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Syed Asim Ali Bukhari, Fathyah Hashim, Azlan Amran

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Green banking: a strategy for attainment of UN-Sustainable Development Goals 2030

Syed Asim Ali Bukhari*

Graduate School of Business,
Universiti Sains Malaysia,
11800 USM Pulau Pinang, Malaysia
and
Bank AL Habib Limited,
Green Banking Office,
Karachi, Pakistan
Email: aasimalibukhari@yahoo.com
*Corresponding author

Fathyah Hashim and Azlan Amran

Graduate School of Business,
Universiti Sains Malaysia,
11800 USM Pulau Pinang, Malaysia
Email: fathashim@usm.my
Email: azlan_amran@usm.my

Abstract: All over the world, countries are facing severe climate change and environmental degradation. Green banking has been developed and adopted as a banking ideology to reduce the adverse environmental impact of various polluting industries. The purpose of this study is to develop a multidimensional framework for green banking adoption which is in line with the United Nations-Sustainable Development Goals (UN-SDGs) 2030. Green banking can play an important part in the attainment of the UN-SDGs 2030. This study demonstrates the dimensions of green banking adoption that can be adopted by banks in order to facilitate the environmental sustainability of the country. The study proposes the framework for green banking adoption based on the natural resource-based view (NRBV) of the firm. The first-order constructs in the framework have been derived from the green capabilities proposed in NRBV of the firm. These reflective constructs lead towards the second-order construct of green banking adoption. The proposed framework is developed and justified on a theoretical basis and through secondary data.

Keywords: green banking adoption; UN-SDGs 2030; green building; green audit; green financing; green capabilities; natural resource-based view; NRBV.

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Biographical notes: Syed Asim Ali Bukhari is a PhD Scholar in the Graduate School of Business, Universiti Sains Malaysia (USM), Penang, Malaysia. He is serving as a Chief Manager – Green Banking Officer in Bank AL Habib Limited, Pakistan. He has more than 16 years of practical experience. He has also authored a number of articles in international journals and daily English newspapers. He also conducts trainings on green banking in the Institute of Bankers Pakistan-State Bank of Pakistan and Bank AL Habib Limited Pakistan.

Fathyah Hashim is a Senior Lecturer at the Graduate School of Business, Universiti Sains Malaysia (USM), Penang, Malaysia. She teaches ‘accounting for managers’ in the School’s MBA program. Her research and expertise focus on corporate governance and financial reporting. She has been actively involved in conducting contract research for multinational and local companies in Malaysia. She is working as an Accounting Lecturer at one of the private colleges in Kuala Lumpur.

Azlan Amran is a Dean from the Graduate School of Business, Universiti Sains Malaysia, Penang, Malaysia and well renowned academic researchers in the areas of corporate sustainability and corporate governance financial markets. He is an Associate Fellow for Centre Global Sustainability Studies, Associate Fellow for National Higher Education Research Institute, Deputy President Asian Academic Management, and Technical Committee member for ISO 26000.

1 Introduction

Uncertain times have gripped the world in the form of global pandemics like the COVID-19 and rapidly depleting natural resources and climate change. The world is currently facing severe threats to the natural environment and resource base in the form of increasing pollution owing to an unsustainable rise in the human consumption patterns in almost all areas. Efforts for the attainment of environmental and social sustainability picked up pace during the last few decades with a number of international protocols, principles and treaties being adopted by both the developed and developing countries (Mendez and Houghton, 2020; Sood and Arora, 2019). Among the various milestones in the journey of global environmental sustainability initiatives the United Nations-Sustainable Development Goals (UN-SDGs) 2030 has profound importance. In September 2015, UN General Assembly gave 17 Sustainable Development Goals (SDGs) for ensuring the environmental and social sustainability (Kassim et al., 2020).

In the past, the majority of the international environmental protocols, treaties, and regulations for battling the natural environmental problems mostly focused on the manufacturing industries. The banking industry was perceived to be an environmentally neutral industry by a majority of the stakeholders (Eshet, 2017). However, research has revealed that the banking industry can also have potential negative impacts on the natural environment both through its daily operations and financing of polluting industries (Ahuja, 2015; Gursoz, 2017). This has led to the development of the concept of green banking. Green banking was developed as a paradigm shift for the banking industry and is defined as “inculcation of environmental consciousness as part of organizational culture and the reorientation of banking products & services and operations to reduce the

environmental impact of banks and the economy” (SBP, 2017). According to the International Finance Corporation (IFC), the operationalisation of green banking is still evolving. The adoption, implementation, and development of green banking are largely dependent on the particular country’s ecological, economic, regulatory and cultural dynamics. Countries have taken diverse routes to green banking adoption. This has been identified as one of the reasons for the absence of a framework for defining and measuring green banking until now (IFC, 2015c). The concept of green banking adoption is intricately connected with the effective implementation of the UN-SDGs 2030. Banks are the primary source of financing the various environmental and social sustainable business operations necessary for achieving the UN-SDGs 2030 (Julia and Kassim, 2019b).

This study attempts to fill a research gap in the field of green banking adoption by proposing a green banking adoption framework based on the theoretical foundation of the natural resource-based view (NRBV) of the firm. The framework demonstrates how the adoption of various green banking adoption dimensions can play an important role in the attainment of UN-SDGs 2030. The proposed framework is further supported through secondary research, industry best practices and global green banking adoption regulations, policies, and guidelines. The aim of this study is to develop a green banking adoption construct that can serve as a pathway for green banking adoption by a country’s regulatory authorities and the individual banks.

The next section reviews the literature regarding green banking and the theoretical basis of the study.

2 Literature review

2.1 Green banking

The IFC has defined green banking as “risk management through the screening and minimization of environmental & social (E&S) risks as part of banks’ decision making processes and green loan origination by supporting businesses and industries with a positive impact on the environment and society” (IFC, 2015c). A green banking system is characterised by the adoption and implementation of green banking principles, standards and the active utilisation and commitment of the bank’s assets to green investment initiatives. It also inculcates the avoidance of environmental and social risks and the promotion of environmentally friendly financing activities (Ali et al., 2020). Green banking has also been defined as “providing innovative green products to support the activities that are not harmful to the environment and to help conserve the environment. Green banking aims to use the resources of a bank with responsibility avoiding spoilage and giving priority to environment and society” (Hossain et al., 2016).

It has also been described as “internal bank processes, physical infrastructure, and IT infrastructure as effective and efficient as possible, with zero or minimal impact on the environment” (Nath et al., 2014). It involves the formation of business strategies that are environmentally friendly. Green banking involves responsible use of resources accompanied by waste minimisation and giving priority to the environment and society in all the business activities (Bangladesh Bank, 2013). Green banking involves reducing a bank’s direct and indirect environmental impact. In the initial phases of green banking adoption, banks focus on the green transformation of its internal operations (Bukhari

et al., 2019a). This involves efficient ways of utilising renewable energy sources, automation and other pollution prevention measures to minimise the carbon footprint from daily banking operations. The next phases involve minimising the bank's indirect adverse environmental impact. Such green banking activities involve increasing environmentally responsible financing and reducing environmentally risky projects (Islam and Das, 2013). Owing to the various environmental dependencies, complexity, and interdependence of various green banking elements, different countries have taken diverse routes to green banking adoption (IFC, 2015c).

Currently limited research exists in the area of green banking adoption. Research gained momentum in 2011 but still has significant conceptual and empirical gaps (Sarma and Roy, 2020). Researchers have identified the need to conduct more research in the area of green banking adoption and implementation (Ahmed, 2012; Ahuja, 2015; Bose et al., 2017; Bukhari et al., 2019a; Chew et al., 2016). To identify the gap existing in the area of green banking adoption research, a search for journal articles published in five leading management science publishers was conducted. Journal articles with the word 'green banking' were searched in Elsevier Science, Emerald, Taylor & Francis, SAGE and Wiley Blackwell Publishing. The search revealed only ten research papers focusing on the area of green banking in their titles up until now. It identifies a significant gap in the area of green banking. The search results are shown in Table 1.

Table 1 Green banking content analysis

<i>Title</i>	<i>Source</i>
Green banking: a road map for adoption.	Bukhari et al. (2020c)
The journey of Pakistan's banking industry towards green banking adoption.	Bukhari et al. (2020a)
A scientometric analysis of literature on green banking (1995–March 2019).	Sarma and Roy (2020)
Exploring green banking performance of Islamic banks vs. conventional banks in Bangladesh based on maqasid shariah framework.	Julia and Kassim (2019a)
Green banking and Islam: two sides of the same coin.	Bukhari et al. (2019b)
Underpinning the benefits of green banking: a comparative study between Islamic and conventional banks in Bangladesh.	Sharmeen et al. (2018)
Shariah compliance of green banking policy in Bangladesh.	Julia et al. (2016)
Antecedents of intention to use green banking services in India.	Bryson et al. (2016)
Green credit, green stimulus, green revolution? China's mobilisation of banks for environmental cleanup.	Aizawa and Yang (2010)
Green banking in India.	Sahoo and Nayak (2007)

2.2 *UN-SDGs 2030*

The UN-SDGs 2030 are a set of 17 environmentally and socially responsible goals developed as a 'blueprint to achieve a better and more sustainable future for all'. The framework identifies specific targets associated with each of the goals and indicators to measure the progress in their achievement (Kassim et al., 2020). The economy of any country is largely dependent on the banking industry. Similarly, the development of a green economic system in any country is connected with the adoption of green banking.

Banking industry is the financial hub of a country which plays a pivotal role in the disbursement of financing to economic stakeholders (Bukhari, 2020). Green banking adoption can play an important role in the attainment of the various goals and the related tasks as shown in Figure 1. Various UN-SDGs such as Goal # 7 regarding ‘Affordable and Clean Energy’ can be fulfilled through green financing a country’s various renewable energy projects. Similarly, the UN-SDG # 14 pertaining to ‘Life Below Water’ can be achieved through blue financing initiatives under the green finance portfolio. Green banking adoption can lead a country towards attainment of UN-SDG # 9 for ‘Industry, Innovation, and Infrastructure’; UN-SDG # 11 for ‘Sustainable Cities and Communities’; UN-SDG # 12 for ‘Responsible Consumption and Production’ or UN-SDG # 13 for climate actions (Bukhari et al., 2021; Julia and Kassim; 2019b).

Figure 1 UN-SDGs 2030 (see online version for colours)



The next section briefly explains the theoretical foundation of this study.

2.3 *NRBV of the firm*

In 1995, Hart proposed that NRBV of the firm. He predicted the necessity of a paradigm shift in business ideology by changing the nature of the economic activity by incorporating environmental concerns in strategic decision making. According to him, “organizational strategy and competitive advantage in the coming years will be rooted in capabilities that facilitate environmentally sustainable economic activity” [Hart, (1995), p.991]. The NRBV proposed a conceptual framework composed of three interrelated strategies, i.e., pollution prevention, product stewardship and sustainable development.

Pollution prevention capability plays an important role in reducing hazardous environmental impacts that are produced as a result of the entire production process (Graham and McAdam, 2016). In order to efficiently develop the pollution prevention capability, the organisation is required to focus on the key internal areas responsible for any form of pollution generation (Hart and Dowell, 2011). Pollution prevention attainment has been described as picking out the ‘low hanging fruits’, which is relatively less costly and resource intensive. However, pollution prevention implementation has a saturation point and achievement of almost zero emissions leads the organisation towards more cost and effort intensive capability, i.e., product stewardship (Hart, 1995).

Sustainable development involves strategies that reduce the negative environmental impacts of the organisation's economic and geographical expansion. This capability involves reducing the organisation's resource consumption during current and future economic expansion and contributing to the development of the emerging sectors of the economy. It is a long-term capability as compared to the initial two capabilities i.e., pollution prevention and product stewardship. It requires a long-term shared vision and commitment of the organisation's leadership (Hart, 1995). The NRBV is one of the most widely adopted and implemented theories of environmental management. It has been applied on a number of green management initiatives across various industries (Bae, 2017; Dibrell et al., 2015; Graham and McAdam, 2016; Huang and Jim, 2010; Idroes, 2015; López-Rodríguez, 2009; Qi et al., 2014). However, a gap exists in terms of analysing the moderating effect of these capabilities between stakeholder pressure and green adoption behaviour of a firm.

The application of the NRBV of the firm to create environmental sustainability in the banking industry can lead towards the development of a construct for adopting green banking. The next section presents and explains the proposed green banking adoption conceptual framework in light of the theoretical foundation.

3 Green banking adoption conceptual framework

This study develops a green banking construct based on the NRBV of the firm. It is proposed as a two-dimensional construct. The operationalisation of constructs through multidimensional frameworks allows researchers to match broad indicators with broad constructs (Polites et al., 2012). Multidimensional constructs may consist of several orders. A first-order construct, also known as a uni-dimensional construct, consists of one or more observed indicators. In a multidimensional framework, a second-order construct consists of two or more dimensions or first-order constructs (Diamantopoulos et al., 2008). Multidimensional constructs can also exist at additional levels of abstraction, such as third-order construct and fourth-order construct (Wetzels et al., 2009). The proposed green banking adoption construct is a multidimensional construct with two levels of abstraction.

The first-level constructs are reflective and connected to the second-order construct of 'green banking adoption'. The first-order constructs proposed in the framework are derived from the NRBV of the firm. The NRBV of the firm offers a template to formulate industry-specific green capabilities based on the characteristics and outcomes proposed in the theory. This theory has not yet been used to formulate green capabilities for the banking industry. This conceptual framework attempts to fulfil this academic gap. Figure 2 shows the relationship between the green capabilities proposed in the NRBV of the firm and the first-order constructs of the green banking adoption framework proposed in this study. It depicts which of the green banking adoption constructs are adapted from which green capability of the NRBV of the firm.

A path dependence approach towards green banking adoption is proposed based on the NRBV of the firm. This supports a phase-wise adoption of the various first-order constructs that will lead towards the attainment of the second-order construct of green banking adoption. Figure 3 shows the proposed green banking adoption framework with the green banking adoption second-order constructs and reflective first-order constructs.

The next section discusses the proposed conceptual framework and explains the congruity between the theory's green capabilities and the proposed first-order constructs.

Figure 2 Green banking adoption dimensions

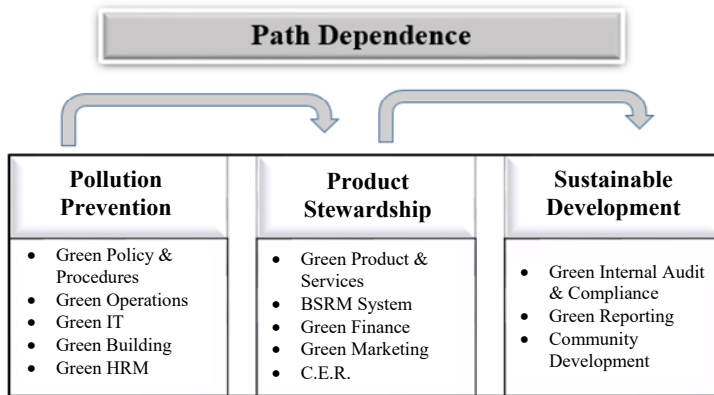
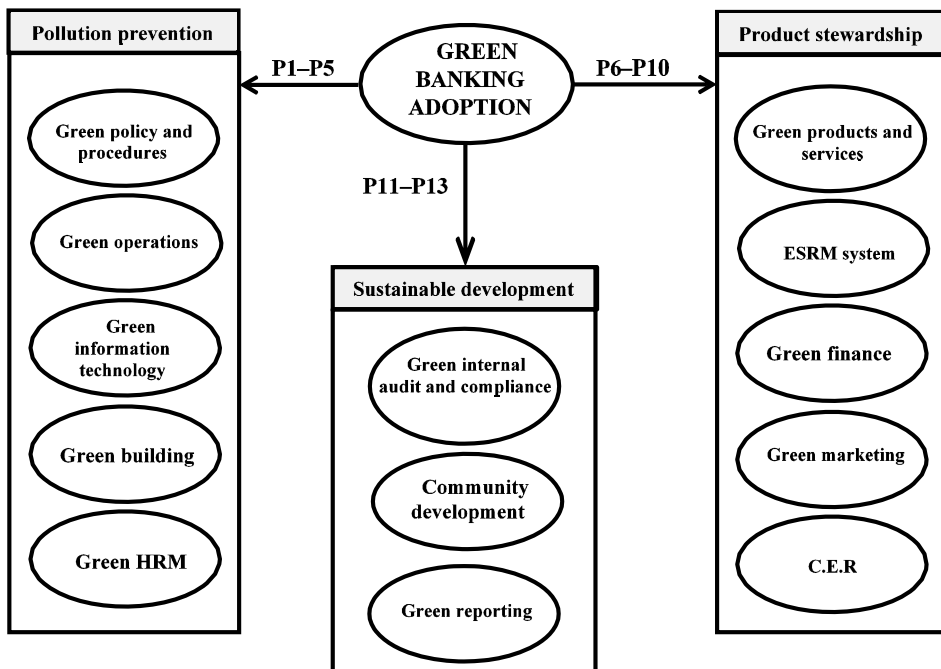


Figure 3 Green banking adoption framework



4 Proposition development and discussion

4.1 *Green banking adoption and pollution prevention capabilities*

The UN-SDG # 17 is based on policies and practices to “strengthen the means of implementation and revitalize the global partnership for sustainable development.” It is based on the pillars of multi stakeholder partnership and voluntary commitments towards environmental sustainability. Banks are one of the main stakeholders required for the attainment of this UN-SDG (United Nations, 2020). The Green Policy and Procedure are a part of green banking adoption that can play an important role in the attainment of UN-SDG # 17. Green policy and procedures will act as a pollution prevention measure by proactively eliminating the bank’s adverse environmental impacts. It can include the formulation of green banking vision and mission, creation of the green credit objectives, allocation of separate green budget and creation of a dedicated Green Banking Office with appropriate staff (CRBC, 2014; Hashim et al., 2015). Development of green banking policy and procedures is essential for the successful implementation of all the other dimensions of green banking. It outlines and specifies how banks can play a role in the achievement of various environmental sustainability initiatives (IFC, 2015a; Julia et al., 2016; SBP, 2017). Creation of congruity between green banking policies and UN-SDGs 2030 may accelerate the adoption of these goals.

A number of UN-SDGs including ‘Decent Work and Economic Growth’ and ‘Strong Institutions’ can be attained through the inclusion of pollution prevention operations in daily business operations. Green operations can play a role in the reduction of the bank’s potential adverse environmental impact. It results in cost reduction for the banks and increases the bank’s operational efficiency and productivity through more efficient utilisation of the various resources (Dinda, 2015; Graham and McAdam, 2016). Green banking operations include various green initiatives such as the efficient use of electricity, water, and other resources during branch operations (Bangladesh Bank, 2013). Under the ideology of green banking, the banking industry is moving towards the digitalisation of daily operations resulting in formation of paperless economy (Iqbal et al., 2021), congruent to the principles of UN-SDGs. The greening of banking operations will positively impact the attainment of UN-SDG of ‘Climate Action’ and ‘Responsible Consumption and Production’.

Another important pollution prevention capability proposed as a green banking adoption construct is green information technology (IT). It is directly linked with the attainment of most of the UN-SDGs 2030 since IT is the basis of all human evolution and growth (Jalil et al., 2021). The IT revolutions such as the digitalisation of industries and Industrial Revolution 4.0 (IR 4.0) are greatly impacting the banking industry (Cai et al., 2013; Pheng et al., 2018). According to research, the IT industry is responsible for approximately 2% of the global greenhouse gas emissions. The concept of green IT was developed to reduce the adverse environmental impacts of various IT systems and practices (Deng and Ji, 2015; Jalil et al., 2021). Green IT development ensures the attainment of a number of UN-SDGs including ‘Decent Work and Economic Growth’ (Corbett and Mellouli, 2017).

The UN-SDG # 11 is related to ‘Sustainable Cities and Communities’ which is concerned with making cities and human settlements inclusive, safe, resilient and environmentally sustainable. It is interlinked with the UN-SDGs of ‘Affordable and Clean Energy’, ‘Industry, Innovation and Infrastructure’, and ‘Responsible Consumption

and Production’ (United Nations, 2020; Zhu et al., 2019). Development of green buildings is an important step in the attainment of these UN-SDGs. A green bank building is an important construct of green banking adoption since it causes a significant reduction in a bank’s carbon footprint (Fernández, 2007; Saleh et al., 2020). An effectively designed green building can help reduce the bank’s carbon emissions up to almost zero levels through utilising renewable energy sources for the energy requirements and have a positive impact on its pollution prevention (Ali and Nsairat, 2009; Dwaikata and Alib, 2016; Kibert, 2012; Roque et al., 2020; UNEP SBCI, 2009). Adoption of green building standards by banks can reduce the negative environmental effects arising from the large branch networks of the banking industry (Bukhari et al., 2020a).

UN-SDGs of ‘Decent Work and Economic Growth’, ‘Gender Equality’ and ‘Reduced Inequality’ are connected with the objectives of promoting sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all (United Nations, 2020). These UN-SDGs are congruent with the principles of green human resource management (HRM). The last pollution prevention capability proposed as a first-order construct of green banking adoption is green HRM. It is an important indicator of green banking adoption because embedding green culture in an organisation is largely dependent on the human resource of that organisation. Pollution prevention capabilities focus on eliminating pollution sources internally through employee development. Green management is an employee intensive concept (Hart, 1995). Green HRM, is defined as “HRM practices with the intention of promoting the sustainable use of resources, which will reinforce the cause of environmental sustainability in general, and will increase employee awareness and commitments on the issues of environmental management in particular” [Masri and Jaaron, (2016), p.5]. A bank can successfully adopt green banking when the employees are personally committed to energy and resource conservation and motivated to promote green banking adoption practices (Carrico and Riemer, 2011; Khan et al., 2020; Unsal and Brodmann, 2019).

The above discussion leads to the development of the following propositions:

- P1 Green policy and procedures will positively influence green banking adoption.
- P2 Green operations will positively influence green banking adoption.
- P3 Green IT will positively influence green banking adoption.
- P4 Green building will positively influence green banking adoption.
- P5 Green HRM will positively influence green banking adoption.

4.2 *Green banking adoption and product stewardship capabilities*

The dimensions of green banking proposed on the basis of product stewardship are interconnected with the attainment of various UN-SDGs 2030. The first order construct proposed as a product stewardship capability in the green banking adoption framework is green products and services. The development of green products and services can play an instrumental role in the attainment of UN-SDGs of ‘Responsible Consumption and Production’, ‘Industry, Innovation, and Infrastructure’, ‘Affordable and Clean Energy’, and ‘Decent Work and Economic Growth’. Green banking products and services can reduce a bank’s potential environmental impact by creating and promoting eco-friendly

investment behaviour. Various forms of green products and services are being adopted by the banks in the form of paperless banking including internet banking, mobile banking, and e-banking (SBP, 2015). A growing portfolio of green banking products has been developed by banks including green accounts, green home equity loans, green mortgages, green car loans, green building loans, green insurance, green cards, and bio-degradable ATMs (Axis Bank, 2017; UNEP FI, 2007). The development of green banking products and service for green banking adoption can play an important role in the creation of a digital and paperless banking industry (Rehman et al., 2021).

Product stewardship involves collaboration with various stakeholders on areas of environmental sustainability. Green banking adoption plays a role in UN-SDG attainment through development of environmental and social risk management (ESRM) system for green financing and ‘financial inclusion’. It is proposed as a reflective first-order construct of green banking adoption. ESRM has been defined as “a management system consisting of procedures, management commitment, delineation of roles and responsibilities and guidance that a bank fund follows to review and manage the E&S issues and risks associated with its investments” (IFC, 2015b). It can play a role in green banking adoption by creating an environmental due diligence and compliance examination processes, a quantitative risk rating system to reduce and bias or subjectivity in the risk rating of various clients, a general and industry-specific environmental and social due diligence checklist, categorisation of industries according to E&S risk exposure, definition of investment thresholds according to the industry (Bangladesh Bank, 2017; Bank of America, 2016; CRBC, 2014; Standard Bank Group, 2016). These green initiatives can help in the attainment of the product stewardship capability by a green bank.

Provision of financing for development of projects for UN-SDG attainment is a basic part of green banking. Banks can finance various UN-SDGs 2030 through green and blue financing. The IFC, issued blue loans to organisations for recycling plastic bottles that are a primary form of water pollution (IFC, 2020). Such green and blue financing initiative is an integral part of green banking and also vital for achievement of UN-SDGs of ‘No Poverty’, ‘Zero Hunger’, ‘Good Health and Well Being’, ‘Quality Education’, ‘Clean Water and Sanitation’, ‘Life Below Water’ and ‘Sustainable Cities and Communities’. The green banking adoption conceptual framework proposes green finance as a reflective first-order construct of green banking adoption. Banks can develop green loans with financial concessions and incentives for environmentally friendly products and projects like hybrid vehicles, green buildings, and green home loans or for the alternate energy generation (SBP, 2015). The involvement of external stakeholders in the pollution reduction activities of a bank and the formation of green offerings for customers makes it an effective product stewardship capability (Bowman, 2010; Prorokowski, 2016).

The concept of product stewardship is based on the principles of stakeholder collaboration which is congruent with the UN-SDGs of ‘Partnership for the Goals’ (United Nations, 2020). Marketing is the connecting link between the organisation and the other stakeholders. UN-SDGs can be accomplished with green marketing. It is “the holistic management process responsible for identifying, anticipating and satisfying the requirements of customers and society, in a profitable and sustainable way” (Azeem et al., 2017; Ennew and McKechnie, 1992; SBP, 2017). Some green marketing initiatives that can be adopted by banks through the promotion and advertisement of green products, use of electronic displays in branch premises, use of ATM display screens, mobile phones and company websites for product advertisements, recycling of old promotional

material such as banners and flex, using recycled paper in all forms of communication with stakeholders, attainment and display of environmental certifications in branch premises, cause-related marketing through donating some percentage of profitability to an environmental cause, and display of Green Branch Logo outside the branch premises (Bukhari et al., 2020b; Ottman and Mallen, 2014; SBP, 2017). It is proposed as a first-order construct of green banking adoption since it involves the engagement of external stakeholders in green initiatives which is in line with the concept of product stewardship. Green products and services can play an important part in creating environmental sustainability awareness among various stakeholders (Alhamad et al., 2019).

Sustainable and equitable production and consumption of resources are the underlying principles of UN-SDGs 2030 highlighting the responsibility of all stakeholders towards attainment of UN-SDGs including 'No Poverty', 'Zero Hunger', 'Good Health and Well Being', and 'Quality Education' (Raszkowski and Bartniczak, 2019). Organisations are playing their role in attainment of these UN-SDGs through corporate social responsibility (CSR). The first order construct of corporate environmental responsibility (CER) is derived from the concept of CSR and thus intrinsically connected to a green bank's social aspect (Mazurkiewicz, 2004). This construct can be adopted by banks through various initiatives such as sponsorship of various environmental causes through supporting organisations that work for the preservation of the natural ecosystem, special awareness sessions and promotional campaigns for stakeholders regarding the preservation of the natural environment, participation in various environmental programs and events, and employee voluntary participation in environmental initiatives like planting trees, cleaning beaches and recycling campaigns (Bukhari et al., 2020c; Lymperopoulos et al., 2012). These initiatives are connected with UN-SDGs of 'Climate Action', 'Life Below Water', and 'Life on Land'.

The above discussion leads to the development of the following propositions:

- P6 Green products and services will positively influence green banking adoption.
- P7 ESRM system will positively influence green banking adoption.
- P8 Green financing will positively influence green banking adoption.
- P9 Green marketing will positively influence green banking adoption.
- P10 CER will positively influence green banking adoption.

4.3 Green banking adoption and sustainable development capabilities

The fulfilment of UN-SDGs 2030 is dependent on the effective implementation, compliance and control of various environmental sustainable practices (Kørnøv et al., 2020). Internal audit and compliance are a vital element in the strategic decision making of any organisation; therefore, the framework proposes it as a reflective first-order construct of green banking adoption. An internal audit and compliance department plays a key role in the successful adoption of environmental policies and procedures within an organisation. An internal auditor's role is to report on the bank's progress and effectiveness of green banking policies, identify lapses and advise on future actions (EPA Victoria, 2007; National Bank Limited Bangladesh, 2014; Wade, 1995). This dimension

of green banking is important since it ensures the effective implementation of the various initiatives developed for sustainable development. Green internal audit and compliance may be instrumental in the attainment of all the UN-SDGs 2030.

The UN-SDGs 2030 are aimed towards sustainable and equitable community development. Therefore, the community development dimension of green banking is directly related with the achievement of a number of UN-SDGs including ‘No poverty’, ‘Zero Hunger’, ‘Good Health and Well Being’, ‘Quality Education’, and ‘Gender Equality’. ‘In today’s world, community development is an imperative part of an organisation’s business strategy (Bukhari and Isa, 2019; Marquis et al., 2007). Triodos Bank, a pioneer in green banking, is engaged in numerous community development initiatives tailored according to the geographic region in which it is operating. The bank supports various cultural activities and community development projects through easy financing schemes (Kaufer, 2004). Community development is a source of both economic and social legitimacy for the banks through positive and long-term stakeholder relationships, an increase in goodwill, improved corporate reputation and customer loyalty (Sapci and Miles, 2019; Yusof et al., 2015).

Green reporting is an integral part of the green banking adoption policy since it reports the bank’s performance on various environmental key performance indicators (Thompson and Cowton, 2004). The green banking report can contain the bank’s vision, mission, and objectives with respect to environmental performance, carbon footprint reduction, water and energy conservation efforts, green initiatives, green credit policy and list of client’s classified in the environmentally high-risk sector, internal environmental and social impacts, average energy consumed per employee, hours of green banking training per employee, and average interactions with external stakeholders with respect to environmental initiatives (CRBC, 2014). It is used to communicate to the external stakeholder that the bank is committed to the environment cause, believes in transparency of operations and realises its responsibility and accountability towards the natural environment (Bose et al., 2017; Mohamed and Jamil, 2020). The dimension of Green Reporting is essential for the attainment of UN-SDG of ‘Peace, Justice, and Strong Institutions’.

Based upon the above discussion, the following propositions can be put forward:

- P11 Green internal audit and compliance will positively influence green banking adoption.
- P12 Community development will positively influence green banking adoption.
- P13 Green reporting will positively influence green banking adoption.

5 Conclusions

The world is grappling with numerous problems stemming from unsustainable behaviours from majority of the stakeholders. The need of the time is a collaborative, holistic and sincere commitment, from all the stakeholders towards the creation of an environmentally and socially sustainable ecosystem. Banks are the backbone of any economy and the business strategy adopted by banks will in turn shape the management strategies of the connected industries. Green banking adoption is a profound step in this direction that can only be possible through the combined and continuous efforts of all the

stakeholders. Green banking adoption is an important component in the attainment of the UN-SDGs 2030 for any country. Green banking adoption can lead countries towards the development of Zero-Carbon economies and attain the targets of the Paris Agreement and UN-SDGs 2030.

Banks can provide green financing to precision agriculture development or organic farming practices. This will enable a country to move forward in the attainment of multiple UN-SDGs including UN-SDGs # 1, 2, 3, 8, 9, and 17. Similarly, provision of green finance for the development of eco-friendly hospitals through green financing can fulfil UN-SDGs # 3 and 9. Green finance schemes under the umbrella of Green Banking can be launched for green IT infrastructure, eco-friendly vehicles such as hybrid or electric cars and development of the micro, small, and medium enterprise (MSME) sector. Integration of green banking and UN-SDGs can result in a win-win situation for all concerned stakeholders since each of the various UN-SDGs offers a huge investment potential for the global banking industry. The UN Secretary-General has identified more than US \$100 billion annual investment potential in environmental sustainability initiatives in developing countries (Bukhari et al., 2021). The banking industry can play an important role in financing various green initiatives like the sustainable development of blue economy through blue financing as part of the Green Finance portfolio. This will in turn help in the attainment of UN-SDG # 6, 8, and 14. Blue economy is considered as the 7th largest global economy generating annual revenue of approx. US \$2.5 trillion (Bukhari, 2021). The adoption of green building dimension of green banking can in turn attain the UN-SDG # 9, 10 and 11 simultaneously. According to the IFC, green building presents approx. US \$24.7 trillion investment opportunity in emerging economies by 2030.

The successful blend of green banking and UN-SDGs 2030 requires strategic planning from a country's regulatory authorities and commitment from all concerned stakeholders. In order to synergistically blend both paradigms, the central banks should setup Green Financing Guidelines in accordance with the UN-SDGs 2030 goals and targets. Banks can be guided to develop and disclose green finance portfolios on the basis of various UN-SDGs. This can streamline and connect a country's SDG initiatives and benchmark the progress. All the concerned stakeholders in a country should focus on the attainment of UN-SDGs 2030 with singularity of vision and purpose. The banking industry can lead the rest of the country's economic sectors in this regard. However, this will require the development of green capability from the grass root level. Banks need to provide green banking awareness and training to their employees across all levels. Limited time is remaining for the attainment of the UN-SDGs 2030 and green banking adoption based on the discussed dimensions can play a substantial role in taking a country further in this journey.

6 Future research

This study proposes a green banking adoption framework that can play an important role in the attainment of environmental and social sustainability in a country. Due to these contextual dependencies and the varying stages of individual bank's green banking adoption, the proposed framework can be customised or extended according to the country or organisational requirements. Furthermore, the framework can be empirically tested on banks that are present at varying levels of green banking adoption. The

framework proposes a number of future research avenues in the form of targeted research separately on the first-order constructs. By undertaking such research, it can be studied how much each individual construct contributes towards the adoption of green banking in different economies. Future research can be conducted by empirically testing the connectivity between the green banking adoption framework implementation and UN-SDGs 2030 adoption.

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