

Policy Brief #85

Financing Pakistan's Low Carbon Development and Climate Resilience through Green Bonds



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ABSTRACT

Climate finance is imperative to meet Pakistan's adaptation and mitigation needs in line with the Nationally Determined Contributions (NDCs). Enabling these investments and flow of capital from public, private and financing institutions require efficiently deployed market-based financing mechanisms such as green bonds. Currently, the green bond market in Pakistan is critically under-developed. This study addresses the significant knowledge gap in analyzing the challenges and potential way forward for them to support Pakistan's low carbon development. It involves an extensive desk review supported by consultative discussions conducted with key stakeholders, i.e. public sector, development partners, financing institutions, corporations, and international experts. The study indicates that the challenges for an un-developed state of green bonds in Pakistan lies in i) limited number of bankable climate change projects, ii) inability to define what is "Green" due to varying international taxonomies, iii) limited capacity and awareness, iv) time and cost overruns in the projects, and v) unfriendly regulatory environment for local financing institutions. Therefore, to upscale climate finance, Pakistan must define its sector-wide taxonomies on what is considered "Green", and then develop a "sustainability financing framework" that could allow the government to issue green bonds. For reducing the existing knowledge gap, a well-coordinated effort would be required by all stakeholders to come up with capacity building and dissemination workshops, develop local standards and reporting templates, and provide support in open-source solutions for quantifying the impacts. To increase market competitiveness of green bonds, the State Bank of Pakistan (SBP) can allow local banks and other financial institutions policy preferences such as in calculation mechanism of their loan-deposit ratio.

Keywords: Low-carbon development; Financing for adaptation; Green Recovery; Green Financing Mechanisms; Green Bonds

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1. Introduction

1.1. Background

Since the start of the 21st century, Pakistan has been witnessing devastating impact of climate change and paying an increasingly high socio-economic cost. In 2021, the cost of natural disasters resulting from climate change was evaluated at more than \$170 billion (\$20 billion more than last year) in damages, loss of lives, and displacement of around 1.3 million people from their homes (Shepherd 2021). The same year, Pakistan reportedly underwent worst climate impacts such as extreme heatwaves and heavy floods across the country. Due to floods only, economic losses touched upon \$18 billion (Economic Losses in Flood-Hit Pakistan 2022). Between 2020-22, the economic challenges for Pakistan were exacerbated due to the global pandemic. This also adversely impacted Pakistan's livelihood and economic sector, resulting in a Gross Domestic Product (GDP) drop of around 1% (Aslam et al. 2022).

These challenges have generated momentous debate in Pakistan drawing the attention of authorities towards a transformative adaptation that requires financial resources and funding tools. The opportunity for Pakistan to turn towards green recovery has never been available and the country must commit towards it for a progressive future.

For green and sustainable investments, different financing institutions and market regulators have designed instruments like green bonds, debt swaps, green loans, equity programmes, business administration express loans, climate cards, etc. Through different investment measures, green finance is generally sourced through the following financing systems.

- Domestic Public Finance, i.e. government funding,
- International public finance, i.e. through multilateral development banks and other international organizations, and
- Private sector finance, which can be through both international amended and domestic funding sources.

Among various financing mechanisms, the use of green bonds to finance low-carbon infrastructure has achieved significant maturity across the globe. Green bonds are tradable financial instruments that permit the issuer to borrow funds for an “Environment friendly/Green” project with the commitment to pay it back by a certain date (usually with interest). These bonds are commonly being used to generate climate-friendly activities for corporates, governments, banks, and other

financing institutions. Although the progress has been very limited, they could be used to align Pakistan's green recovery strategy and efforts.

1.2. Need for Green Financing in Pakistan

In the 21st century, the economies have put special attention towards a transformative adaptation that requires financial resources and funding tools. According to Pakistan's nationally determined contributions, the country needs \$ 7-14 billion per annum for climate adaptation till 2050 (Ministry of Climate Change 2021). For mitigation, Pakistan requires \$101 billion by 2030 only for clean energy transition (\$20 billion for building renewable energy capacity, \$20 billion for infrastructure expansion to support renewables, and \$13 billion to replace coal-based power plants).

In healthcare and education sectors, climate investments are needed to ensure a climate smart infrastructure. Additional spending needs in education are about 5.7% of GDP, and this includes raising the capital to improve/build climate resilient education buildings. Clean water and sanitation would require investing an aggregate amount of \$55 billion by 2030, which is equivalent to spending 2% of GDP every year from 2020 to 2030. For health care , additional spending needs are about 5.4% of GDP, and this also includes health facilities and infrastructure investments in climate-hit regions (International Monetary Fund 2021).

Detailed subdivision of the total climate financing needs is also indicated in Figure 1.

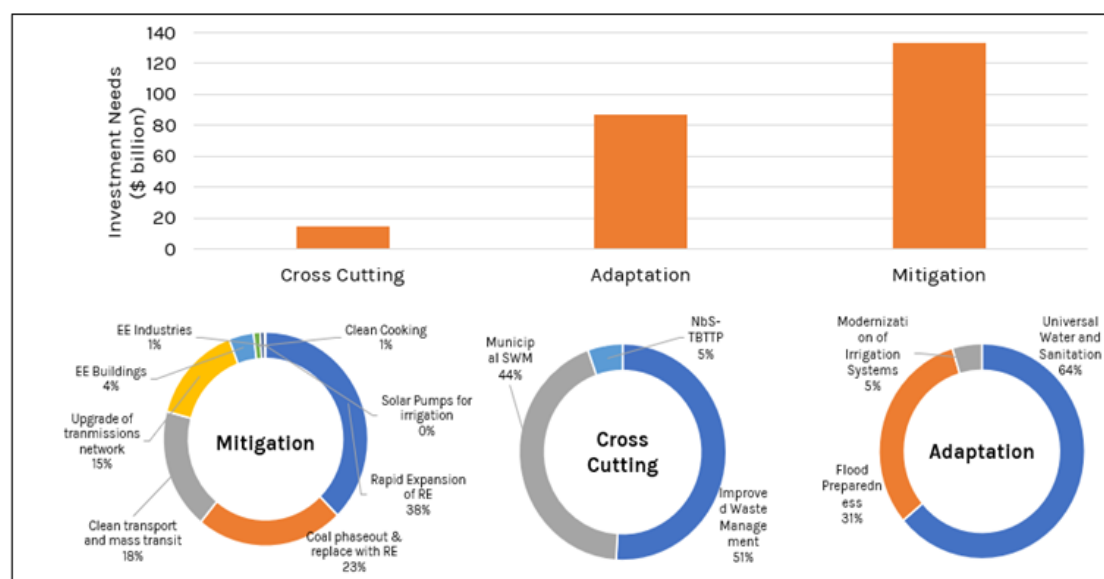


Figure 1: Climate financing needs of Pakistan

(Source: Figure designed by authors based on Pakistan Country Climate and

On the resource end, the larger share of \$28.3 billion is coming from the public sector, followed closely by \$25.2 billion from the private sector. i.e. 25,2%. However, to finance this adaptation and mitigation needs, total allocations for climate change in Budget 2022-23 under Public Sector Development Programme are PKR 9.6 billion (which is 0.10% of total budget, and is almost PKR 4.7 billion less than the previous year) (Government of Pakistan 2022). Therefore, a clear-cut gap currently exists between financing needs and resources of Pakistan.

1.3. Scope and Methodology

Considering the severity of economic challenges coupled with energy and environmental crisis in Pakistan, a comprehensive strategy for green financing is required to analyze the role of the finance industry in achieving green growth. This study attempts to explore the potential avenues for green financing with a broader focus on green bonds to develop a low-carbon pathways for Pakistan. The key objectives are:

- To identify and explore the potential green financing instruments, tools and strategies that can be adopted as a potential tool for Low carbon development and green recovery of Pakistan.
- To analyze the existing opportunities with a particular focus on the use of green bonds, including the current market trend of green bonds, and the major challenges and limitations in its effective implementation in Pakistan.

To meet these objectives, this study uses an analytical framework approach based on secondary data analysis driven by literature and stakeholder consultations organized by Sustainable Development Policy Institute (SDPI), Islamabad, on “Capacity Building Workshop and Training on Implementing Green Financing Mechanisms in Pakistan” & “Low Carbon Recovery in Pakistan: Green financing strategies for post-COVID Scenario¹”. Through this framework, the prospects of different financing mechanisms were observed by other countries across the globe and how the country-wide socioeconomic policies are structured. This approach allowed this study to give a holistic overview of the factors involved in the green financing mechanisms identified in the literature, its implementation, challenges, and opportunities as a way forward.

1 Webinar Link : <https://www.youtube.com/watch?v=TrM-W7vT2ZY> & <https://www.youtube.com/watch?v=mzkYORuPA-g&t=241s>

2. Prospects of Green Financing Strategies: Tools and mechanisms

Green financing strategies across the globe have been majorly targeted to improve the countries' capability to produce goods that may reduce environmental pollution, exploit green technologies, and expand the indigenous resources (Mumtaz and Smith 2019). Research studies suggest that for creating a connection between green finance and growth, policymakers must regulate and promote green industrial markets by encouraging green generation and consumption, manufacturing, and the use of technologies. For achieving green targets, the financial industry must design some new financial products and then target the industries for required financing. Studies have also identified the linkage between ecology and finance, considering green financing a critical component for green growth (Scholtens 2017; 2009).

To reduce environmental degradation, environmental and sustainable finance are supposed to be the most effective way (Li and Jia 2017)(Meo and Karim 2021). In-depth research has been carried out on other similar financing mechanisms, including transition bonds, COVID recovery bonds, and debt for nature swaps. A summarized description of various tools and techniques that are practiced across the globe are depicted in Table 1².

3. Prospects of Green Bonds as a Market-based Financing Mechanism

Green bond comes under the fixed-income financial instruments that can raise capital from investors through their debt capital market. They are broadly categorized into different forms as shown in Figure 2.

European Commission report analyzes green financing under three different segments of Green Bonds, Green lending, and Green Equity Investment (European Union 2017). Green bonds are recognized among the most readily available and economical options for raising large capital to meet environmental needs. It was reported that for a smooth green transition, targeted public finance is needed to reduce the risk and create a stimulus for green investments (Shipalana 2020).

Since green bonds are dedicated specifically for those projects that focus on green infrastructure development, they offer significant prospects to both

² Along with other sources during desk review, key details highlighted in Table 1 are extracted from a study conducted by Kirthisri Rajatha Wijeweera and Kamal Ali on "Financing Climate Action in Pakistan".

Source	Financing Scheme	Brief Description	Examples
Bilateral and Multi-lateral financial institutions	Grants	Mainly reserved for non-revenue activities such as knowledge and capacity building programs, promoting SDG agendas, etc. They also assist in capitalizing on financing mechanisms related to environment preservation.	World Bank and ADB Non-development grants, Donor Agencies for Climate friendly developments etc.
	Concessional Finance	This finance aims for projects that are relevant to major global challenges such as CC mitigation, vaccine roll-out, education, and water sanitation programs	Chinese CDM funds to reduce industrial emissions. Loans provided under this scheme had 15% lower interest than conventional schemes.
	Refinancing Schemes	These are the contingent loans which are paid back once the project starts generating revenue. This lowers the project risk as the loan is waived off if the project fails or does not generate revenue.	Bangladesh “Revolving finance scheme” to broaden the finance for green products such as Water, solar systems, and waste treatments plants.
Market Based Finance	Debt Swaps	For countries under debt burden, debt swaps allow for additional finance for environmental projects leading to GHG emission reductions. This involves a private donor, multi-lateral or bilateral, or any NGO that may write off the country's debt.	Poland's restructuring of debt with Paris Club creditors.
	Debt Finance	Provision of debt facilities either through project loans or credit lines for reduction of project cost. This concessionally funding may further be blended with comparatively expensive commercial funding.	Credit lines offered to Chilean banks for RE support by their economic development authority.
	Equity Finance	This mechanism is used for provision of equity for CC mitigation projects without receiving any repayment guarantee.	Japan's Green Equity fund. Australia's innovation fund for clean energy.
Thematic Bonds (Also a market-based finance approach)	Green Bonds	These bonds are used for financing or projects that have positive environmental outputs or that lowers the CC impact. This may include RE development, energy efficiency, air quality controls, mass transit systems, and climate smart housing.	Pakistan Green Bond for Hydropower (WAPDA).
	Social Bonds	Social bonds are used to finance projects that have a positive social impact. This includes resilient infrastructure development, employment generation, food security, etc.	The use of bonds has significantly increased over the past few years. Sustainability bonds have growth the fastest with net value reaching around \$72 billion in 2020 (17 nations).
	Sustainability Bonds & Sustainability-linked bonds	These bonds are used to finance both environmentally friendly and socially positive projects. Sustainability-linked bonds are similar but with an additional provision under which the project debt relief is eliminated if project fails to achieve the pre-defined Key Performance Indicators (KPIs).	
	Parametric Risk Insurance	This is a risk insurance activity through which accelerated payouts can be achieved environmental measurements, e.g., rainfalls or cyclones.	Caribbean Catastrophe Risk Insurance Facility
Disaster Impact Mitigation Mechanisms	Catastrophe Bonds	Through catastrophe bonds, the insurance companies can transfer the risk of natural disasters at a certain price to the investors. The money set aside can be used to cover the potential losses.	(CCRIF) for Hurricanes.

Table 1: Green Financing Strategies to support low carbon development

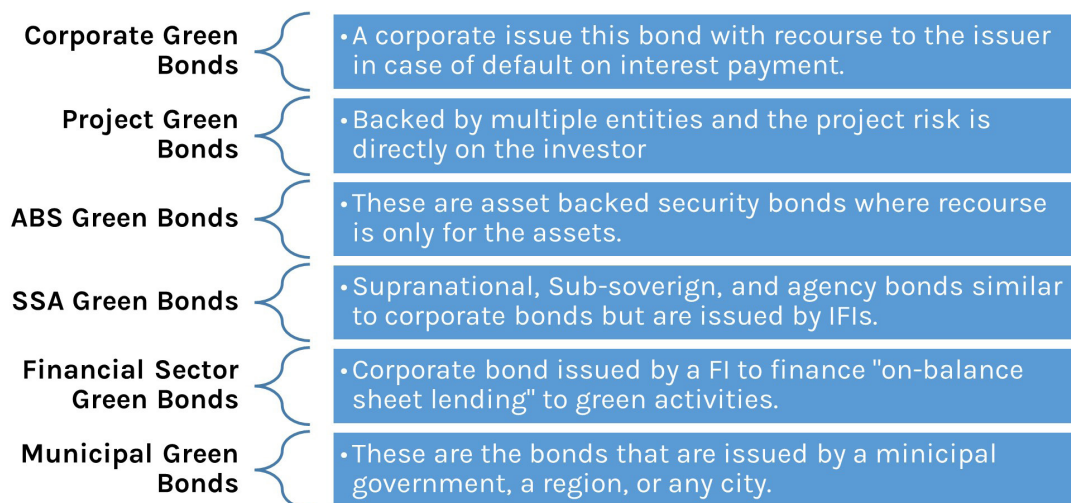


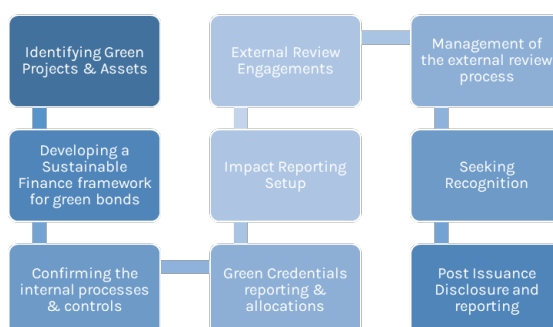
Figure 2: Major forms of Green Bonds

issuer and investors. On investors end, green bonds can lead to balancing of risk-adjusted financial returns having environmental incentives, ratification of ESG requirements and mandates, improvement is assessment of risks through reporting of proceeds, and a potential actively hedge play against climate policy risks with emission intensive assets. Secondly, on the issuer's end, it provides a flexibility to implement his approach to ESG issues, reputational incentives, and enhancement in their credibility of developing sustainable strategies.

Box 1: Pathway for Issuance of a Green Bond

Given a rapid increase in green bond market over the past year, many issuers are seeing opportunities to be a part of this market. However, still there is dearth of capacity and limited understanding particularly in the developing countries on how this system works, what must they do, and what key decisions must be taken along the pathway.

To support this, many detailed guidelines have been designed and updated over the past years. The most recent and recommended pathway for developing countries is depicted in the following flow chart:



3.1 Growing Market of Green Bonds Across the World

Issuance of green bonds across the world increased from only \$4 billion in 2010 to almost \$240 billion in 2019, depicting an annual compound growth rate of 57.6% (The World Bank Group, 2021). Key players in this market are China, the United State of America, Germany, Netherland, and France that represent almost 50% of current global issuances. Figure 3 represents the total green bond market and the percentage share of Asian countries.

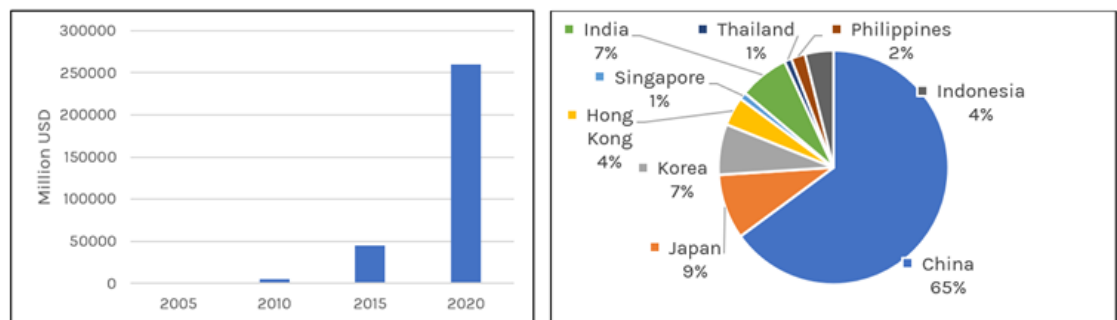


Figure 3: Global green bond market and the percentage share of Asian countries

Key issuers of green bonds across the world are mainly the governments (33%), followed by the financial institutions (33%), utilities (18%), Industries (4%), consumers (5%), energy sector (2%), and all others combine to constitute (5%) of the total share. In Asia pacific particularly, the share of government (50%) is much higher than rest of the world (ibid). For green bond proceeds, the major support is for the climate friendly projects in the energy sector (38%) followed by residential sector (18%), transportation (16%), and the water services (14%). This is however less diversified in ASEAN countries with building and energy sector contributing to a combined share of 75%. While the growth has been very apparent, the share of green bonds in total issuance remains very low to around 1.45% (\$0.03 billion for green bonds against \$1.2 billion of conventional bonds).

The green bond market of China, which is the second largest market, expanded rapidly from 2016 (\$25 billion) to 2019 (\$120 billion) cumulative issuance at global level. Despite the recent economic recession due to COVID-19 and Ukraine war, the Chinese green bond market is expected to continue to expand with the pace up and can generate \$ 420- 560 billion (CPI report) to combat climate finance to combat climate action. According to CPI research, with the help of green bond issuance and financing generated by these green bonds, the cumulative impacts are 11.2 GW installed clean energy and 52.2 million tons of CO2 reduced.

A deeper understanding of China's green bond market, especially the coordination among the regulatory authorities and financial institutions is important for expanding the domestic and international investor base. Working together under CPEC for the betterment of the region, there are opportunities for policy makers and investors of Pakistan and other regional countries. These opportunities can help to increase the growth rate of green bond, broaden both the issuer and investor which ultimately lead towards green recovery.

3.2 Green Bond Market of Pakistan

Like other undeveloped countries with low bond markets, Pakistan's response to climate finance is significantly lacking with a below-par capability to capture these funds. Although each government has recognized the importance of such finance, minimal proposals have been implemented. Till 2020, Pakistan had never issued a green bond. However, despite this low growth, green bonds still have significant prospects, especially in building Pakistan's stance for building back better. The key application areas include low-carbon transport, Energy sector projects, energy efficiency, and sustainable infrastructure for water (potential avenues in these sectors are highlighted in Figure 4). These are areas where there is a lack of resources, and green bonds can support the Government in funding these projects. Further, green bonds will enable the lending institutions for more stringent actions to improve environmental risk management systems and incorporate Environmental, Social, and Governance (ESG) into their credit-granting process.

WAPDA's \$500 million Green Euro Bond

Pakistan launched its first ever green bond in May 2021 when Water and Power Development Authority (WAPDA) issued a Eurobond (namely Indus Bond) of \$500 million for development of Hydropower in Pakistan (Water and Power Development Authority (WAPDA), 2021). The bond was listed on London Stock Exchange on May 24 with competitive interest rate of 7.5%. The launch of this bond attracted interest from several investors, and WAPDA was offered investments of up to \$3 billion (almost six times more than the need). These investments came from some of the very top investing companies namely Ashmore, Amundi, Goldman Sachs, Blackrock, and BlueBay.

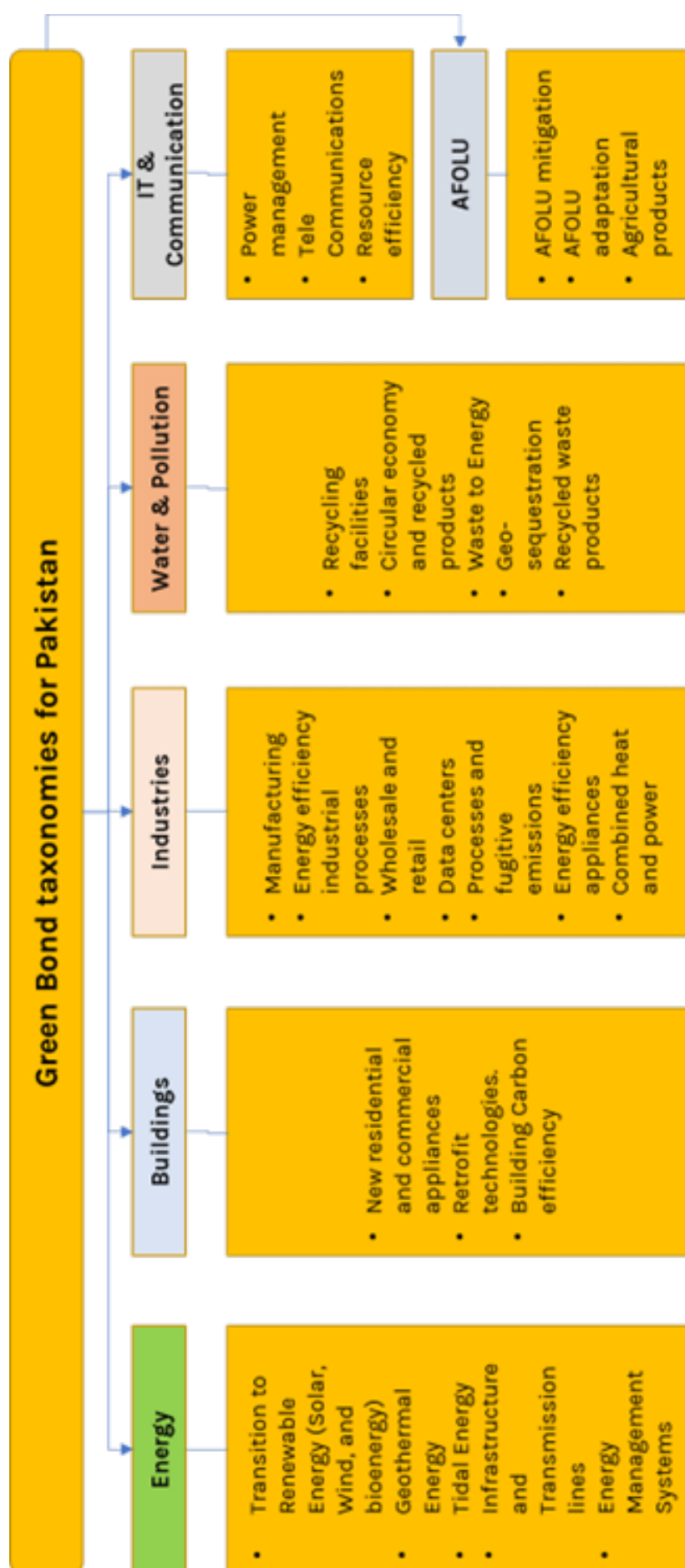


Figure 4: Potential avenues for green bond applications in Pakistan

4. Policy Recommendations

Based on the role of financing mechanisms and tools to promote low carbon development in Pakistan, policymakers need to strengthen climate resilience in our ecosystems and push forward better synergy and convergence between climate, biodiversity, and health finance. Moving from relief to recovery requires a mindset that moves towards economic stimulus measures and reforms leading towards a long-term phase transaction. Currently, there is a conflicting pressure on the government budget, which needs to be carefully balanced for a relief recovery rejuvenation. Government budgets alone are not adequate to cater for all of that. There is a large pool of large bilateral, multilateral financial institutions with green finance. The portfolio of projects and thematic focus can be on different financing instruments such as Global Green Funds, Multilateral green funds, green bonds, bilateral green funds, and private green investments. For a green recovery, the role of the private sector is very important, and many banks, through their lending schemes, are providing finance to the power sector.

Current policies do not effectively support sustainable development objectives, especially considering that the fiscal response of Pakistan to COVID was not technically aligned with green recovery. Moving on, while the country is encountered with the triple C crisis of Climate, conflict and COVID-19, an effective resource mobilization mechanism must be developed to steer green recovery not only to “build forward better” but to take up long-held environmental sustainability and health evidence to safeguard against future pandemics and other global challenges effectively.

In case of Pakistan, the offtake of green bond market hinges upon a set of limitations (policy, regulatory, and market), which must be addressed. Considering the existing challenges, this study proposes several key recommendations:

Challenge 1: Slow Development of bankable climate change mitigation and adaptation projects in Pakistan

For Pakistan, a major challenge for an undeveloped green bond market is the slow growth in the number of bankable green/sustainable projects which can be financed/refinanced through the use of green bonds. Current pipeline of infrastructure projects represents the government’s limited commitment to a low-carbon recovery. This is also driven by the existing inefficiencies in public finance management system of Pakistan.

Recommendation 1: The government needs to formulate a “Sustainable Financing

Framework” that could allow the issuance of green bonds. The framework could identify the potential projects, require financing and define how best practices have set up such systems.

Recommendation 2: Federal, provincial, and local governments can build the support for green bonds not only by raising finance directly for their climate actions (infrastructure projects or others) but also by increasing the number and required scale of bonds in both primary and secondary markets. So, while in medium- and long-term, the private sector and international support is expected to take the lead, the near-term focus can be mobilized through the public sector.

Recommendation 3: To develop Pakistan’s green bond market, authorities concerned (project-based) can approach MDBs and DFIs to leverage their experience in bond issuances and other potential avenues such as enhancement of credits and anchoring the green bond investors.

Recommendation 4: To address the inefficiencies in finance management, there is a need to improve the “Public Financial Management Performance” and align it with Pakistan’s green recovery. For this, following measures can be taken:

- o Climate aligned revenues can be generated.
- o A regulatory framework for private sector financing can be formed.
- o Reviving the climate budget tagging can be revived.
- o Carbon pricing can be integrated with fossil fuel subsidies.

Challenge 2: Defining the term “Green” and varying green bond taxonomies.

Green bonds are issued in both local and international markets, however, the definition of “Green” and the disclosure agreements in each market may differ. This includes varying standards, monitoring and evaluation frameworks, and taxonomies. This variation also increases the total transaction cost since “Green” labelling differs in different markets.

Recommendation 1: Since the capital investment in Pakistan is not fully open, Ministry of Finance can take lead in developing local green bond markets that would rely on local investors. Given that the climate finance requirement of Pakistan is focused on adaptation, policy incentives can support developing green market around those avenues. This would also initially require “local definition” and “disclosure” for green bonds.

Recommendation 2: Given that green bond market in Asian countries is growing rapidly, Pakistan can engage it with them to harmonize its efforts in definition and verification process that the international market accepts. This could be in the form of a “bilateral collaboration” with defined practices and guidelines.

Challenge 3: Limited capacity and lack of awareness on economic advantages of green investments

Despite a large adoption of green bonds in Asian countries, Pakistan lags far behind due to limited knowledge of all the stakeholders (policy makers, banks, corporates, and financial institutions) on the potential benefits that can be achieved through green bonds. Further, since green bonds are mainly backed by full balance sheet from issuer, most financial institutions are not ready to take that risk given a relatively nascent market.

Recommendation 1: To increase the awareness of green bond market benefits, standards, and disclosure, capacity building workshops and training programmes can be organized through individual or joint efforts of governmental agencies, market associations, financial institutions and development partners, rating agencies, and 2nd/3rd party assurance providers.

Recommendation 2: MDBs and international players can be mobilized to organized dissemination and outreach events especially from those that are covering Pakistan. This could include education of both investor and issuer, and demonstration of best practices.

Challenge 4: High cost of monitoring and verification

Along with limited capacity, the need for constant verification of issuer proceeds on green development comes at a high constant since it is mostly handled by a second party (consultants, auditors, or ESG researchers). Coupled with associate risks, many investors are deterred by this high cost of monitoring and verification.

Recommendation 1: Cost associated with issuance and verification can be reduced by developing local standards and reporting templates. Government along with development partners and MDBs can finance the dissemination of tools that can provide cost-effective analysis of environment-friendly projects.

Recommendation 2: Civil society, think tanks, and international partners can collaborate with government agencies to provide support in sharing tools (opensource solution for quantification of resource savings and emission

reductions) that can make system easier and more cost effective for bond issuers in managing their assets. This could also assist other stakeholders (2nd/ 3rd party assurance providers, rating companies, etc.) to assess the “Greening” impact of projects financed through bonds.

Recommendation 3: To ensure that an Environmental Risk Management (ERM) system is strictly followed by banks, SBP can develop mechanism for banks that monitors the process over the life of financing so that enterprises remain in full compliance. Banking personnel and the concerned team should be able to understand the policies of green financing comprehensively, and to what degree (partially or fully) the green finance policies can be applied.

Challenge 5: Time over runs in bankable Green Projects

In Pakistan, hydro power development is labelled as a bankable project under “Green Bonds”, however, historically, its developments have been associated with time and cost over-runs of up to decades. These long gestation periods have made these projects unattractive since bonds are globally issued more conveniently for projects completing within 5-10 years. Further, as compared to other conventional (or else) bonds, green bonds are mainly characterized by project loans of high proportion, comparatively longer investment recovery cycles, and lower project returns thus making them unattractive as compared to other types of credit issuances by the banks.

Recommendation 1: To incentivize the issuance of green bonds, State of Bank of Pakistan (SBP) can provide banks some policy preferences such as allowing these loans to be not including in calculating the loan deposit ratio. This would free the banks from worrying about the allowance of risky assets.

Recommendation 2: Considering that due to COVID-19, the project risk perceptions are already high, Government can play a critical role in leveraging and de-risking the needed finance and accelerating the green capital market. GOP may use fiscal policies to promote the development of green finance and use fiscal funding to guide credit funding and social capital into a green investment, green credit, and green securities.

Recommendation 3: Pakistan Stock Exchange must allocate green business corner to promote green development projects and help to improve corporate performance on environmental issues. This initiative will allow the investors to support companies which are striving to achieve sustainable development goals.

Recommendation 4: On fiscal front Government must adopt Climate-Informed

Fiscal planning. This means that government must integrate climate change adaptation and mitigation and green bond policies in its macro-fiscal policies including planning and development, budgeting, and public investment policies.

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Annexure

Definition for “Green” as per the Asian Development Bank

