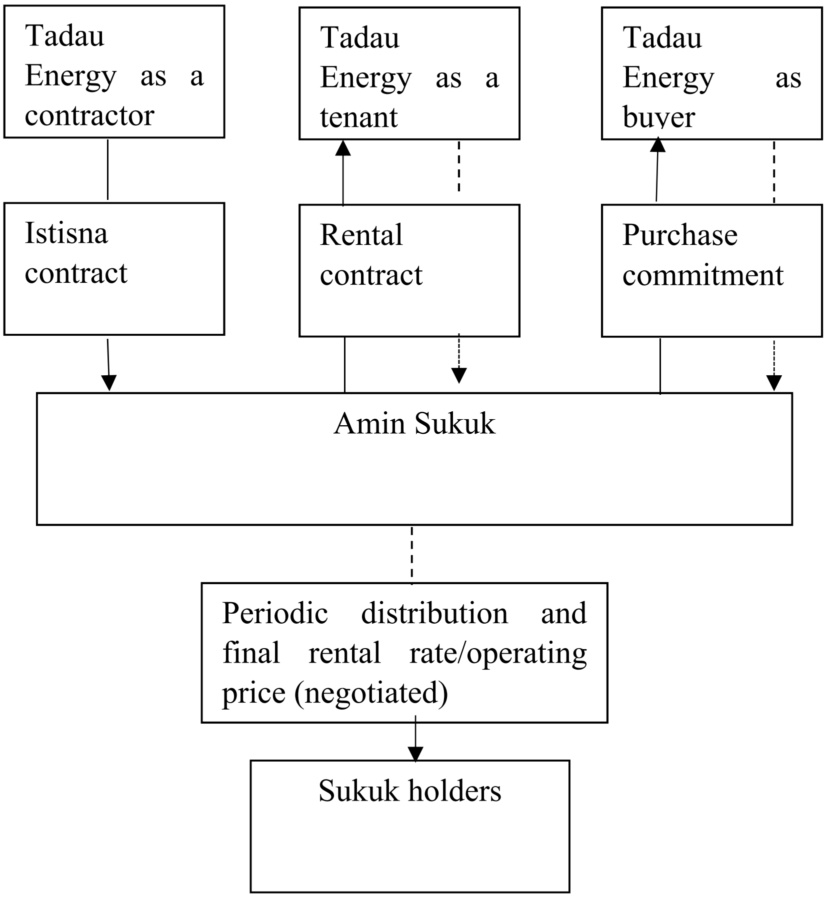


Figure 3.2. Completion of assets at maturity

b) BEWG Private company

The second case study is BEWG as a subsidiary of Blue Group LTD. Recognized as one of the leading companies in the water-related industry, BEWG offers comprehensive solutions to a wide range of clients, especially government projects. BEGW is doing a water treatment project. The project seeks to purify and improve the quality of water with the aim of solving the problem of water shortage in the unsafe area. In this project, BEWG provides related services such as water treatment engineering, wastewater treatment, water sanitation and water recycling.

To carry out this project, BEWG issued 400 million ringgit sukuk wakalah with a maturity of 8 years. The initial construction cost of the project was 79 million ringgits from the company's internal resources, and of the remaining 21 million ringgits, 8% was provided through the issuance of sukuk and 20% was provided through the capital owners. Application of sukuk wakalah by BEWG company

BEWG has chosen the sukuk wakalah model, so based on this model, BEWG acts as an investment attorney for sukuk holders (figure below). In practice, the duty of the "investment attorney" is to invest sukuk as a proxy for the relevant investment portfolio or any proxy investment. In this regard, the investment lawyer agrees to lend his skills and management for a certain period. The relationship between the manager and the investor must be in accordance with the basic conditions explained in the contract. Attorney's fees must be determined at the time of signing the contract. Based on the investment rate of return, Sukuk holders can only receive the expected interest. Surplus amounts are kept by the "investment lawyer" as his profit.

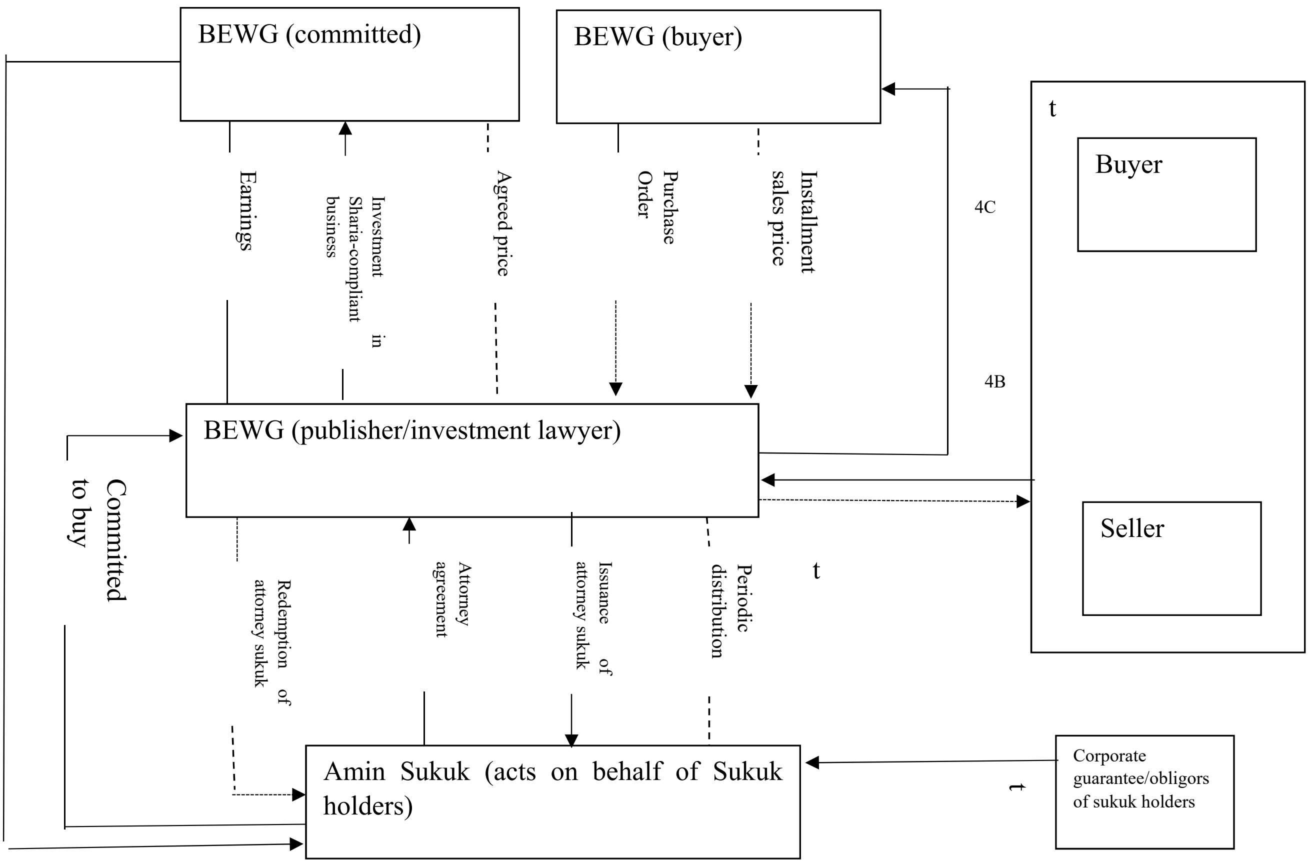


Figure (3-3) Application of sukuk wakalah

c) Application of Murabahah sukuk of Sarawak Hidro Sdn. Bhd.

Murabahah sukuk refers to trading contracts based on sale and purchase at a predetermined cost and profit. The details related to sukuk Murabahah of Sarawak Hidro Sdn. Bhd. are shown in the figure.

In this case, the company needs to buy an expensive product, and it does this with credit sales by paying its price in installments. As a seller, the company amortizes the cost and return (profit margin) over a period through installment payments. At the same time, Sarawak Hydro Company, as the publisher, publishes Murabahah Sukuk documents based on specific payment dates. Each document has a maturity date and shows the owner's right to own the sukuk and can transfer his right to another person.

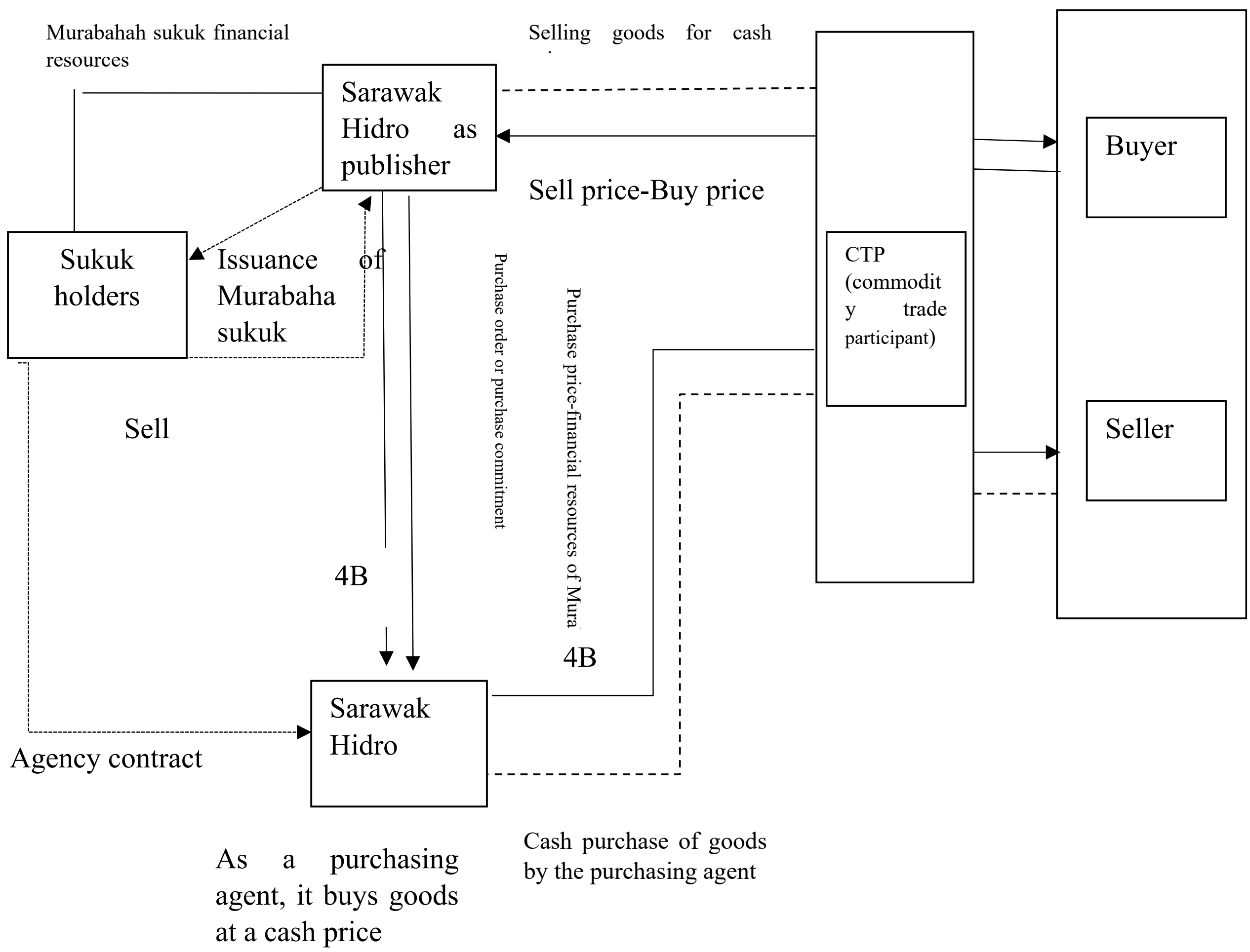
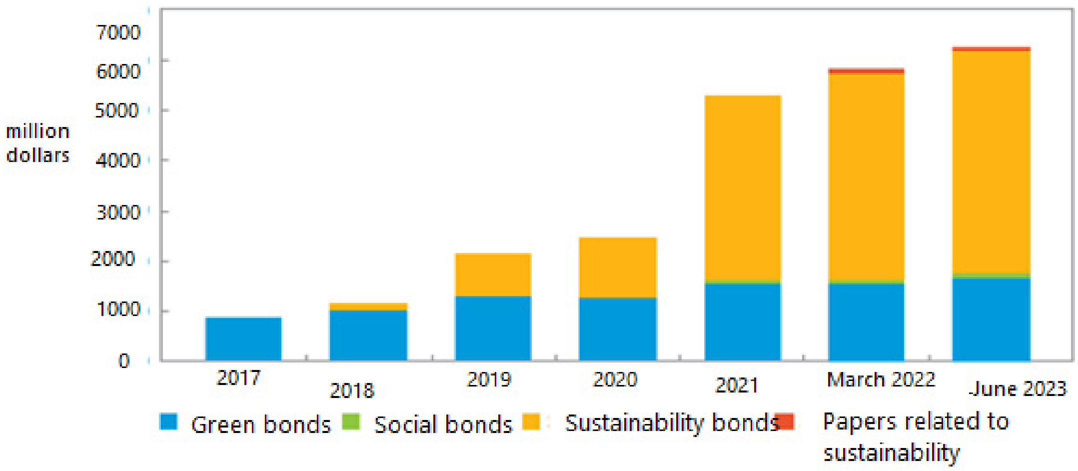


Figure (3-4). Application of Murabahah sukuk of Sarawak Hidro Sdn. Bhd.

• Malaysia's experience in sustainable bonds or green bonds (ESG)

In addition, sustainability bonds have also been welcomed in Malaysia. The classification of using bonds as green bonds, social bonds or sustainability bonds is determined by the issuer based on the primary goals of the basic projects. It was the first Malaysian Sustainability Sukuk issue, denominated in US dollars, issued by a single country, and the proceeds were allocated to eligible social projects and green projects in accordance with the United Nations Sustainable Development Goals.[7] In 2021, sustainability bond[8] issuance expanded significantly, led by the Malaysian government's $1.3 billion sustainability sukuk issuance. In Malaysia, the market for social bonds (the proceeds of which were for educational purposes) is relatively small compared to the market for green bonds and sustainability bonds (Asian Development Bank, 2022).

Diagram 3.1. Types of bonds used in Malaysia during 2017-2022



Source: ADB, 2022

• Indonesia's experience in using green sukuk

Indonesia has established its place in the global sukuk market. The country first issued a sovereign green sukuk worth $1.25 billion in 1990. The proceeds of the five-year sukuk wakalah

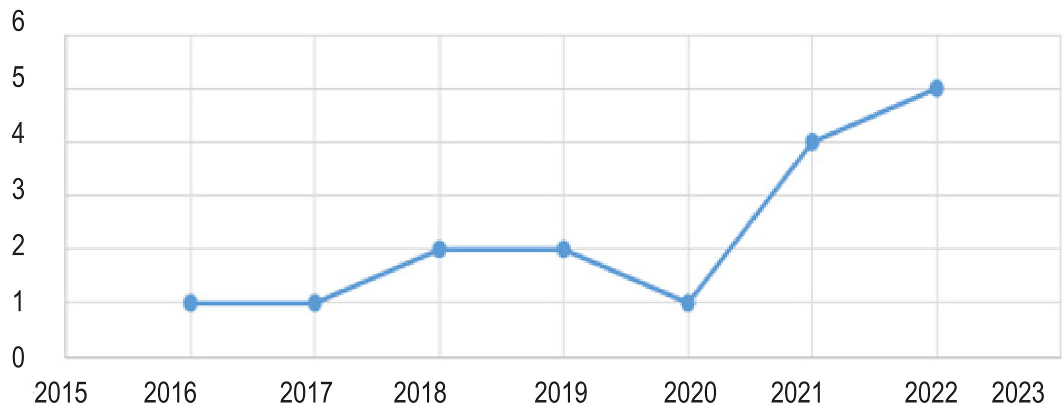
[7] Some social projects may also have environmental co-benefits and some green projects may have social co-benefits.

[8] Most Malaysian issuers prefer the sustainability label for their bonds and sukuk as this gives the issuer more flexibility on how to use the proceeds. According to the Sustainable Bond Guidelines published by the International Capital Markets Association, sustainable bonds are bonds whose proceeds are used exclusively to finance or repay green and/or social projects.

were used exclusively for expenditure in the form of budget allocations, subsidies, or financing of eligible green projects, which covered a wide range of sectors promoting the transition to a low-emission economy and climate-resilient growth, including climate mitigation, adaptation, and biodiversity. In late 2007 and early 2009, the sukuk market faltered due to the Sharia compliance debate and the current crisis in world economies, rising borrowing costs, and declining investor confidence. However, the rapid growth of the global sukuk market has created green energy and safe environmental initiatives in developed Islamic countries.

Therefore, since 2016, the Indonesian Ministry of Finance has started implementing funding for climate change mitigation and adaptation projects through green sukuk funds. In addition, the Indonesian government also issued green sukuk, which received a moderate green rating from the Center for International Climate and Environmental Research (CICERO) (Alam et al., 2023). The value of Indonesia's green sukuk declined in financial markets until November 2018. In early February 2019, the price trend started to rise above the average. The Indonesian government issued the second green sukuk in 2019, and according to the expectations of many investors, the second sale was also successful. Also, the performance of Indonesia's second green sukuk was superior to the first sukuk (Siswantoro, 2018). The figure shows the increase in the number of green sukuk issuances over time from 2015 to 2023. Based on this figure, the number of green sukuk issuances increased until 2019, but decreased in 2020. In 2021 and 2022, it increased again.

Figure 3.5. Green sukuk issuance trend 2015-2023



3.2. Green insurance

As one of the tools of the green financing system, green insurance plays several roles in moving towards a green economy. Green insurances are used to manage environmental risks by clarifying implicit costs and internalizing the negative externalities of pollution. In addition to covering cleaning costs, this type of insurance covers costs related to crimes and damages, as well as legal and medical costs. Green insurance can also play a role as an incentive and supporter in the green financing system. The implementation of a green financing system is recognized as one of the requirements of the transition to a green economy. However, this is not possible without participation and interaction with the private sector. The private sector can not only directly participate in the green financing system, but it can also benefit by identifying the opportunities that arise from the implementation of this system.

In addition to insurance companies benefiting from the expansion of the market, the possibility of achieving environmental and social goals is also provided. The requirement to apply this type of insurance exposes the costs of future pollution to polluting businesses or activities, which, as a result, reduces their incentive to invest in products with high environmental risk.

Therefore, environmental liability insurance has a special place in a green financing system and is considered one of the requirements of this system. In this section, while introducing some green insurance products, environmental liability insurance is examined in detail and recommendations for its application are provided.

3.2.1. Green insurance opportunities and obstacles

The role of the insurance industry in sustainable development and green economy can be considered in three categories: attracting financial risks, reducing the real risks of assets, safety, and health, and investing in the economy. However, the use of green insurance in the economy can have other important functions. Today, in addition to participating in threats related to global warming, insurance companies are also active in a wide range of ESG issues, such as the reduction of biodiversity and ecosystem destruction, water scarcity, poverty, the emergence of human health risks, population aging, child labor, and corruption. Another solution that has been noticed in the insurance industry in recent decades is the issuance of insurance-linked securities (ILS), such as catastrophic bonds, in which the benefits and risks of covering the risk of catastrophe events are shared with the capital market. The most important problems related to insuring risks can be attributed to supply-side barriers (fluctuations in the occurrence of accidents and, as a result, fluctuations in damage claims by insurers, the insurance monitoring process, and high administrative costs) and demand-side barriers (low awareness of risk, especially in the case of incidents with low incidence but high intensity).

In general, the insurance industry has unique capacities that should be identified while using its mechanisms and approaches to manage emerging ESG risks. The industry acts as an early warning system for society by amplifying risk signals. Improving risk knowledge, including better use of technology for more accurate risk measurement and more consumer education to promote demand for sustainable insurance products, can help the insurance industry overcome limitations and become a major player in directing financial flows towards a green economy (PSI, 2012).

3.2.2. Green insurance products

Sustainable and green products are products that, while creating economic benefits, consider their social and environmental aspects throughout their life cycle. In a general category, green insurances can be considered as two categories of products. The first category is products that consider lower premium rates for common insurance policies based on features or behaviors that are appropriate for the environment or sustainability goals. The second category is products that are designed to promote green products or activities such as clean technologies or emission reduction activities. In the following, we will introduce some types of green and sustainable insurance products that are used in some countries of the world today.

- Renovation of green properties

This type of insurance coverage is for use in the following cases:

- Environmentally friendly materials that prevent energy wastage

- Home appliances and more energy efficient equipment

In this regard, discounts are offered to policyholders for their insurance premiums.

- Real estate renewable energy coverage

This type of insurance is intended to protect homeowners who use an alternative energy system. Compensation is paid by the insurance company in situations where property owners face losses such as the following:

- Lost income from selling excess energy to local energy companies

- Additional costs for purchasing alternative energy

- Discounts for the use of damage reduction devices

Property owners who use materials or certain construction techniques to reduce storm damage in disaster-prone areas are awarded premium discounts. An example in this context is the use of shutter windows that protect the building against severe storms.

- Pollution liability or environmental liability insurance

This insurance is used for a wide range of risks and incidents. Examples in this field include legal responsibility for pollution and environmental responsibility, which are implemented based on binding regulations and laws. Environmental damage can result from different activities or risks[9].

3.3. National environmental funds

Today, the consequences of human interference in the environment have been manifested more than ever. For this reason, confronting and solving such problems requires new approaches to development, within the framework of which the necessary compatibility between development

[9] Others include: pay-as-you-go, low-emission vehicle discounts, commercial fleet greening, renewable energy project insurance, renewable energy equipment insurance, green building insurance, energy saving insurance, carbon capture and storage insurance (reduction projects publication), green building insurance against public disfavor, perishable food insurance, global weather insurance, political risk insurance for carbon trading, architects and engineers professional liability insurance discount for building inspection (Cx),

and the carrying capacity of the environment can be established. This new approach, which is referred to as sustainable development, is an approach to development that emphasizes meeting the current needs of the world without jeopardizing the ability of future generations to meet their needs.

3.3.1. Necessity of providing financial resources to protect the environment from crimes and taxes

Financial institutions or environmental funds are established in most countries of the world, especially in developing countries, to deal with the processes of environmental destruction and are considered as one of the solutions to systematize and optimally allocate financial resources in line with environmental protection programs. Among the most important reasons and necessities for creating financial institutions for environmental protection, the following can be mentioned:

• Complementary role for the implementation of environmental activities in the conditions of limited financial resources of the government

• Acceleration and better allocation of financial resources for environmental protection

• Accumulation of resources resulting from crimes of pollution and destruction, taxes and environmental charges and the possibility of allocating credit resources in a coherent and systematic way.

In summary, among the most important effective factors in increasing the efficiency of environmental funds, the following can be listed:

- Existence of favorable banking and financial skills and compatible with economic and political conditions

- Existence of coordination of environmental policies of the country and the credit policies of the Environmental Fund.

- Existence of clear environmental laws and regulations in the country and compatibility of environmental laws with each other.

3.3.2. The importance of financial institutions (national funds) for environmental protection and the reasons for their creation

The National Environment Fund was established with the aim of providing special financial services to expert and innovative entrepreneurs as well as NGOs and industries in order to help the research, scientific, and technological activities of the non-governmental sector, and they can play an effective role in protecting the environment.

On the other hand, environmental financial institutions have the possibility to provide low-interest loans to polluting industries in order to spend in line with environmental protection activities and implementation of improvement projects.

Environmental funds can be very important in the international dimension. This fund can be justified from the point of view of reducing the international pressure on the government, organizing facilities for granting environmental protection activities, and clarifying the evaluation of government subsidies, as well as clarifying the way of international aid within the framework of conventions.

The development of environmental protection financial institutions in many countries, especially in developed countries, has caused the rapid expansion of environmental industries and technologies, which has also made this field profitable.

Environmental protection financial institutions are established in most developing countries in the form of funds in order to direct financial resources towards environmental goals and policies. The following are the most important reasons for establishing such institutions in developing countries:

- Limitation of the government's financial resources for the implementation of environmental plans and projects

- Reducing internal and international political and legal pressures in the field of environmental considerations

- Developing financial markets and laying the groundwork for the spread of environmental industries

- Compilation of crimes, tolls and environmental taxes and coherence in policy-making in line with environmental prevention and improvement activities.

3.3.4. Types of environmental funds

Usually, based on the nature and function, there are three types of environmental funds in the world:

A) Earmarked Tax Funds

These funds are generally established by governments and are provided from environmental taxes, penalties, costs resulting from product taxes, and costs of using the environment in the form of taxes.

These funds are responsible for providing financial resources for environmental improvement activities, allocating cheap loans to polluting industries and activities, and providing grants to deal with the environment.

B) Directed credit funds

These funds are established by international organizations such as the World Bank or by national governments for the purpose of mediation and financial agency. The aforementioned funds are established to finance small businesses and projects related to municipalities and avoid direct financing of projects.

C) Green Fund

Green funds are mainly formed by environmental non-governmental organizations (NGOs), and their financial resources are also established by members and environmentalists. The nature and function of these funds are such that they are mainly used to provide financial resources for the protection of national parks, biodiversity protection activities, or similar projects.

In another division, funds are classified into three groups according to whether they are governmental or non-governmental:

a) National environmental funds:

Most of the financial resources of these funds are provided by the government. These funds support a wide range of environmental activities, and the scope of their activities is very wide. These funds are active in most countries of the world.

b) Environment and natural resources protection funds:

These funds are mostly established to protect natural resources and protected areas, especially in developing countries. One of the mechanisms of providing financial resources from these funds is the "debt-for-nature swaps," which has been developed since 1980.

c) Support funds for non-governmental organizations protecting the environment.

These funds are formed with the aim of supporting non-governmental organizations and local communities for the implementation of environmental protection and sustainable development projects. The most important goal of establishing these funds is to strengthen and empower civil societies to protect the environment. The financial resources of these funds are mainly provided by taxes, voluntary contributions of members, and other voluntary contributions.

3.3.5. Investigating the history of environmental protection financial institutions and introducing selected countries of the world

In the last few years, environmental protection and sustainable development organizations have come to believe that the prerequisite for achieving environmental protection and sustainable development is the existence of sustainable financial resources without relying on government resources.

For this reason, the creation of environmental protection funds as a mechanism that can provide sustainable financial resources to the custodians of the environment and sustainable development has been in the spotlight. Based on this, during the past few years and especially after the Rio Conference in 1992, several funds have been established in developed and developing countries to provide the necessary financial resources to protect the environment and achieve sustainable development goals.

With the increase in the number of funds and their activities in some countries of the world, it has prompted many countries to put mechanisms in place to strengthen and empower these funds.

Among the national environmental protection funds, the following can be mentioned:

1. National Environmental Protection Fund of Bulgaria
2. National Environmental Fund of the Czech Republic
3. Central Fund for Environmental Protection of Hungary
4. National Environmental Protection and Water Management Fund of Poland
5. Slovak National Environmental Fund
6. National Environmental Fund of Kyrgyzstan
7. Federal Environmental Fund (FEF) of Russia
8. National Environmental Protection Fund of Ukraine
9. Environmental Fund of China

Conclusion

One of the key issues in the field of moving towards a green economy is financing climate change and adaptation and providing the necessary investments to reduce emissions and create a create a low-carbon economy. In this regard, one of the challenges of capital mobilization is how to push the financial system towards funds in plans and projects in which return of capital occurs in the long term. Considering the importance of this issue, "the role of the financial market in the green economy" was studied and investigated in three separate sections, including "green sukuk," "green insurance," and "national environmental funds.".

Green sukuk was studied as a new source of climate financing for cities, municipalities, and Islamic financing tools for financing green projects in environmental protection, which is considered an opportunity for the private sector to pay attention to development priorities. In this regard, the experience of Malaysia (which published the first international Islamic finance tool) in using green sukuk to finance solar cell (PV) power plants, finance water treatment projects and finance hydroelectric power plants makes it clear that the use of this green financing tool in order to expand the financial support of the government as a legal, acceptable and efficient tool (for both government and non-government companies) can provide financial resources for financing green projects through the creation and announcement of a transparent mechanism in this context, facilitating the issues related to the issuance and rating of green sukuk bonds and guide the establishment of rating institutions and be considered an important step in this field. In addition, the use of green sukuk as one of the tools of green financing can solve many problems related to green financing of economic enterprises, all of which are the duties of the Islamic government to achieve sustainable development.

"Green insurance" was also investigated as one of the tools of the green financing system to manage environmental risks. Therefore, efforts should be made to provide mandatory pollution liability insurance regulations in accordance with environmental standards. This can be done by creating new environmental laws or using the capacities of existing laws.

Today, the use of creating financial institutions, or "national environmental protection funds," has been proposed as one of the most important solutions to reduce environmental damage, and depending on the economic and social conditions of different countries in the world, they have achieved relatively favorable performance. For this reason, in recent years, in most of the developed and developing countries, national environmental protection funds have been formed, and they act as one of the most important executive arms and provide financial resources to promote environmental goals and activities in the countries.

Chapter IV

International Institutions and Green Economy Financing in Developing Countries

With the importance of environmental protection issues at the global level, especially the formation of discussions about the necessity of action to prevent the increase in the temperature of the earth and climate change as a result, as well as planning to make economies resistant to climate change by taking some measures to deal with the effects of climate change, the issue of green financing, especially for developing countries, has attracted the majority of attention and discussions among various activists at the bilateral and multilateral levels.

International and multilateral financial institutions for financing the economy and green growth include a range of multilateral financial institutions based on market and investment mechanisms, such as development banks, and multilateral and international financial institutions and initiatives based on non-market mechanisms. The most important multilateral international financial institutions are non-market funds. Along with development banks and funds that use various forms of loans, grants, investments, bonds, etc., there are mainly international institutions and programs whose main role is actually policymaking and establishing a set of criteria and standards for financing in the field of economy and green growth. Therefore, in this section, we examine the role of development banks, especially the World Bank, as well as funds in the field of international financing of the green economy. Before that, it is necessary to review the multilateral proposals that propose, define, and establish the rules, principles, criteria, and decision-making system for the international financing of the green economy.

4.1. International policy-making institutions in the field of green economy financing

4.1.1. Financial initiative of the United Nations Environment Program (UNEP FI)

The United Nations Environment Program Financial Initiative is an international partnership and cooperation program between the United Nations Environment Program and the financial sector, which was established in 1992 following the meeting of the Earth Summit in Rio de Janeiro and with the proposal of commercial banks. The mentioned financial initiative has 215 members from financial institutions and 41 supporting institutions, which include banks, investors, and insurance companies. In fact, the main goal of UNEP FI is to bring in the private sector and the global financial sector, especially commercial and investment banks, and to encourage the mentioned sectors to implement the principles of sustainable development, especially in the environmental and social dimensions, at all operational levels in the financial sectors.

4.1.2. European Union

The European Union, as one of the most important multilateral institutions in the world, has announced and implemented extensive initiatives, programs, and policies in the fields of environmental protection, sustainable development, energy efficiency, and moving to green and low-carbon economies. In such a way that the European Union can be considered a pioneer in the field of sustainable development and green economy.

The policy of the European Union in the field of green economy and green financing is mainly designed, compiled, and implemented by the European Commission.

4.1.3. The Group of Twenty (G 20)

The Group of 20 is an assembly of the world's major economies that formulates and implements global policies, especially in response to global challenges in the economic and development fields. This assembly consists of 19 countries (Argentina, Australia, Brazil, Canada, China, Germany, France, India, Indonesia, Italy, Japan, Mexico, Russia, Saudi Arabia, South Africa, Türkiye, England, and the United States) and the European Union (European Commission together with the European Central Bank). The Group of 20 is the initiative and proposal of the Ministers of Economy and Finance and the heads of central banks of seven industrial countries in 1999.

4.1.4. OECD Center for Green Financing and Investment

Since 1972, when the Polluter Pays Principle was conceptualized, the Organization for Economic Cooperation and Development (OECD) has encouraged countries to adopt environmental approaches and green growth. According to the OECD, during the transition period to a green, low-carbon, and climate change-resistant economy, it requires very large structural reforms that must be implemented at the international level, and this transition will not be available without comprehensive interaction and cooperation between governments and public sector authorities at different levels and all private sectors and civil society.

4.1.5. Clean Development Mechanism (CDM)

The Clean Development Mechanism (CDM), defined in Article 12 of the Kyoto Protocol, allows a country with commitments to reduce or limit emissions under the Kyoto Protocol (Annex B countries) to implement emission reduction projects in developing countries. Such projects can earn saleable certified emission reduction (CER) credits. Each credit is equal to one ton of CO2 reduction, which can be calculated in achieving the goals of the Kyoto Protocol.

4.1.6. The capital adequacy requirements for banks (Basel III)

In December 2010, the Basel Committee on Banking Supervision (BCBS) published the text of the international regulatory framework for banks known as Basel III. This guidance framework oversees international regulatory standards for banks' capital resources. This document was approved by the leaders of the Group of 20 at the summit meeting in Seoul, South Korea. The purpose of this framework document is to increase the risk coverage of banks' capital and support against systematic risks, which continues along with the globalization of the financial system and the increasing interactions of activists at the global level.

4.1.7. United Nations

It has been compiled based on the general framework of the Third UN Financing for Development agreement, based on three documents: the UN Sustainable Development Goals, the Sustainable Development Goals agenda document, and the approvals of conferences to the Parties of the UN Framework Convention on Climate Change (UNFCCC). The United Nations documents in the field of greening and sustainability of the financial sector are voluntary and non-mandatory, and their purpose is to reduce the damage to the environment and society.

4.1.8. UN Environment

The United Nations Environment Program Financing Initiative, known as UNEP FI, is a partnership between UNEP and the global financial sector that was established in 1992 after the Summit. More than 230 institutions and financial institutions, including banks, insurance, and investors, are members of this initiative. This initiative focuses more on policies. The main focus of the UNEP financing initiative is the text of the declaration of commitment by financial institutions regarding sustainable development.

4.2. International policy-making banks in the field of green economy financing

4.2.1. World Bank

The World Bank has two main goals in its mission: 1. Reducing absolute poverty by reducing people with an income of less than one dollar and ninety cents a day; 2. Increasing prosperity by raising the income of 40% of the low-income population of each country. The World Bank also introduces the important mechanism of financing development and assistance to developing countries through 5 subsidiary institutions that make up the World Bank Group. The five institutions of the World Bank are:

1- The International Bank for Reconstruction and Development (IBRD), which provides loans to the governments of middle-income developing countries,

2- The International Development Association (IDA), which provides interest-free loans to the governments of very poor countries,

3- The International Finance Corporation (IFC), which is the largest international financial institution for financing and investing in the private sector of developing countries,

4- The Multilateral Investment Guarantee Agency (MIGA), which guarantees foreign direct investments in developing countries for investors.

5- The International Development Association (IDA), which has provided mechanisms for the settlement of claims related to investments through conciliation and arbitration.

4.2.2. Asian Development Bank (ADB)

The Asian Development Bank was established in 1966 based on the World Bank model (with a weighted voting system) at the regional level, with its headquarters in the Philippines. Asian Bank has 31 branches around the world. The aim of the bank is to promote social development and economic development in Asia. The members of the Asian Development Bank are member countries of the United Nations Economic and Social Group for Asia and the Pacific and developed countries outside the region.

4.2.3. European Investment Bank (EIB)

The European Investment Bank is a European non-profit financial institution that provides long-term interest-free loans under the Treaty of Rome. The shareholders of this institution are European countries. This bank pursues the strengthening of cultural convergence and interdependence in Europe. The policies of this bank are determined by the shareholder governments through the board of directors and the executive board. This bank is considered the largest public (government) lender financial institution.

4.2.4. Islamic Development Bank (IDB)

As a multilateral development bank with 57 members, Islamic Development Bank seeks to help the economic and social development of Islamic countries and societies around the world. The bank has defined its mission based on the following principles:

- Economic growth through getting out of poverty,

- Creating the necessary infrastructure for economic growth,

- Participation based on cooperation, especially between the private and public sector,

- Sustainable solutions to face the world's major challenges within the framework of the United Nations Sustainable Development Goals.

4.2.5. European Development Bank (EDB)

The European Development Bank has explained the policies and approaches of the European Development and Reconstruction Bank (EBRD) in a document titled "The Approach to the Transition to the Green Economy (2021-2025)". Based on this approach, the bank's activities are more focused on sustainable environmental development. The approach of transition to the green economy is based on the general and principled policies of the bank, which are based on principles of transition impact, sound banking, and additionality.

4.3. International policy-making funds in the field of green economy financing

4.3.1. The Green Climate Fund (GCF)

The Green Climate Fund is a multilateral and global fund that was established in 2010 by the member countries of the United Nations Framework Convention on Climate Change (UNFCCC). The headquarters of this fund is in Songdo, South Korea. The purpose of establishing this fund is to help developing countries implement projects and programs to reduce or limit greenhouse gas emissions and measures to adapt to the consequences of climate change.

4.3.2. Adaptation Financing Fund (AF)

The establishment of the Adaptation Fund was approved in 2001 at the 7th Conference of the Parties to the United Nations Climate Change Convention and under the Kyoto Protocol in Morocco, and then at subsequent meetings held in 2005 and 2006 in Canada and Kenya. The approach, principles, and framework of this fund were approved. This fund finances adaptation projects in developing countries. Since 2010, the total amount that this fund has committed to allocating is slightly more than 500 million dollars for 80 projects.

4.3.3. Global Environmental Facility (GEF)

The Global Environment Facility (GEF) is an international fund administered by the World Bank that finances environmental and climate change projects. The Jeff Fund is the largest environmental financing fund in which 183 countries participate. About three decades have passed since Jeff's establishment and activity.

4.3.4. Climate Investment Fund (CIF)

The Climate Investment Fund was established with the participation of 5 development banks (AFDB, ADB, EBRD, ADB, and WB) in order to deal with climate change in a multilateral manner. The fund uses a set of tools to finance and reduce risk. Such as grants and highly concessional financing. The goal is to help developing countries achieve climate resilience and low-carbon development.

4.3.5. OPEC Fund for International Development (OFID)

The OPEC Fund for International Development (OFID) is a development financing fund established by OPEC members in 1976 to provide development assistance to developing countries. The main goal of the OPEC Fund for Development is to help economic growth and alleviate poverty in developing countries. The projects that are financially supported by this fund are mainly in the fields of food security, energy, fresh water, health, education, and related infrastructure.

4.3.6. Abu Dhabi Fund for Development and International Renewable Energy Agency

The International Renewable Energy Agency (IRENA) is an international organization that works with around 170 member countries to help them transition to renewable energy on a sustainable energy basis for development. The assistance of this agency is not limited to grants and financial investments and includes the transfer of knowledge and technology.

4.3.7. Nordic Development Fund (NDF)

The Nordic Development Fund (NDF) is a multinational development financial institution that was established by the 5 Nordic countries (Northern Europe) including Denmark, Finland, Iceland, Norway, and Sweden in 1989, and its headquarters is in Helsinki. This fund finances projects in least developed countries and lower-middle-income countries in Latin America, Asia, and Africa, especially projects related to climate change and development. This fund follows the general policies of the Nordic countries in the field of development with regard to factors such as poverty reduction, gender equality, and human rights.

4.3.8. Middle East and North Africa Transition Fund

The main goal of this initiative and its related fund is to help Arab countries in the Middle East and North Africa region to transform their economies. Due to the fact that it covers the Arab countries of the Middle East and North Africa, it is not possible for our country to benefit from the technical and financial assistance of this fund, which was formed based on the initiative of the Group of Eight industrialized countries in 2011.

4.3.9. Special Climate Change Fund

The Special Climate Change Fund was established under the United Nations Framework Convention on Climate Change in 2001 to finance projects related to the reduction of greenhouse gas emissions, climate change adaptation measures, water resources management, agriculture, energy, transportation, industry, forestry, waste management, and economic diversity. This fund has a complementary role for other financing institutions under the mentioned convention.

Conclusion

As mentioned in the introduction of this research article, the main trends and characteristics of financing the economy and green growth in the world can be classified as follows:

- In recent years, due to the intensification of international environmental debates and especially the challenging issue of climate change, the financing of green economies and eco-friendly economic activities has been the focus of politicians, economists, financial institutions, and civil activists. It is in dire need of encouraging and supporting stimuli such as the public sector, governments and government financial resources, and multilateral aid. Therefore, the green economy still cannot rely on private financial markets based on the return of investment profits and its economic logic.

- Green financing of the world has followed a two-dimensional mechanism:

One is the expansion and development of the literature related to the financing of growth and green economy with conceptual expansion and policy frameworks and general policies that are mainly developed and presented by international institutions and organizations, international summits and forums, and regional and international institutions. Second is funding environmental and green projects and programs through banks with different financial and investment tools or creating multiple funds.

- Of the total financial mechanisms in the world that provide the possibility of benefiting the environmental and climate projects of our country, we can mention three main mechanisms: funds, banks and bilateral aid. Given that Iran is classified as a middle-income developing country, it will be less likely to receive many financial resources that are free of charge or with low interest. However, if the projects have investment money, it can be attractive and cost-effective for financing from banks. As far as banks are concerned, returns on investments are very important.

- The most important obstacle to our country's availability of financial resources for the implementation of green economy projects and programs from our country right now is the obstacles caused by sanctions and political considerations. As long as there are sanctions conditions, and anti-Iranian policies are implemented by the donor powers, especially by the United States through international financial mechanisms, the chances of having multilateral and even bilateral financial resources are very low and tend to zero.

- In connection with the set of foreign financial mechanisms (banks, funds and bilateral aids) studied in this article, which can be planned to be used in the field of economy and green growth, there are some other considerations and obstacles. These considerations and obstacles are in addition to sanctions and political considerations. Our country is not present in some of these mechanisms and institutions, so it is not possible to use their resources, such as the Asian Development Bank. Our country is present in some of them and is known as a donor country, such as the OPEC Development Investment Fund.

In this fund, OPEC member countries cannot receive financial aid from the fund. European funds are mainly focused on the geographical area of Europe and therefore Iran cannot benefit from them. In connection with the use of financial resources available in other mechanisms, except bilateral foreign financial resources that are mainly proposed in the form of joint investment for the implementation of projects and programs, the problems of project preparation and delivery capacity are significant. Weakness of expert and specialized ability to present projects that meet the conditions and criteria of the funds and can be evaluated for receiving financial resources is one of the major obstacles in this direction.

Considering that today most of the international financial resources are prioritized in the field of climate change, therefore, both the public sector and the private sector of our country should pay more attention and focus to projects and programs that aim to reduce greenhouse gas emissions than other green and environmental sectors. The impact of emission reduction programs and projects can be direct, which are called emission reduction projects, or indirect, which are called climate change adaptation projects.

- In the field of climate change, today the Green Climate Fund (GCF) has been identified and introduced as the largest provider of financial resources. This fund allocates financial resources to both types of emission reduction and adaptation projects. There are various prerequisites for using the financial resources of this fund. First, there must be an intermediary institution that is acceptable to the fund. The Iranian intermediary institution has not been introduced or identified yet. However, there is an opportunity to use the fund's intermediary institutions.

- In the field of environment, apart from climate, the World Environment Facility is still the largest international multilateral financial institution. The projects that are proposed to Jeff must have the conditions and features desired by Jeff. The preparation of the project to be presented to Jeff must have a special expertise. In order to present the project, the private sector must use the channel of the Environmental Protection Organization, which acts as its national reference in the country.

References

1. "Human Development" report (1994), United Nations Development Program, translated by Qadratullah Memarzadeh, Program and Budget Organization

2. Presidential Development and Development Cooperation Center (2017), European Union Commission report on tradable certificates for energy saving, (market model of energy optimization with white certificates).

3. Akram, P., & Rappai, S. A. (2023). Greening Pakistan's Finance Sector. (International Finance Corporation 2023) https://www.ifc.org/en/stories/2023/greening-pakistans-finance-sector. (Accessed on May 28, 2024).

4. Bin Zulkafli, M. A. H (2024) Financing Green: Exploring Sukuk As A Tool For Sustainable Investment In Islamic Finance, university utara Malysia.

5. Green Bond Market Survey For Malaysia, Insights On The Perspectives Of Institutional Investors And Underwriters, (2022). Asian Development Bank. http://dx.doi.org/10.22617/TCS220506-2

6. Khan, A. Laeeque, S.H. Munir,M. (2024). Green Banking in Pakistan: A Qualitative Study.The Asian Bulletin Of Green Management And Circular Economy , Vol 4, Issue 1.

7. Lalon, Raad Mozib. (2015). Green Banking: Going Green. International Journal of Economics, Finance and Management Sciences. vol. 3, no. 1, 2015, pp. 34-42

8. Liu, F.H.M. & Lai, K.P.Y. (2021) .Ecologies of green finance: Green sukuk and development of green Islamic finance in Malaysia. Environment and Planning A: Economy and Space1914-1996.8(53) https://doi. org/10.1177/0308518X21103834

9. Pathan, M. Sh. Kh. Ahmed,M. Ali Khoso, A (2022). Islamic Banking Under Vision of Green Finance: The Case of Development, Ecosystem and Prospects, International Research Journal of Management and Social Sciences, Vol. III, Issue 1.

10. Siswantoro, D. (2018). Performance of Indonesian green sukuk (Islamic bond): A sovereign bond comparison analysis, climate change concerns? IOP Conference Series: Earth and Environmental Science, 200(1), 012056. https://doi.org/10.1088/1755 1315/200/1/012056

11. Sanjoy Pal ,(2015)"ADVANCEMENT OF GREEN BANKING LAYOUT AND TREND IN BANGLADESH", International Journal of Economics,Commerce and Management, United Kingdam, ISSN 23480386,Vol III, Issue 11, November

الغرفة الإسلامية للتجارة والتنمية
Islamic Chamber of Commerce and Development
Chambre Islamique de Commerce et de Développement

**Iran Chamber of Commerce,
Industries, Mines and Agriculture**

Apt 12, No. 6,15th Khordad Alley, Taleghani Ave, Tehran, Iran
info@icricinternational.org
+98 21 88 81 05 27
+98 21 88 34 68 03-4
www.icricinternational.org