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Enhancing green bond issuances in developing economies

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Acronyms

AfDB	African Development Bank
ASEAN	Association of Southeast Asian Nations
CBI	Climate Bonds Initiative
CBS	Climate Bonds Standard
DFI	Development Financial Institution
EIU	Economist Intelligence Unit
ESG	Environmental, Social and Governance
EU	European Union
FI	Financial Institution
GBP	Green Bond Principles
ICMA	International Capital Markets Association
IFC	International Finance Corporation
NDC	Nationally Determined Contribution
MDB	Multilateral Development Bank
SBI	State Bank of India
SEBI	Securities and Exchange Board of India
SPO	Second Party Opinion
S&P	Standard & Poor's
SRI	Socially Responsible Investment
UN	United Nations
USD	United States Dollars

Glossary

Anchoring	The allocation of securities ahead of a public offering. This is done to demonstrate demand for the securities, thereby attracting other investors.
Asset class	A grouping of investments that exhibit similar attributes and are subject to the same laws and regulations.
Cessions	The act of giving up something, usually land, by agreement in a formal treaty.
Covenant	A promise in an indenture, or any other formal debt agreement, that certain activities will or will not be carried out or that certain thresholds will be met.
Custodian	A financial institution that holds customers' securities for safekeeping to prevent them from being stolen or lost.
De-risking	The forecasting and evaluation of risks together with the implementation of procedures to avoid or minimise their impact.
Debt default	When a borrower fails to make payment on a loan at the time it is due.

Development Finance Institutions (DFIs)	Specialised development organisations that are usually majority owned by national governments. DFIs invest in private sector projects in low- and middle-income countries to promote job creation and sustainable economic growth.
Earmarking	Setting funds aside to pay for a particular project or purpose (also see 'ring-fencing').
Environmental, Social and Governance (ESG)	A set of standards for a company's operations that environmentally- and socially-conscious investors use to screen potential investments.
ESG factor management	The processes and procedures developed by an organisation to implement its ESG objectives.
Fiduciary	An organisation that acts on behalf of entities, putting the interests of that entity ahead of its own, with a duty to preserve good faith and trust.
Fixed rate	An interest rate that stays the same for the life of a debt, depending on the terms and conditions of the loan agreement.
Green Bond Principles (GBP)	A set of voluntary guidelines that aim to support issuers in financing environmentally-sound and sustainable projects through green bonds.
Greenium	A greenium or green premium (the terms are used interchangeably) is the discount government and companies receive for issuing a green bond, which helps to offset the additional costs of labelling a green bond. A greenium is defined as the difference between the yields on a conventional bond and a green bond with similar characteristics.
Greenwashing	The process of conveying a false impression or providing misleading information about how a company's products are more environmentally sound than they actually are.
Green labelling	The accreditation of products in line with the specific environmental standards of an authority. Green labels are also known as environmental labels or eco-labels.
Green bond framework	A document developed by the issuer that outlines the intended use of proceeds from the bond.
Green Sukuks	Shari'ah compliant investments in environmental assets.
Guarantees	A formal assurance (typically in writing) that certain conditions will be fulfilled, especially that a product will be repaired or replaced if not of a specified quality.
Hedging	An investment made with the intention of reducing the risk of adverse price movements in an asset. Normally, a hedge consists of taking an offsetting or opposite position in a related security.
Illiquid	A stock, bond or other asset that cannot easily and readily be sold or exchanged for cash without a significant loss in value.
Interest	An additional monetary charge when borrowing money.
International Financial Institutions (IFIs)	All financial institutions operating on an international level that give loans to governments for financing large-scale projects, restructuring and balance of payments.

Issuer	A legal entity that develops, registers and sells securities to finance its operations. Issuers may be corporations, investment trusts, or domestic or foreign governments. Issuers are legally responsible for the obligations of the issue and for reporting financial conditions, material developments and any other operational activities as required by the regulations of their jurisdictions.
Labels	Bonds may have single or multiple labels, including green, sustainability, social, blue and others. The decision on whether to select a single label or multiple labels has many ramifications.
Landmark issuer	Issuances to the market that aim to act as demonstration cases for other issuers, thereby catalysing further bond market development.
Long-dated paper	Bonds or other debt instruments with long maturities.
Multilateral Development Bank (MDB)	An international financial institution chartered by two or more countries for the purpose of encouraging economic development in poorer nations.
Net proceeds	The amount the seller receives following the sale of an asset after all costs and expenses are deducted from the gross proceeds.
Non-performing loans	When the borrower has fallen behind on loan repayments over a specified period (typically 2–3 months).
Partial credit guarantee	A promise of full and timely debt service payment up to a predetermined amount.
Pledges	A solemn promise or undertaking.
Principal	The original sum of money borrowed in a loan or put into an investment.
Public offering	The sale of shares to the public in order to raise capital for expansion.
Regular market taps	A procedure that allows borrowers to sell bonds or other short-term debt instruments from past issues. The bonds are issued at their original face value, maturity and coupon rate, but are sold at the current market price. A tap issue is also referred to as a bond tap or tap sale.
Ring-fencing	To ring-fence a grant or fund means to put restrictions on it, so that it can only be used for a particular purpose (also see 'earmarking').
Secondary market	A market where investors purchase securities or assets from other investors, rather than from issuing companies themselves.
Second Opinion	Second Opinions or Second Party Opinion (SPOs) provide an assessment of the issuer's green bond framework, analysing the 'greenness' of eligible projects/assets.
Segment	A portion of a market dedicated to a particular type of security that may be subject to specific rules, policies and procedures.
Self-labelling	The process of labelling bonds without a process of certification or verification by an external party.
Socially Responsible Investment (SRI)	Investment that is considered socially responsible due to the nature of the business the company conducts.

Subordination	In banking and finance, this refers to the order of priorities in claims for ownership or interest in various assets.
Subscriptions	Newly-issued securities that an investor agrees or intends to buy prior to the official issue date.
Taxonomy (green finance)	A green finance taxonomy is an official classification or catalogue that defines a minimum set of assets, projects, and sectors that are eligible to be defined as 'green' in line with international best practice and national priorities.
Tenor	The period remaining before a financial contract expires.
Tenor extension	A one/two-month extension on the loan maturity date subject to accrued interest charges.
Transaction costs	The expenses incurred when buying or selling a good or service.

Executive summary



Aim

This guide draws lessons for emerging markets from early experience in launching green bond markets in developing economies. The authors investigated countries that have been successful in developing green bond markets at all levels of market readiness, considering capital market development, the enabling policy and regulatory environment, and investor appetite for this new asset class. The objective was to establish, firstly, whether it has been possible for specific countries to overcome typical challenges in developing economies and, secondly, what the bare minimum requirements – or prerequisites for success – have been across all case studies.



Who should read this guide

This guide has been produced for financial sector policy-makers and green bond market actors in developing and emerging economies. For financial sector policy-makers, the report outlines possible strategies and enabling frameworks to initiate or grow domestic green bond markets. For green bond market actors, including issuers, investors and regulators, the report provides guidance on barriers and possible solutions to participating in the green bond market.

Green bond market trends

Green bond issuances have risen steeply year-on-year since 2015, with the issuance of US\$ 500 billion in 2021 not only reaching a new annual high, but also driving total issuance through the cumulative US\$ 1 trillion total.¹ Despite a year characterised by uncertainty and an initial slow uptake, growth of green bond issuances continued throughout the global Covid-19 pandemic. This reflects the commitment of investors to support green investments that are resilient to short-term volatility.

Barriers to green bond market development in emerging economies

Developed countries still dominate the green bond market; however, emerging market issuances are growing and account for approximately 20% of global issuance. Specific barriers identified in emerging markets include: underdeveloped capital markets, reliance upon international investors and arrangers with low appetite for local currency risk, inadequate domestic market-specific capacity, low awareness about the instrument and higher transaction costs. Green bond market pioneers in the emerging world have overcome these challenges through several strategies. While each of these countries faced unique constraints, they demonstrated high levels of ambition and good progress in developing systems to support the adoption of sustainable finance and, importantly, green bond issuance. The collective experiences of these countries shows that imperfect capital markets can operate effectively as platforms for raising finance for green projects, despite these challenges.

To launch a green bond market, a functional debt capital market is required. In many emerging economies, small, illiquid, shallow capital markets and underdeveloped financial market infrastructures (such as exchange and trading platforms, credit risk and assessment, custodians, and fiduciaries) inhibit the growth of green bond markets. Possible solutions include: the use of guarantees to address credit

worthiness issues; issuances in hard currency to increase the competitiveness of emerging market issuances; the development of customised fiscal incentives for issuers and investors; and private placements to viable local currency issuers.

The lack of a well-developed pipeline of bankable green projects is a significant restricting factor to green bond market development and is driven by limited capacity to identify, develop and package green projects. Regardless of project type, scale is an important consideration in green bond issuances. Smaller bonds incur relatively high administrative costs as a proportion of proceeds, rendering them less attractive to investors. To overcome this barrier, countries must develop green project priority lists together with establishing a planning committee or agency to lead pipeline development. Additional costs associated with green labelling may also deter issuers, particularly when investor demand is uncertain. Market data suggests these costs add 0.3 to 0.6 basis points for a typical US\$ 500 million bond. To compensate issuers for costs incurred in the green labelling process, regulators could incentivise credible issuance by subsidising it.

Avoiding greenwashing

One of the main obstacles for both issuers and investors is the ambiguity regarding what qualifies as “green”, giving rise to concerns over greenwashing. Greenwashing occurs when an issuer misleads the market regarding environmental practices or product features. The risk of greenwashing is heightened by fragmentation in green bond market definitions and standards. Regulators and policy-makers should work towards a credible institutional framework, including green bond market guidelines compatible with international guidance, credible national taxonomies, and regulations that promote external review and regular investor reporting. Strong local green bond institutions and policies will ensure that greenwashing is avoided through the enforcement of appropriate regulatory measures. A critical aspect is the lack of capacity of capital market regulators to appropriately assess and manage greenwashing risk to ensure the protection of investors and the overall integrity of the green bond market.

The roles of key market actors

The public sector has a vital role in developing green bond markets. The key public sector actors include development banks, national governments, regional and international bodies, and sub-national governments and government agencies as well as financial regulators. Development banks have played various roles in catalysing new markets, such as being an activating issuer, attracting co-financing from other investors by anchoring issuances, acting as credit enhancers, and providing technical assistance to unlock green bond opportunities. Green bonds issued by national governments have strategic value: they can accelerate the development of green bond markets by being issuers and setting the regulatory framework to stimulate green bond issuances from the domestic market.

A framework for green bond market development

There are two routes to green bond market leadership: corporate- or government-led. Large, well-capitalised markets like India, China and Brazil are dominated by corporate issuers. National governments can also catalyse and dominate the market, as in the case of Chile, Indonesia and Nigeria. Four factors have emerged as critical foundations for green bond market development and manifesting in moderate country risk: a **sound enabling policy and regulatory environment** aligned with international standards with clear direction on eligible use of proceeds to guide issuance and promote investor confidence; **investor demand for sustainable finance instruments** to encourage green bond issuance whilst incentivising the adoption of a green label and meeting of the associated costs; **public sector participation and collaboration** to provide institutional frameworks and address market capacity gaps; and, **stable macroeconomic and political conditions** to provide a general foundation for bond market development (see Figure 1).

FIGURE 1: Four critical factors for green bond market development in developing and emerging economies



The introduction of sustainable finance regulations and guidelines in emerging markets often results in a rapid increase in green bond issuance. Without investor demand, there is no incentive to undertake green labelling. Investor demand is stimulated through regulations that prescribe investment in sustainable finance instruments like green bonds. Public sector entities, whether domestic or international, actively promote green bond markets through developing institutional frameworks (e.g., regulations for green bond markets), providing technical assistance to compensate for market-specific capacity gaps, and participating in green bond markets as landmark issuers or anchor investors. Landmark green bond issuances are issuances to the market that aim to act as demonstration cases for other issuers, thereby catalysing further bond market development. Ultimately, the ability of a country to establish a green bond market will depend on the presence of a conducive macroeconomic and political environment.

I. Introduction

This guide has been produced for financial sector policy-makers and green bond market actors in developing and emerging economies. For financial sector policy-makers, the guide outlines possible strategies and enabling frameworks to initiate or grow domestic green bond markets. For green bond market actors, including issuers, investors and regulators, the publication provides guidance on barriers and possible solutions to participating in the green bond market. The guide has two objectives:

- 1. To provide a working knowledge of the opportunities and challenges associated with green bonds as a financial instrument for environmental projects.** Through examining global trends and specific country case studies, the guide suggests when green bonds can most appropriately be applied as a financing mechanism.
- 2. To inform policy-makers and regulators of ways to unlock the green bond market potential in their home countries.** This requires an understanding of market development pathways and the set of actions required to prepare a national financial sector for green bond issuance. In developing economies, less developed capital markets, policy and regulatory frameworks, and limited technical capabilities pose specific challenges to the launch of new green market instruments, such as green bonds. With wisely selected policies and incentives, several of these challenges can be overcome, thereby attracting domestic and international investment earmarked for sustainable development.

The guide is supplemented by two case studies on the Indian and Kenyan green bond market (Annex B and C). The objective of the case studies is to provide a detailed overview of the domestic green bond markets, the specific barriers that limit green bond market development, opportunities for growth and policy recommendations. Policy recommendations are envisioned to provide learning to financial sector policy-makers and green bond market actors in both case study countries as well as for developing and emerging countries more broadly.

What are green bonds and why define what classifies as “green”?

Green bonds can simply be described as conventional bonds with proceeds earmarked for green or environmental initiatives. A more comprehensive definition has been outlined by the International Capital Markets Association (ICMA):



Green bonds are any type of bond instrument where the proceeds or an equivalent amount will be exclusively applied to finance or re-finance, in part or in full, new and/or existing eligible Green Projects and which are aligned with the four core components of the Green Bond Principles.²



– International Capital Markets Association (ICMA)

This overarching definition is well accepted by the international community along with the implementation of green bonds being guided by the ICMA Green Bond Principles (GBPs) (the principles are outlined in detail in Annex A).

Despite this agreed upon overall international definition of green bonds, there is less agreement on what specifically qualifies as a green bond in a regional and national context. So, in addition to green bond definitions that are overarching, particular green bond taxonomies

can provide detailed guidance on the types of project activities and sectors that possess green integrity. This assists investors in avoiding 'greenwashing risks' – funds that are channelled to activities that have negligible environmental benefits or are even environmentally harmful – thereby allowing for bond issuances to be comparable. Sound environmental integrity for each green bond issued is critical to ensure not only investor confidence, but also that proceeds are used for green projects.

Achieving consensus on taxonomies of green definitions, which determine eligibility of project types, has been challenging. This has resulted in the development of national, regional and global green finance taxonomies, most notably the [European Union \(EU\) Sustainable Taxonomy](#) and the [Climate Bond Taxonomy](#).^{3,4} Inspired by these initiatives, many emerging markets are seeking to develop their own taxonomies to provide clear definitions of activities or investments that embody country specific circumstances and environmental objectives. In April 2022, the South African government finalised the first edition of [South Africa's green finance taxonomy](#)⁵, which is available for public comment, while a Vietnam green taxonomy has been finalised. Zambia has also commenced the process of developing a local green bond taxonomy to align with local green growth strategies.

With these initiatives being supported by prominent actors such as the World Bank, it is likely that there will be a growth of green investment/green finance taxonomies in the coming years. There is also momentum to harmonise green finance taxonomies, which would increase investor confidence, thereby ensuring greater trust in the market in the long term. Establishing regional taxonomies could also be considered, as they can be helpful for achieving economies of scale.

BOX 1: COUNTRY TAXONOMIES

Country taxonomies should reflect:⁶

- The promotion of activities that align to broader sustainability and national environmental objectives; and
- Alignment to outcome-linked approaches. This requires the measurement of the net contribution towards climate resilience and low-carbon development over the lifetime of a project, with the outcome only being considered green if the output creates positive results or if it demonstrates a measurable change from the baseline situation prior to the project.

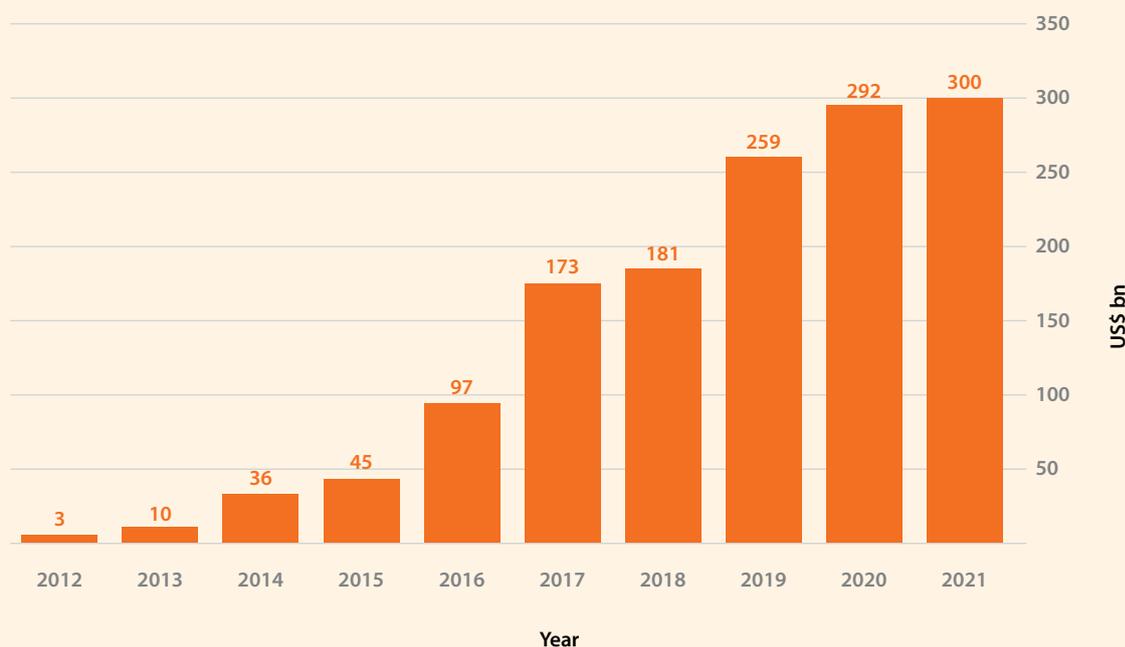
The growth in the green bond market

Green bond issuance has risen steeply year-on-year since 2015, with the issuance of US\$ 292 billion in 2020 not only reaching a new annual high, but driving total issuance through the cumulative US\$1 trillion total (Figure 2, Figure 3).

Despite a year characterised by uncertainty and an initial slow uptake, growth continued throughout the global Covid-19 pandemic, thus reflecting the commitment of investors to supporting green investments, resilient to short-term volatility.⁷ As of the end of 2021, total issuance was just over half a trillion dollars (US\$ 517.4 billion).⁸ A diverse range of green bond instruments has been created over the past three years, including Green Sukuks. Green Sukuks are Shari'ah-compliant investments in environmental assets.

Proceeds are used to finance construction, to refinance debt, or to finance the payment of a government-granted green subsidy.⁹ Twenty-three countries undertook various forms of issuances in 2020 alone.

FIGURE 2: Annual green bond issuance (US\$ bn)



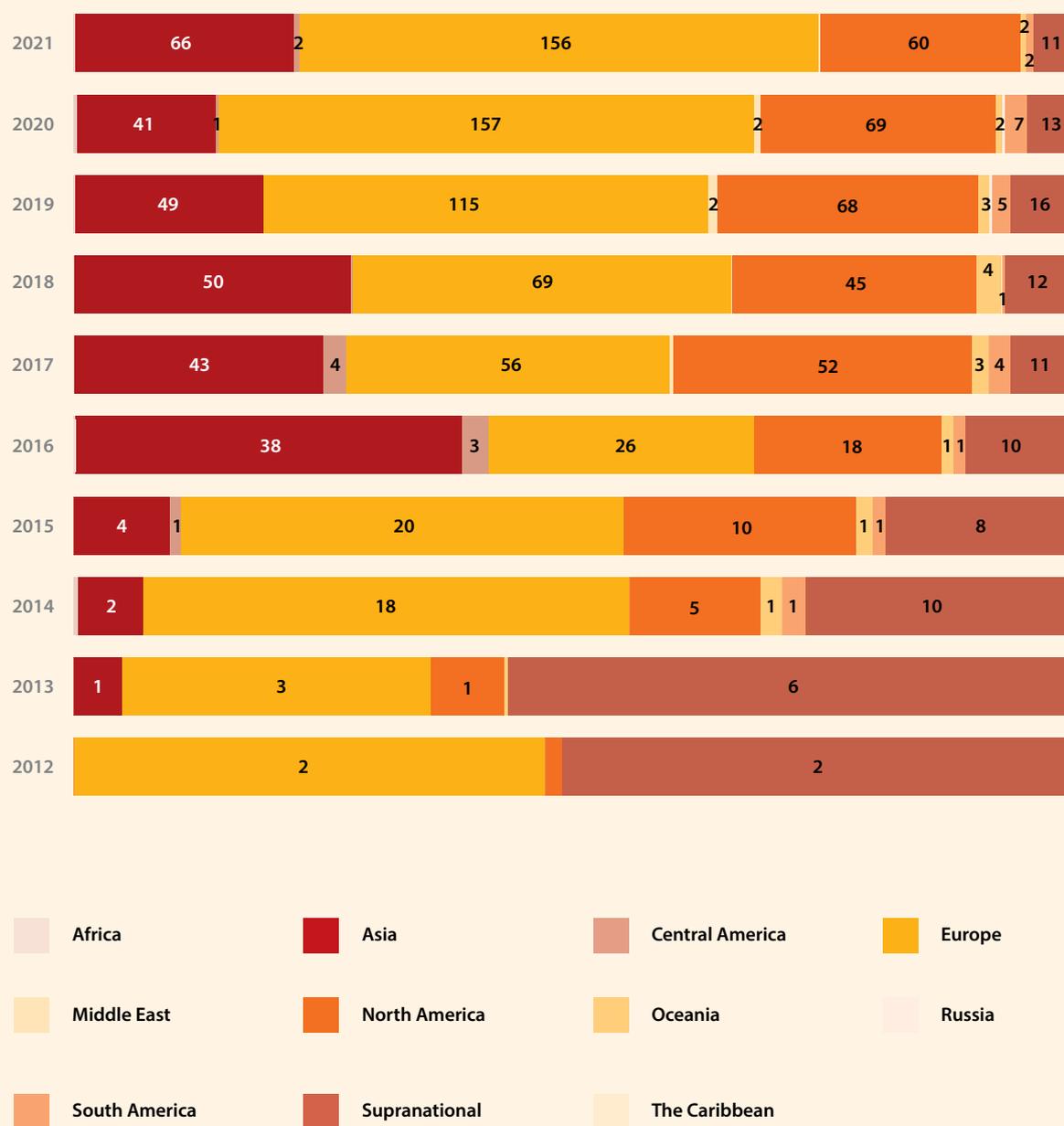
Note: 2021 figures end on 24 August, hence are not strictly comparable with earlier years
 Environmental Finance Green Bond Database¹⁰

Since market inception in 2007, the issuer base has diversified significantly, reflecting a mainstreaming of institutional commitments to address environmental challenges.

Multilateral Development Banks (MDBs) were responsible for the majority of the green bond issuance in the early years, from 2007 to 2014. Since then, the private sector has shown rapid uptake, with an explosion of corporate bonds.¹¹ In saying this, however, 2020 was dominated by growth in public sector issuer types, with government-backed entities experiencing the most rapid growth in 2020, and accounting for 78% of issuer type, whilst private sector volumes remained stagnant or shrunk. The market was more balanced by issuer type in 2021, with public sector issuances accounting for 40% of total issuances.

While developed countries still dominate the green bond market, emerging markets account for approximately 20% of global issuance.¹² This is in part due to the more stable, mature capital markets that exist in developed economies, coupled with sufficient risk appetite of investors. The slight drop from 2019 to 2020 reflects declining issuance from China, due to a priority shift in funding to support the country's economic recovery from Covid-19. Excluding China, emerging markets displayed resilience in 2021, increasing 90% to US\$ 49.8 billion.¹³

FIGURE 3: Regional green bond issuance, 2012 to 2021 (US\$ bn)



Environmental Finance Green Bond Database¹⁴

The dominant use of proceeds from green bond issuance in 2020 were for energy, green buildings and transport, together accounting for 85% of volume. In 2020, investment in the energy sector accounted for US\$ 94 billion, followed by low-carbon buildings at US\$ 71 billion, and low-carbon transport at US\$ 64 billion.¹⁵ Amongst certified green bonds, transport accounted for approximately half of total issuance, with energy and buildings approximately roughly each a quarter of total issuance. This may suggest that issuers have found it easier to meet the Climate Bond Standards for the transport sector, as it often favours large-scale investments such as those in railways and urban mass transit.

What are the benefits of green bonds?

As the global green bond market develops, the case for it becomes clearer and stronger.¹⁶ Besides the ability to raise debt capital at scale specifically for green initiatives, green bonds are also beneficial for the following reasons:

- Attracting an alternative pool of capital from institutional investors that are focussed on environmental, social and governance (ESG) factors or socially responsible investment (SRI);
- Connecting sustainability and finance departments internally, thereby strengthening internal coordination and assisting entities to enact their sustainability-related objectives; and
- Enhancing the reputation of entities looking to transition to more environmentally-positive practices.



Ain Beni Mathar Integrated Combined Cycle Thermo-Solar Power Plant, Morocco.
© Dana Smillie, World Bank via Flickr

Therefore, green bonds may represent a positive marketing opportunity.

The next section outlines the benefits of green bonds for broader development of the financial sector, followed by benefits for issuers, in particular for the public sector. Issuers are entities that seek to raise debt via the bond markets. Entities may be national governments, parastatals, private finance institutions, non-financial corporates, international organisations, sub-national authorities and others.

THE CASE FOR CREATING A GREEN BOND MARKET

Beyond benefits for issuers, green bonds offer opportunities for broader financial sector development.

Developmental agencies sometimes support the development of new national stock exchanges specifically to host green bond markets. Financial Sector Deepening (FSD) Africa is currently working with several countries in East Africa to establish new stock exchanges, with a view to using these platforms to attract capital for sustainable development: principally through green bonds. For example, as part of the broader green bond market development in Zambia, green bond listing rules have been developed at the Lusaka Securities Exchange (LuSE).

Catalytic green bond investors, typically MDBs or developmental vehicles/funds, deepen or widen nascent underdeveloped capital markets. For example, the African Local Currency Bond Fund (ALCBF) actively seeks out opportunities to anchor green bond issuance on the African continent, extending debt maturities or de-risking participation for commercial investors. Growthpoint, South Africa's largest listed property fund, was able to sell 10-year bonds for the first time through green labelling. This landmark issue, which acts as a demonstration case for other issuers, set a precedent for future long-dated bonds by South African corporates. It was enabled by the participation of impact-seeking capital from investors like the ALCBF.

Early participation by MDBs usually strengthens the technical capacity of bond market regulators and issuers. This can include technical assistance with developing green debt securities regulation, market guidelines and taxonomies, issuer risk management frameworks, governance structures and regulatory systems. Raising these to a level of international best practice can stimulate higher quality issuances and the introduction of additional sustainable finance instruments and mechanisms in both listed and unlisted environments. For example, in South Africa, the International Finance Corporation (IFC) issued a green bond and subsequently sponsored the development of a sustainable finance taxonomy to facilitate the identification of green projects.

Green bonds are long-term assets, deepening shallow capital markets characterised by limited liquidity and diversity. The most common financing applications for green bonds include property, energy and transport infrastructure. These types of projects are associated with predictable, resilient, long-term revenue streams. The nature of these cash flows facilitates investment by liability-driven investors like pension funds and life insurers, offering the public sector viable, blended-finance opportunities to enable large public economic and social infrastructure investment programmes. These are increasingly prominent in a post-Covid world. Longer dated bonds also tend to contribute to the ability within the secondary capital market to manage long-term interest rate and liquidity risk (e.g., for banks and insurers that typically need to manage long-dated liability exposures).

Lastly, the introduction of green bonds can pave the way for sophisticated financial products that de-risk capital markets. Risk-transfer instruments, such as credit guarantees, currency hedges and insurance products, may be provided by the public sector to increase appetite in issuers supporting public programmes (e.g., independent power producers developing renewable energy plants to feed the grid). For present purposes, public sector refers to government, supnationals and Development Finance Institutions (DFIs), any of which may have the necessary financial substance and technical capacity to design and implement these instruments. There is empirical evidence that the public sector is better able to reduce the risk premia and generate a liquidity premium than private sector agents.¹⁷



Chile's 2020 green bond project portfolio allocated US\$ 4.4 billion for clean transport, including an extension to Santiago's metro lines. © Cristian Silva Villalobos via Shutterstock

THE CASE FOR PUBLIC SECTOR GREEN BOND ISSUANCE

Governments tasked with delivering on global climate commitments and domestic sustainability policies are increasingly tapping green bond markets. This allows for the cost of implementing long-term climate policies to be shared by current and future generations through debt finance. Accordingly, green bonds have risen as an instrument to expedite the transition to a low-carbon, climate-resilient world.^{18, 19} National, sub-national, and other issuers in the public sector have recently entered green bond markets to raise capital in countries as diverse as Belgium, Fiji, France, Indonesia, Lithuania, Nigeria and Poland.²⁰

This move is increasingly rewarded by investors. The Climate Bonds Initiative (CBI) green bond pricing analysis reveals increasing signs of a 'greenium' in the public sector (where there is a price benefit for being a green asset, which is explained more fully below).²¹ The performance of the inaugural German government green bond issued in September 2020 provided further evidence of this. This bond achieved a green premium in the primary marketⁱ – which was maintained in the secondary market – and exhibited lower volatility compared to its conventional-bond twin. Similarly, in South Africa, the City of Cape Town achieved pricing benefits when it listed its CBI-certified inaugural green bond in late 2017, as compared to a conventional bond issuance issued by a similarly rated South African metropolitan municipality in Gauteng in the same week. This suggests that governments should be encouraged to prioritise green expenditure in the knowledge that it can be relatively cheaper.²²

DIRECT AND INDIRECT BENEFITS TO GREEN BOND ISSUERS

In addition to the benefits for public sector issuances, there are specific direct and indirect benefits to green bond issuers more generally.

Direct benefits of issuing green bonds

Direct benefits to the issuer include pricing benefits, where green bonds are relatively cheaper to buy or trade at higher prices, as well as enhanced demand and expanded access to investors. Enhanced demand is typically created through policies and initiatives that aim to attract investors to assets that have green or sustainability-related labels to meet their voluntary or mandatory targets. Expanded access to investors involves having an increased pool of investors that may be attracted to asset classes that possess a green label. Pricing benefits are outlined in more detail below.

Pricing benefits of green bonds ('greeniums')

Governments and companies are often interested in issuing green bonds at a discount, which helps to offset the additional costs of labelling a green bond. This is known as a 'green premium', or 'greenium' (the terms are used interchangeably) where there is a price benefit for being a green asset. It is defined as the difference between the yield on a conventional bond and the yield on a green bond with similar characteristics.

The existence of a greenium is much debated, as green bonds are, in many ways, fundamentally indistinguishable from a plain conventional bond.²³ At first glance, there is little basis for the green label to influence the yield of a green bond. Green labels help to communicate to market actors that the underlying proceeds are intended to be used for 'green' projects. However, green bonds rank on equal footing with conventional bonds. The green bond investor does not own any additional rights to cash flows or value from the underlying projects and is subject to the same market dynamics.²⁴ Nonetheless, pricing may diverge between green and conventional bonds for a variety of reasons (see Table 1 below).

ⁱ The secondary market arises after issue, when bonds are sold from one bond holder to another. Its purpose is to provide liquidity – ease or speed in trading a bond at price close to its fair market value. The buying and selling of existing bond issues is done primarily through a network of brokers and dealers who operate through organised exchanges and over-the-counter (OTC) markets.



Latin America's first water infrastructure green bond will be used to capture, treat and distribute water and collect sewage in the cities of Cuiabá and Paranaguá in Brazil. © Joa Souza via Shutterstock

TABLE 1: Pricing on green bonds (excl. credit considerations)

DRIVERS OF PRICING BENEFIT ON GREEN BONDS	DRIVERS OF PRICING DISADVANTAGE ON GREEN BONDS
<p>A ring-fenced bond structure to finance green projects delivers lower ESG risk than a conventional bond through enhanced governance, disclosure and capital allocation (e.g., avoiding exposure to potentially stranded assets, carbon taxes, etc.). This may improve credit quality through lowering the risk of default (i.e., boosting cash flow) or loss, given default (i.e., improving value of security).</p>	<p>Investor transaction costs are driven higher by additional due diligence. This may be a function of either issuer process, (i.e., external review prior to issuance) or investor screening policies and procedures (e.g., undertaking in-depth review of issuer claims to comply with own rigorous environmental integrity requirements).</p>
<p>For standard green bond structures (i.e., earmarked rather than ring-fenced proceeds), additional issuer management, disclosure and reporting requirements may enhance governance. Across the ESG factor spectrum, governance is the factor most robustly linked with the financial performance of the issuer.</p>	<p>Instrument liquidity may be lower. To an extent, green bonds represent specialised bond instruments. Low levels of market awareness or predominant appeal to niche investor types may result in less liquidity in the secondary market.</p>
<p>Bond investors prefer bonds with favourable ESG or impact characteristics. Investors are increasingly willing to trade off return-on-investment to achieve other environmental and societal outcomes, which may translate to a price premium for green securities. For DFIs, donors and philanthropic investors, this may be mandate-driven – i.e., environmental outcomes are tracked as portfolio performance indicators. For purely profit-motivated investors, labelled bonds facilitate compliance with ESG investing or disclosure regulations (e.g., Task Force on Climate-related Financial Disclosures [TCFD]).</p>	<p>Non-compliance clauses may deter investors. Green bond frameworks submitted by issuers usually include non-compliance clauses that outline the steps taken by the investor if an issuer should not adhere to the green bond framework. This can be a deterrent to investors and issuers, as it places more risk on investment flows being consistent.</p>

To date, evidence for the existence of a greenium is mixed, resulting in a lack of consensus.

It is a challenge to reliably measure greeniums because of disparate methodologies and sampling data from varying timeframes and markets. There is tentative evidence of a modest but consistent discount of 1 to 9 basis points in secondary markets (i.e., green bonds trade at marginally higher prices),²⁵ and (less consistent) evidence of a discount of up to 20 basis points in primary markets (i.e., funding rates are lower for green bonds hence they are less costly).²⁶ In a recent CBI report focusing on green bonds issued in the primary market for the first half of 2021, almost 80% exhibited some level of greenium; this decreased to 50% of green bonds in the second half of 2021.^{27, 28}

In certain cases, a greenium appears more readily achievable under specific conditions:

- 1. The type of issuer matters significantly for pricing.** Public sector issued green bonds are more likely to benefit from a greenium whilst also being more liquid. A smaller greenium is usually achieved by financial institution issuers when compared to development banks and non-financial corporate issuers. At an issuer level, this may be due to weak environmental policies or governance for financing activities. If combined with earmarking rather than ring-fencing of proceeds, issuers may seem less credible regarding their commitment to sustainably manage proceeds. As a result, investors appear unwilling to pay as large a premium.²⁹
- 2. Sustainability credibility matters for investors,** in terms of both the organisation's strategy and its trustworthiness.³⁰ Issuers must ensure that the use of proceeds for a green, social and sustainability bond, or a target associated with a sustainability-linked bond, is clearly aligned with its sustainability strategy or it could reduce trust between issuers and investors and result in investors being more sceptical of future green bond issuances. Sustainability credibility can be signalled by the ESG rating, which has been found by several studies to predict the greenium.
- 3. Firm-level 'social capital' contributes to the greenium.** This suggests that ESG factor management, which are the processes and procedures developed by an organisation to implement its ESG objectives, contributes positively to firm financial performance in the long run. This increases with the growth of social shocks (e.g., a pandemic) and climate change awareness.
- 4. Opting for a 'darker' shade of green delivers greater benefits.**³¹ Environmental rigour can be signalled by certifying against a credible standard.³² CBI-certified green bonds benefit from a larger premium than self-labelled green bonds.³³ Other forms of external review, such as green ratings and Second Party Opinions (SPOs), also enhance credibility. In China, the primary green attribute appearing to influence the greenium is undertaking an external review.³⁴
- 5. Green bonds achieve higher levels of subscription, particularly where tax incentives are in place.**³⁵ As an example, Malaysia offers tax incentives for green technology activities in energy, transportation, building, waste management and supporting services, as well as financing incentives under the Green Technology Financing Scheme (GTFS). In auction-style bond placements, higher demand is likely to result in pricing advantages for the issuer.

Historically, supranational issuers such as the EU – as a distinct issuer category – have achieved the largest greenium. Supranationals include the World Bank (IBRD), Asian Development Bank, European Bank of Reconstruction and Development, and IFC. A study has identified a robust pricing advantage of 80 basis points for supranationals relative to other financial institutions.³⁶ This benefit can potentially be explained by the strong reputational advantage of these issuers. Supranational institutions were the first movers in the green bond market, so their role in the green market is well-established. Also, their organisational mandates centre on support for sustainable development, minimising the extent to which green bond issuance may be perceived by investors as an attempt to 'greenwash' unsustainable projects and activities.³⁷



Tangste solar energy plant in a remote area of Ladakh, Jammu and Kashmir in North India.
Rahul Ramachandram via Shutterstock

Indirect benefits of issuing green bonds

Beyond the greenium, several indirect benefits of embarking on a process of issuing green bonds have been noted to accrue to the issuer. These include the impact on corporate valuations, ESG ratings, corporate and product innovations, and improved institutional governance and decision-making structures.

A recent CBI Green Bond Treasurer Survey noted several positive effects for both public and private sector players, outweighing the added costs of issuing green bonds:³⁸

- **Contributes to the issuer's climate transition and ESG risk management** due to recommendations made during internal and external audits and reviews of systems, processes, monitoring and frameworks.
- **Facilitates the development of new relationships** with investors and funding partners who would otherwise not be attracted to the particular market or region, such as DFIs, donors and investors searching for investment opportunities with green, sustainable or developmental underpinnings.
- **Enhances issuer reputation and visibility in the market** through the actions required to establish a green bond programme: the securing of desired third-party assurances, opinions or quality labels (i.e., during external review process) and the successful placement of a green bond in the market.
- **Strengthens internal integration** through a collective focus on defined sustainability projects/activities and strict monitoring, management and reporting requirements to support desired outcomes.

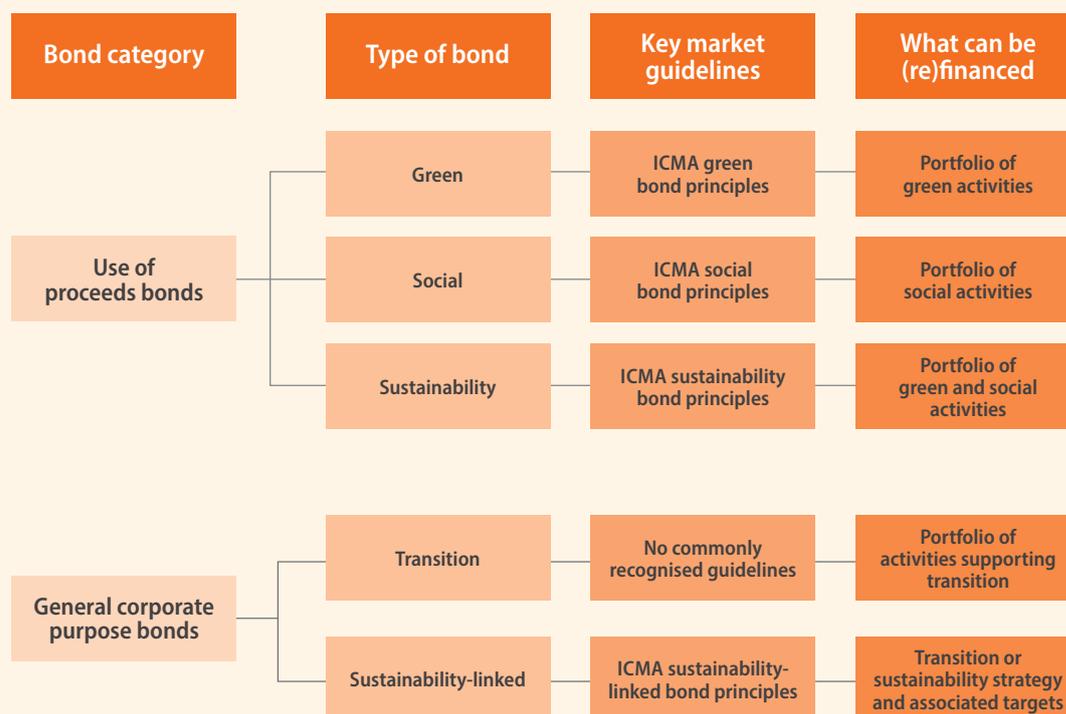
In the case of listed corporate issuers, an increase in corporate valuations has been observed, notably after the first green bond issuance. This is likely due to high quality ESG factor management signalled by the listing.³⁹

Other labelled bond types

Whilst green bonds have been successful in raising capital for environmental projects and activities, there has been a recent shift in capital markets to financing climate transition and sustainability-oriented progress. This has led to broadening the universe of 'labelled'ⁱⁱ sustainable bond types, which includes green bonds, into two categories: use of proceeds and general corporate purpose bonds (Figure 4). Use of proceeds bonds require the proceeds are allocated exclusively to finance eligible green or social activities, while general corporate purpose bonds are not earmarked for a specific use; instead, they are used to finance the implementation of an organisation’s sustainability or climate change strategy.

By lifting the focus from individual projects and activities to the institution as a whole, general corporate bonds can effectively drive sustainability across the entire operation of an issuer.⁴¹ The flexibility afforded to issuers enables capital-raising at scale that can achieve predefined sustainability or ESG objectives.⁴² Whilst general corporate purpose bonds have contributed to a much-needed diversity within the sustainable capital market, a key concern around these bonds is transparency and the threat of ‘greenwashing’, requiring active investor engagement. ICMA responded by publishing the Sustainability-Linked Bond Principles (SLBP) in 2020, aiming to provide a market framework including disclosure and reporting requirements.

FIGURE 4: Labelled bond types

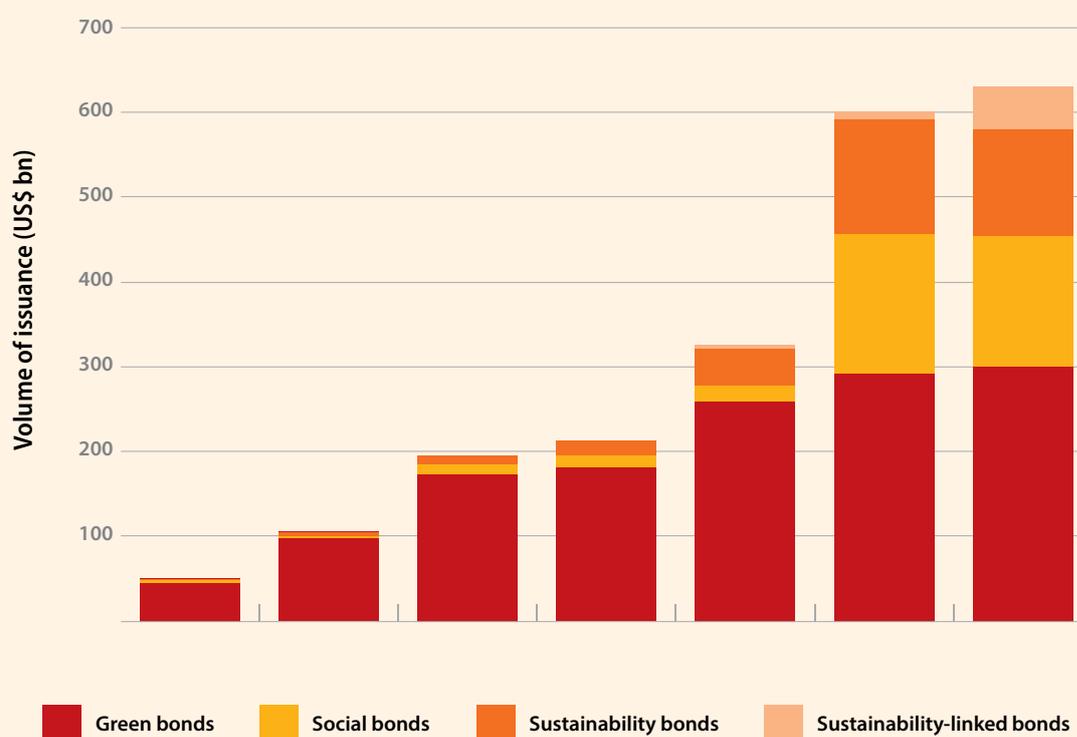


Institutional Shareholder Services⁴⁰

ⁱⁱ Labeled bonds – such as green, blue, social, sustainable, transition and sustainability-linked bonds – are bonds that promote sustainability and better ESG performance. Labeled bonds communicate the intended use of proceeds raised from the issuance as opposed to conventional bonds that may be used for general purposes.

Transition actions refer to changes in strategies, policies or investments taken by entities to reduce reliance on carbon and impact on climate change. Transition bonds are a new class of general corporate bonds that have been developed for this purpose. There are various other labelled bonds available in the market (Figure 5). As with other labelled bonds, transition bonds may also integrate climate resilience principles into their design to ensure that climate adaptation concerns are considered. They provide a solution for issuers in previously ‘brown’ sectors to gradually transition towards a greener business model. Whilst ICMA has released a *Climate Transition Finance Handbook*⁴³ that seeks to provide clear guidance to capital market participants on the practices, actions and disclosures that should occur when raising debt for climate transition purposes, this does not constitute a guideline in the same way as the labelled bond principles published by ICMA do. Accordingly, further work is needed to set out measures to limit the threat of greenwashing, including setting appropriate targets and identifying credible risk-mitigation measures, such as generally accepted methods for monitoring and measurement against targets, along with penalties for failure to perform.

FIGURE 5: Sustainable bond types, global issuance, 2015–2021 (US\$ bn)



Note: 2021 figures end on 24 August, hence are not strictly comparable with earlier years
Environmental Finance Green Bond Database⁴⁴

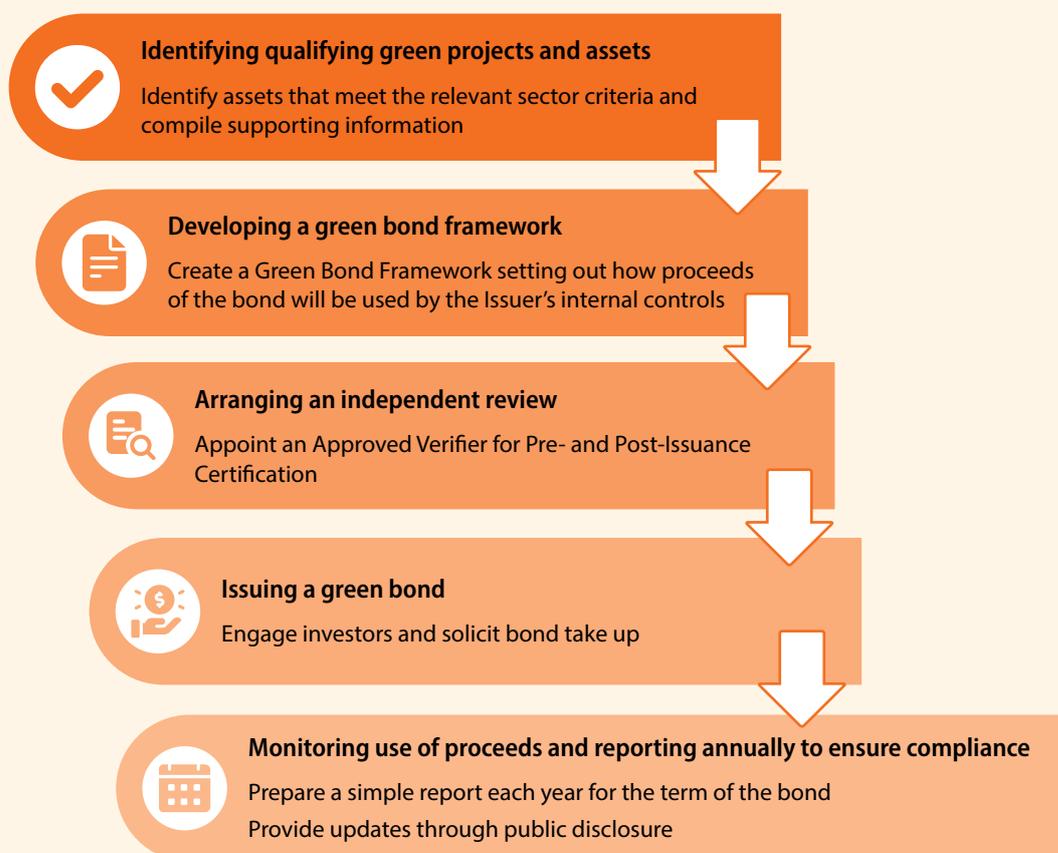
II. The green bond issuance process

The five distinct stages of the green bond issuance process are depicted in Figure 6.^{45, 46, 47, 48} These include:

- Identifying qualifying green projects and assets;
- Developing a green bond framework;
- Arranging an independent review/verification;
- Issuing the green bond; and
- Monitoring use of proceeds and reporting annually to ensure compliance.

Prior to implementing these steps, issuers must consider the financial and environmental objectives underlying the green bond issuance. Considering the increased transaction and due diligence costs and the reputational risks associated with fears of greenwashing, issuers must be aware of the growing scrutiny associated with a green bond issuance.

FIGURE 6: Stages of the green bond issuance process



Step 1: Identify qualifying green projects and assets

An entity may issue green bonds provided the proceeds may only be used for projects or assets that deliver environmental benefit. There is no requirement that the entity be associated with a green sector. Some of the project sub-categories may include renewable energy, sustainable water, low-carbon transport, and adaptation and resilience. A comprehensive list of project categories and sub-categories is provided in Annexure A. At present, there are a range of definitions and criteria that are available to assist issuers in determining whether or not the assets and projects are green. However, there is no universally-accepted green bond standard.ⁱⁱⁱ Issuers may use national and regional green finance taxonomies and the CBI Climate Bond Standard to determine the green integrity of the projects and assets packaged within the bond. For issuers unfamiliar with green investments, the use of external advisory services may be helpful to guide the structure of the green bond.

Step 2: Develop a green bond framework

Once the green project pipeline has been identified, a green bond framework must be developed. A green bond framework discloses the use of proceeds – allocations to green projects – identified in Step 1 and the processes for managing and tracking allocated and unallocated proceeds to ensure compliance with the terms and conditions of the bond. Furthermore, the green bond framework discloses the assurance and external verification steps associated with the management of proceeds.

While not mandatory, it is typically expected by investors that a green bond framework demonstrates alignment with the GBPs through the following criteria:

- Allocate proceeds to green projects only;
- Define management processes to separate green and conventional bond proceeds to track the use accurately and outline how unused proceeds will be managed; and
- Define monitoring processes to ensure that green bond proceeds are not allocated toward carbon-intensive investments throughout the lifetime of the bond.

Step 3: Arrange an independent review/verification

An independent review and verification should be undertaken, but is not compulsory under the GBPs. Some issuers may choose to 'self-label' the bond; however, the Principles recommend that an external party undertake the review to ensure impartiality. External reviews may be undertaken in the form of SPOs, third party assurance reports, climate bond standard verifications or green bond ratings. All independent external reviewers will evaluate the list of green projects included within the green bond and the governance framework of the bond. In addition, service providers may require other criteria are met according to their own internal assessment methodologies. Prominent service providers include CICERO, Sustainalytics and DNV, amongst others. Detailed information is provided on the Principles and external reviewers in Annex A: Green Bond Principles and External Reviews.

ⁱⁱⁱ In the context of green bonds, the terms "standards" and "principles" may cause confusion as they are sometimes used interchangeably. The Green Bond Principles (GBPs) are a guiding framework on the process that can be followed to issue green bonds. The GBPs are voluntary, but considered best practice in the market. Standards are norms used to assess the green integrity of a bond. Assessing a green bond against a standard is also not a requirement for issuing; however, it is strongly recommended.

Step 4: Issue the green bond

Green bonds are issued in the same manner as a conventional bond, with supporting documentation attached. Supporting documentation includes green bond frameworks and external review reports. Green bonds may be issued in any currency. Initially, the issuance may require approval from the regulators, after which the issuer will engage with the underwriter to structure the bond and obtain a credit rating, if needed.

Step 5: Monitor use of proceeds and report annually to ensure compliance

Once the bond has been issued, post-issuance reporting may occur through a combination of use of proceeds and impact reporting. Depending on the external review undertaken for pre-issuance, an independent verification entity may need to sign off a post-issuance report. It is best practice to have post-issuance reviews verified by a third party. Use of proceeds reporting focuses on the alignment to the green bond framework, while impact reporting refers to the environmental outcomes realised from the issuance. In general, post-issuance reporting occurs annually. Detailed information is provided in Annex A on post-issuance external reviews.



The first green infrastructure bond in Morocco was used to finance the debt incurred for the electrified high speed train "Al-Boraq", seen here at Casablanca Casa Voyageurs train station. CatwalkPhotos via Shutterstock

III. Lessons from green bond markets for developing economies

The next section draws lessons for emerging markets from early experience in launching green bond markets in developing countries. The authors investigated countries^{iv} that had been successful in developing green bond markets at all levels of market readiness, considering capital market development, the enabling policy and regulatory environment, and investor appetite for this new asset class. The objective was to establish: (1) whether it has been possible for specific countries to overcome typical developing economy challenges, and (2) what the bare minimum requirements – or prerequisites for success – have been across all case studies.

While green bonds are growing in popularity globally, uptake within developing economies remains limited. Underdeveloped capital markets, reliance upon international investors with low appetite for local currency risk, inadequate domestic market-specific capacity, and higher transaction costs have been identified as specific barriers.⁴⁹ Other factors add to these challenges: confusion associated with fragmentation of definitions and standards; investor concerns over environmental impact; and limited financing applications that drive the proliferation of other bond labels (and, in turn, add to further market confusion). Policy-makers assessing prospects for green bonds may be deterred as a result.

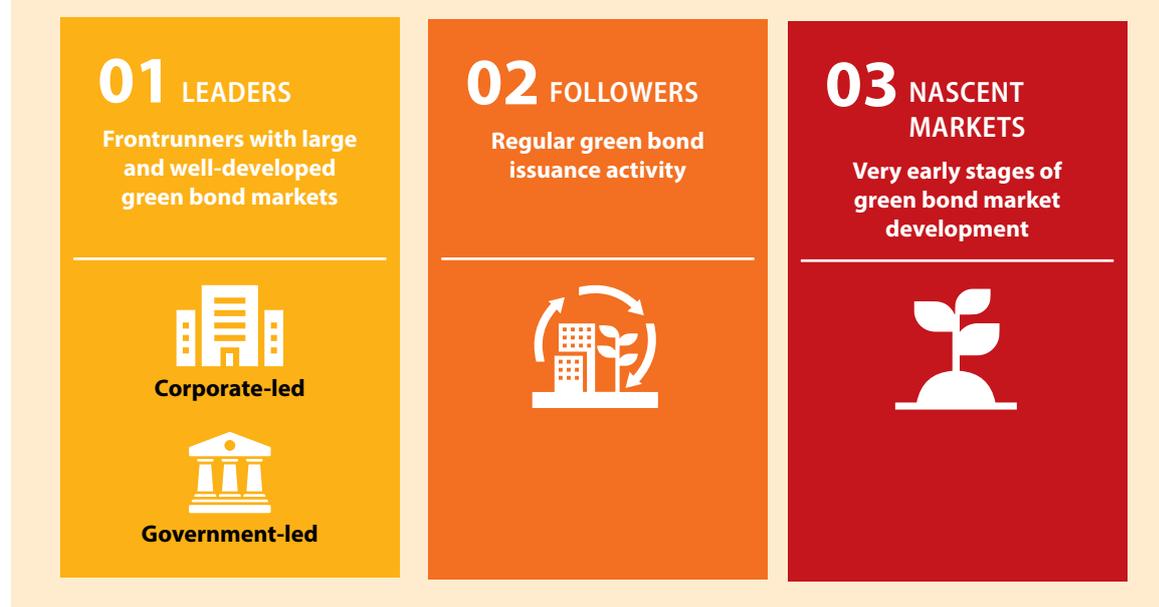
Green bond market pioneers in emerging markets have overcome the challenges through several strategies. While each of these countries faces unique constraints, they have demonstrated high levels of ambition and good progress in developing systems supporting the adoption of sustainable finance and, importantly, green bond issuance. **The collective experiences of these countries shows that imperfect capital markets can operate effectively as platforms for raising finance for green projects, despite these challenges.** This experience is shared below.



Nigeria's two green bonds have funded agroecology projects and agroforestry restoration in the country, amongst others. © Terry Sunderland/CIFOR via Flickr

^{iv} Key countries include Brazil, Chile, China, Ecuador, India, Indonesia, Kenya, Malaysia, Mexico, Morocco, Namibia, Nigeria, Philippines, Poland, Thailand and Uruguay.

FIGURE 7: Three categories of emerging market issuances



Emerging market experience with green bonds

To learn from emerging market experience with green bonds, this report identifies three categories based on emerging market issuances (excluding China) up to August 2021 as depicted in Figure 7:^v

- 1. Leaders** are clear frontrunners with large and well-developed green bond markets, supported by strong performance in all/most prerequisite areas. Cumulative issuance up to 2020 exceeds US\$ 5 billion. India, Indonesia, Brazil, and Chile fall into this group.

There are two routes to green bond market leadership: corporate- or government-led:

- **(Non-financial) Corporate-led:** Large, well-capitalised markets like India and Brazil are dominated by corporate issuers. Success appears to depend less on specific green bond guidance and catalytic incentives, particularly where established domestic sustainable finance policies exist and internationally-accepted GBPs are adhered to. This may increase the possibility of greenwashing risk. Advantages include diversified uptake with further scaling enabled by a high degree of alignment with institutional investor requirements.
- **Government-led:** National government catalyses and dominates the market, as in the case of Chile and Indonesia. Green bond issuance leverages sustainability policy leadership positions to attract MDBs, International Financial Institutions (IFIs), DFIs and other public sector investors targeting sustainability. Advantages include attracting concessional capital at scale and bypassing undeveloped domestic capital markets through hard currency issuance and/or private placements. Issuances by national governments in local or hard currency are also likely to be more attractive to foreign investors owing to the reduced default risk.⁵⁰

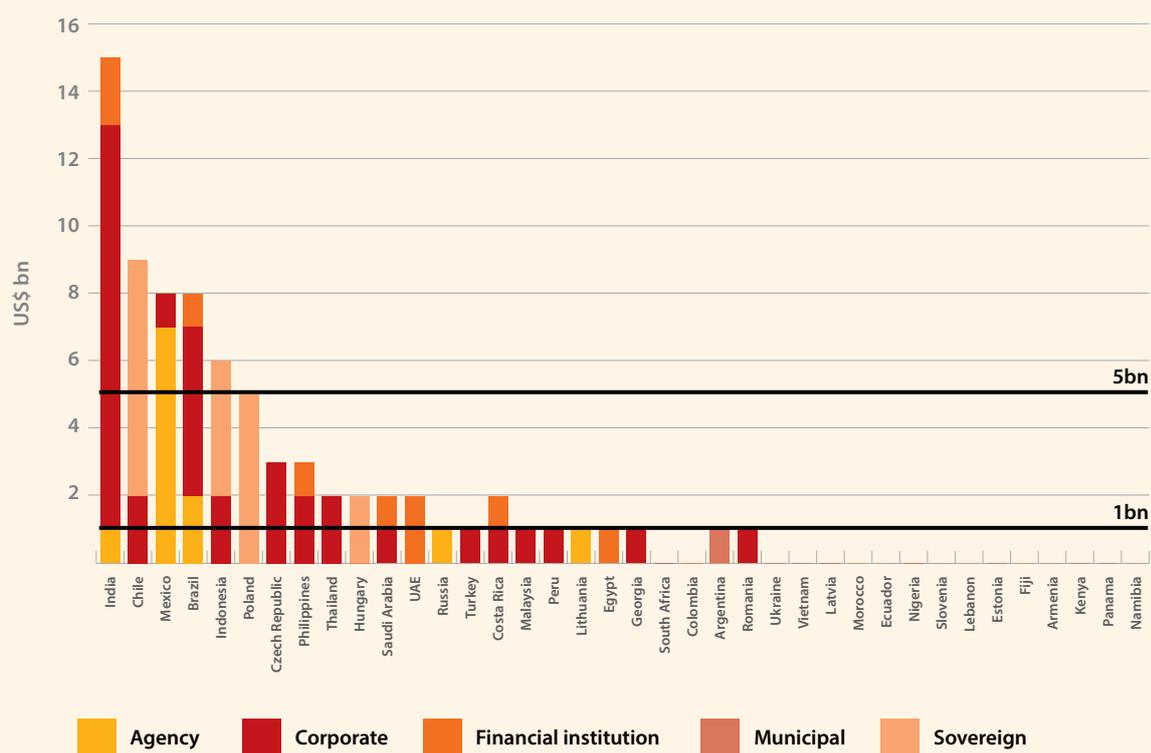
^v The dataset is based on consolidating available data from the [Environmental Finance Green Bonds Database](#). The definition of emerging markets/economies/countries is based on the definition of emerging markets as per the [Amundi Planet Emerging Green One](#) fund. This fund was launched as a collaboration between the IFC, a member of the World Bank Group, and Amundi, Europe's largest asset manager, and is the world's largest targeted green bond fund focused on emerging markets. It consists of the Fund's target countries, which are IFC member countries. These include countries eligible to receive [International Development Association's](#) resources and official development assistance as defined by the [Organisation for Economic Co-operation and Development's](#) Development Assistance Committee, which qualify as emerging markets and are not excluded as per the Fund's investment guidelines.

2. **Followers** see regular green bond issuance activity, but are not as well positioned for growth, due to smaller economies, less developed capital markets and/or missing prerequisites for success (defined on page 26). Cumulative issuance is in the range of US\$ 1–5 billion. Twelve countries fall into this group:

- a. Asia: Philippines, Thailand, Malaysia
- b. Europe and Middle East: Poland, Czech Republic, Hungary, Russia, Turkey, Saudi Arabia, UAE
- c. Latin America: Mexico,vi Costa Rica.

3. **Nascent markets** are in the very early stages of green bond market development, with less than US\$ 1 billion cumulative issuance. Countries like Argentina, Bangladesh, Morocco, Nigeria and Kenya fall into this group. Low issuance may be due either to recent adoption or the same structural factors with which followers grapple.

FIGURE 8: Cumulative emerging markets green bond issuance (excl China), 2012–2021 (US\$ bn)



Environmental Finance Green Bond Database⁵¹

^{vi} While Mexico has more than US\$ 5 billion issuance to date, this is attributable to an extremely large green bond programme launched by a government agency to finance a single project – the Mexico City airport.

Critical success factors for green bond market development

Across all countries surveyed,^{vii} four factors emerged as critical for green bond market development:

1. **A sound policy and regulatory environment** aligned with international standards that has clear direction on eligible use of proceeds is key to guiding issuance and promoting investor confidence.
2. **Investor demand for sustainable finance instruments** is vital for encouraging green bond issuance, whilst simultaneously incentivising the adoption of a green label and financing the associated costs.
3. **Public sector participation and collaboration** plays a crucial role in catalysing a green bond market. Through green bond issuance, emerging market governments can signal commitment to developing a new green market and so boost investors' confidence. At the same time, DFIs, including MDBs and IFIs, can attract private investors through building market capacity, anchoring green bond programmes, and de-risking issuance to improve return to risk.
4. **Stable political and macroeconomic conditions** are required as a more general foundation for bond market development. Analysis of green bond leader countries revealed a minimum country risk rating of BB or above on the Economist Intelligence Unit's (EIU)^{viii} scale. This scale considers three risk areas: political, currency and banking sector risk. A BB rating demonstrates national capacity and commitment to honour obligations currently; however, capacity may be susceptible to changes in the economic climate.⁵²

FIGURE 9: Four critical factors for green bond market development in developing and emerging economies



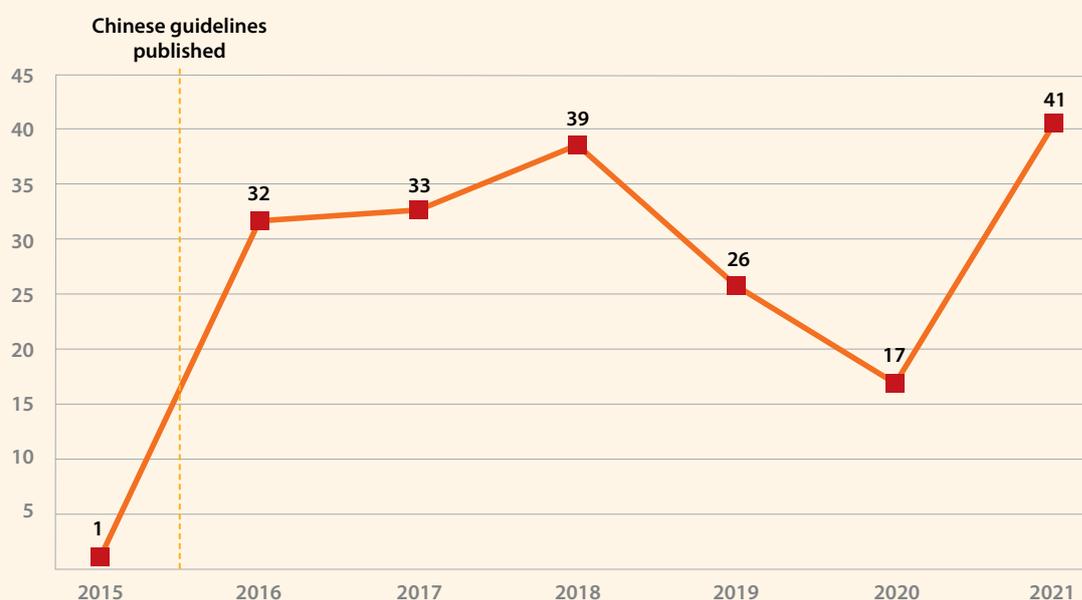
^{vii} Brazil, Chile, China, Ecuador, India, Indonesia, Kenya, Morocco, Namibia, Nigeria, Philippines, Thailand, South Africa and Uruguay.

^{viii} EIU is a credit rating agency that registered with ESMA on 3 June 2013 and, therefore, meets the conditions to be an eligible credit assessment institution (ECAI). EIU is an independent business within The Economist Group that provides unsolicited ratings of 128 countries worldwide through its Country Risk Service.

POLICY AND REGULATORY FRAMEWORKS

A key enabler of the transition to sustainability is an enabling policy environment and green bond regulatory framework. As the demand for finance grows from the real economy, frameworks should be consistent with environmental and sustainability policies, and international commitments. This ensures that green economic growth is ultimately contributing to the country's environmental and economic development mandates. The introduction of sustainable finance regulations and guidelines in emerging markets often results in a rapid increase in green bond issuance. In China, for example, the introduction of guidelines from the People's Bank of China and the National Development and Reform Commission at the end of 2015 resulted in green bond volumes jumping US\$ 1.3 billion in 2015 to US\$ 31.6 billion in 2016, as shown in Figure 10.⁵³

FIGURE 10: Chinese annual green bond issuance, 2015–2021 (US\$ bn)



Environmental Finance Green Bond Database⁵⁴

Sound regulatory frameworks promote credibility through aligning with international guidance and setting good governance requirements. The most referenced international market guidance is the ICMA GBP, discussed earlier. There are also other green bond standards under development by the EU. Governance under these guidelines refers to the measures imposed upon issuers to establish and maintain both environmental and financial integrity throughout the green bond issuance and management process. The most important dimensions are external review (see Annex A), especially at issuance, and ongoing reporting of both environmental and financial outcomes.

Within regulatory frameworks, clear guidance on the eligible use of proceeds is vital. Both the integrity of green bonds as instruments and the scope for their application – thus usefulness – depend upon consensus between issuers and investors regarding qualifying projects and activities.

This matching of issuers to investors is generally achieved through taxonomies, in-country or international (e.g., CBI's Climate Bond Standard). Adherence to taxonomies is enabled through the availability of data that supports the assessment of the eligibility of individual projects and activities, for example, electricity and emissions data for buildings. In some cases, certification at the asset level, such as green building standards, can take the place of this data, signalling eligibility through conforming with good practice set by the certification body. As green bond markets develop, the quality and availability of information to identify, measure and track green investments must improve to enable green project selection.

Despite the availability of international taxonomies and standards, certain project types are localised and context specific. This can make determining whether investments qualify as 'green' under technical eligibility criteria difficult. For example, Windhoek Bank identified bush encroachment as a project type that would deliver climate adaptation benefits. In this case, external technical assistance was needed to verify both the 'greenness' of the project type and the financial benefit from managing bush encroachment.⁵⁵ The localisation requirement is often dealt with by introducing a green finance taxonomy specific to a country or region.

INVESTOR DEMAND FOR GREEN BONDS

Without investor demand, there is no incentive to undertake green labelling. Green labelling stipulations limit the application of bond proceeds to green projects, and require additional management processes and reporting to ensure integrity. These steps result in additional costs, most notably for external review. Despite the higher transaction costs of green bonds, continued investor interest in labelled green bonds will ensure that issuers continue to issue green bonds despite the higher costs. Therefore, investor demand is integral in enhancing the growth and maturity of domestic green bond markets.



Wind farm in Tamil Nadu, India.
SHYNO_SHYN via Shutterstock

In some cases, green bonds may appeal to investors irrespective of regulations and guidelines. This may be due to the specific characteristics of the green bond. For instance, green bonds for utility-scale renewable energy projects backed by national governments may be in high demand with institutional investors because of their predictable stream of cash flows and low credit risk. This explains the dominance of traditional infrastructure sectors like energy, transport and buildings within green bond allocations. This has been the case in India, where a large government-led renewable energy drive spurred growth in the green bond market (further details are provided in Annex B). In some markets, governments provide tax incentives for investing in green bonds to enhance investor returns. For example, in Brazil investors do not pay tax on income from bonds issued to finance wind energy plants.

Investor demand is typically stimulated through regulations, which prescribe investment in sustainable finance instruments like green bonds.

In Indonesia, for example, corporates are bound to allocate a part of their corporate social and environmental responsibility funds to activities consistent with sustainable finance principles. This is linked to a national sustainable finance strategy characterised by clearly defined objectives and principles of sustainable finance, with defined milestones for performance. Similarly, in Bangladesh, banks and other financial institutions governed by the Bank of Bangladesh are required to channel 5% of all debt disbursed through green finance instruments like green bonds. It is likely that mandatory climate-related disclosures will also drive greater investor demand for green bonds in the long term.

More generally, market demand for sustainable finance instruments hinges on investor practices. A mainstream mechanism supporting demand for sustainable finance instruments like green bonds involves integrating ESG factors into investing decisions. In the developed world, widespread adoption of the UN Principles for Responsible Investing (PRI) and emerging evidence linking management of ESG factors to long-run investment performance have resulted in investors considering non-financial factors in their corporate valuations and decisions to invest.

The achievement of the UN Sustainable Development Goals alone will require an estimated US\$ 2.5–3 trillion annually through to 2030.⁵⁶ International investors, including DFIs, donors, and philanthropic investors, are increasingly expected to play a role in providing this capital, and are already doing so. For issuers to benefit from this demand, a clear plan is required to improve ESG management and/or support sustainable development policies. In emerging markets, ESG integration into financial sector processes is already occurring resulting in heightened focus on sustainable development, decarbonisation, climate resilience and inclusivity.

PUBLIC SECTOR PARTICIPATION AND COLLABORATION

The public sector, including government, MDBs, DFIs and IFIs, plays a crucial role in catalysing green bond markets. Public sector entities, whether domestic or international, actively promote green bond markets through developing institutional frameworks (e.g., regulations for green bonds), providing technical assistance to compensate for market-specific capacity gaps, and participating in green bond markets as landmark issuers or anchor investors.

National governments may drive green bond market development through landmark issuances. In Nigeria, the government issued the first green bond (2017), collaborating with international partners and leveraging international best practice in the form of the CBI Climate Bond Standard. Nigeria's Securities and Exchange Commission also engaged with key international actors in the green bond space, including CBI, the UN Environment Programme, and IFC. In this way, government paved the way for issuance for corporate issuers (Axis Bank, North South Power Company) and created interest in a new asset class amongst investors.

MDBs and IFIs build market capacity and selectively play a role as an anchor investor in green bond programmes. Capacity building usually includes the development of institutional arrangements, market regulations and guidelines. It may also include provision of technical assistance to issuers and investors that are interested in green bonds as a new asset class, but lack the skills to transact in this new market. With the support of the IFC, countries including Morocco, Ghana and Kenya – to name a few – have led the development and introduction of guidelines consistent with ICMA's GBP. Lessons to be learned include a need for continuous awareness building and knowledge sharing among the market players, alignment with international best-practice, and financial support of transactions support.⁵⁷

STABLE POLITICAL AND MACROECONOMIC OUTLOOK

The ability of a country to establish a green bond market depends on the presence of a conducive macroeconomic and political environment.⁵⁸ A sound and stable macroeconomic



A woman in a manufacturing plant for solar panels and products, owned and operated by local Indigenous women in Dungarpur District in Rajasthan. Kunal Gupta via Climate Visuals Countdown

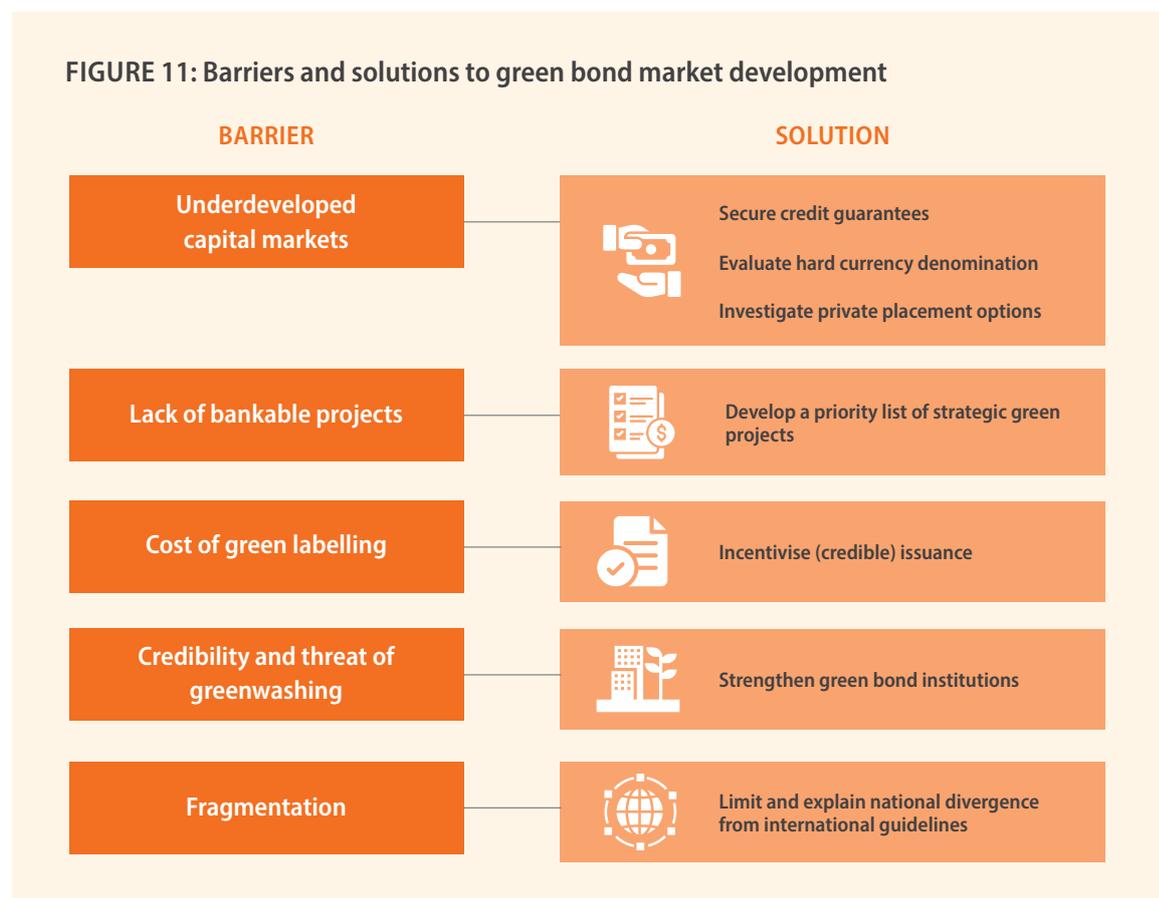
environment is necessary for debt capital markets in general. For any investor holding medium- to long-term instruments, like bonds, greater levels of instability pose a greater risk to investment returns and security. This instability can emerge as volatility in interest rates, inflation rates and exchange rates, creating uncertainty and diminishing bond investor returns.⁵⁹ It is especially important in developing economies where limited liquidity restricts exiting from investments at an early stage if the environment deteriorates suddenly.

Political instability reduces bond market activity by hampering the ability to attract foreign investors and deterring local investors. Foreign investors, particularly developed world impact-seeking investors, such as DFIs and impact/climate funds, often support early green bond market development. But they are less likely to participate when the political outlook is unstable, due to both financial and reputational risks. This correlation is evident in the relationship between the World Bank's Political Stability and Absence of Violence index and the amount of Foreign Direct Investment (FDI): countries ranking highly for widespread violence and civil conflict typically experience lower levels of FDI. Even domestic investors are negatively affected. Political instability is likely to shorten policy-makers' decision horizons, potentially leading to short-term economic policies that conflict with or hamper long-term objectives, diminishing the likelihood of earning an acceptable return over the medium to long term.

A relatively low level of country risk is necessary to enhance demand to launch a green bond market. Country risk is determined through the use of both qualitative and quantitative indicators and by considering elements such as political risk, currency risk and banking sector risk.⁶⁰ Analysis of the green bond leader and follower countries (as noted in section 6.1) revealed that each of these countries had a rating of BB or above on the EIU' country risk scale. This corresponds to national capacity and commitment to honour obligations currently, although susceptible to changes in economic climate. Thus, developing economies with unsustainable fiscal positions, volatile economies or political instability may struggle to attract investors into a new green bond market.

Overcoming barriers to green bond market development in developing economies

While developing countries are most vulnerable to climate change, they also face great challenges in achieving a low-carbon, climate-resilient transition – including mobilising capital. Obstacles to green bond market development are presented next, recognising that the degree to which they hamper green bonds varies from country to country. Innovative solutions to these challenges are showcased where they have emerged.



UNDERDEVELOPED CAPITAL MARKETS

To launch a green bond programme, a functional debt capital market is required. In many emerging economies, small, illiquid, shallow capital markets and underdeveloped financial market infrastructure (such as exchange and trading platforms, credit risk and assessment, custodians, and fiduciaries) inhibit the growth of green bond markets. In particular, a bond market should offer legislative protection for investors, a degree of transparency and good governance through encouraging credit ratings, relative liquidity, and yields that investors deem commensurate with the level of risk taken.

Attracting international investors to drive demand for green bonds and improve liquidity relies upon scale, amongst others. In general, the minimum attractive scale appears to be in the region of US\$ 300-500 million, which is large by emerging market standards.

Solution 1: Credit guarantees

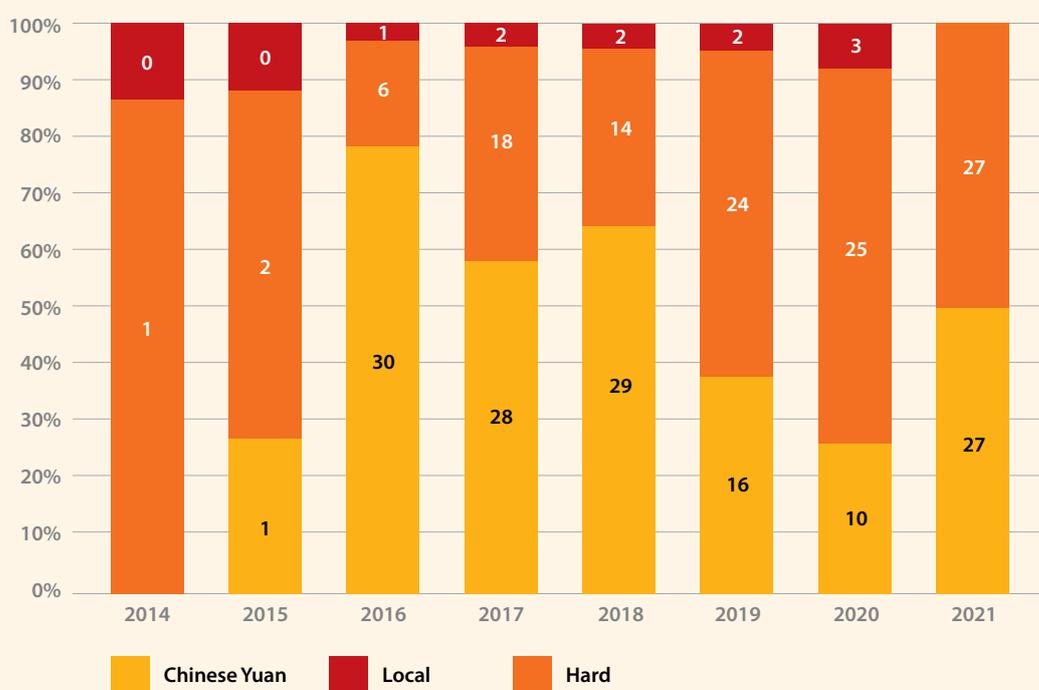
Bonds can be de-risked through credit guarantees linked to green labelling, thereby raising risk-adjusted return, and attracting investors. This enables issuers to raise capital at a lower cost,

which is especially helpful in markets exhibiting steep yield curves due to volatile, shallow and/or illiquid debt markets. However, whilst these solutions are useful when introducing a new product or other systemically-important issuance,^{ix} they are not sustainable in the long term.⁶¹ Instead, they may be used strategically to support long-term national government issuances for long-term projects (such as infrastructure) to extend the yield curve through longer-dated benchmarked issuances. Benchmark bonds are used to measure the performance of fixed-income investments acting as a standard or reference.

Solution 2: Hard currency denomination

Issuing in hard currency (USD, GBP, EUR) is a more promising and scalable solution. Emerging market issuers already use this strategy widely, allowing issuers to tap global liquidity pools. This issuance is on the rise, even for Chinese green bond issuers. In 2020, hard currency issuances accounted for almost 90% of emerging market issuances (excluding China) as shown in Figure 12.

FIGURE 12: Emerging market green bond issuance, by currency, 2012–2021
(as at 24 August 2021) (US\$ bn; %)



Environmental Finance Green Bond Database⁶²

^{ix} Systemically-important issuance is important in the overall development of financial/capital markets.

Emerging market actors issuing in hard currency note the competitiveness benefits in the long term.

For example, Access Bank in Nigeria did not favour concessionary rates for their green bond issuances, citing this as being unsustainable over time. The Bank asserted that pursuing concessionary rates would deter interested investors who could invest elsewhere to meet their portfolio objectives. By keeping the rate competitive and market driven through issuances in hard currency, the pool of investors will be maintained in the long term. This will allow for the African market to grow according to global standards and best practice with pricing benefits accruing in the future.⁶³

However, this creates financial risk for the issuer where the revenue to service the liability is earned in local currency.

In these instances, local currency depreciation can create unquantifiable liability for the issuer, rapidly increasing the risk of default. In the case of national governments, this carries systemic risk, as a single bond default would have implications for all other domestic issuers.^x Thus, the hard currency route is effectively restricted to larger public entities and other institutions, such as banks, with the ability to manage currency risk through the hedging of exchange rate movements. Even for these entities, the expenses associated with hedging longer-dated exposures could limit the extent to which this currency risk can be hedged or managed.



Cisco green building in Bangalore. Jun Yang via Flickr

Solution 3: Private placement

Private placements, which involve the sale of stock shares or bonds to preselected investors or institutions rather than listing on the open market, provide a viable alternative for local currency issuers. These funding arrangements can take two forms: (1) over-the-counter (OTC) issuance excluding exchange listing and public offering, and (2) exchange listed with private distribution. Many countries and issuers have used private placements as a way to establish the frameworks, processes and ratings necessary for larger programmes or issuances. They may be used even in countries with established green bond programmes, for the reasons listed below.

Private placements can serve as frontrunners for the development of a successful green bond market whilst testing innovative structures and contractual terms. When used effectively, they can catalyse further issuances and investor engagement (Table 2). A 2019 report published by CBI noted that private placements are prominent within Latin America and the Caribbean, accounting for 20% of the issuance amount and 27% of the bond count. In Argentina, the green bond market was inaugurated by the local government of La Rioja province via a US\$ 200 million private placement in 2017.⁶⁴ And, in the case of the Windhoek Bank in Namibia, the issuer was able to negotiate a 50 basis point reduction in the coupon rate with investors as a result of the private placement. Private placement negotiations allowed for the Bank to lobby for a coupon rate reduction, citing that any benefit would be passed onto the borrower.⁶⁵

Typically, the investors in private green bond placements are development banks, with large insurers and other financial institutions (i.e., those that assist in providing long-term liquidity to the market) also playing a significant role.

^x Credit ratings of other domestic cannot exceed the national government rating.

TABLE 2: Benefits of placing green bonds privately

BARRIER	SOLUTION	DESCRIPTION
Uncertain investor demand and pricing	Volume and pricing secured ahead of issuance	In nascent green bond markets, issuers are often uncertain about the nature and depth of demand for new programmes, with material consequences for pricing and amount of finance raised.
Higher transaction costs	Less costly and onerous issuance process (OTC only)	If unlisted, contract law governs issuance rather than securities regulation, reducing associated costs, and administrative and reporting burden on the issuer.
Mismatch between investor and issuer sustainability focus	Flexibility to tailor eligibility criteria and reporting requirements	Since the private placement is arranged for the benefit of a small number of counterparties, the terms and conditions can be tailored accordingly. This may enable the investor to have greater say over project selection criteria and processes, management of proceeds, and reporting (including impact indicators and calculation/verification methods).
Threat of greenwashing	Greater scope for investor protection	<p>One of the criticisms of green bonds is the lack of penalties for issuers engaging in greenwashing. Considering that issuers often undertake green labelling, investors may want measures in place if the green integrity of the bond is disputed.</p> <p>In the case of private placements, the investor may insert consequences for non-compliance with environmental sustainability commitments, including punitive interest rate provisions or breach triggers necessitating the immediate settlement of outstanding debt.</p>
Underdeveloped capital markets	Demonstration of good practice	<p>If designed and managed appropriately, a private placement can be a catalyst for the growth of a green bond market. This provides an opportunity for private investors to exit, a degree of market liquidity, and a pathway to market maturation. Private placements, however, should not be seen as a long-term solution, as they may result in market inefficiencies when compared to listings on public exchanges.</p> <p>While the assumption is that private placements are highly illiquid, instruments can be “traded”, albeit subject to a complex, negotiated process rather than the simplified auction-style trading offered on security exchanges.</p> <p>For green bonds, if experienced investors steer the primary transaction, the resulting issuance may increase the programme’s credibility and raise awareness of best practice for investors that acquire paper in the secondary market.</p>



Solar energy in Shanghai, China. © ArtisticPhoto via Shutterstock

Some drawbacks to private placements include:

a. Potentially higher funding costs for issuers

Investors often require more favourable pricing to compensate for the higher costs associated with intensive engagement and tailoring of instruments for specific issuers.

b. Limited scaling

The bespoke nature of private placements renders them less suitable for recurrent transactions. The costs of managing each specific issuance are significant for all counterparties, due to the level of engagement required to negotiate and execute. By contrast, a bond programme on an exchange facilitates regular market taps^{xi} once the green bond framework is published (and externally reviewed, where applicable).

c. Lack of transparency

Private placements are, by their nature, private transactions, limiting observation of transactional terms and other learning by other market participants. This restricts the potential for private placement green bond issuances to act as a catalyst for the market.

^{xi} Once bond programmes are registered under a defined set of terms, paper can be issued under the programme on the same terms until the limit is reached. Each time new paper is issued, this is referred to as a tap.

LACK OF BANKABLE PROJECTS

Green bond potential is limited by the pipeline of bankable green projects, with climate change mitigation projects dominating. Currently, just three sectors account for 85% of issuances: energy, buildings and transport.⁶⁶ Infrastructure has a natural fit to the green bond asset class in terms of eligibility criteria, project scale and financing approaches.^{xii} It follows that there may be few suitable projects in less developed and lower- and middle-income countries, with less industrialisation and urban economic activity. An under-developed pipeline will limit investor participation and engagement with country-specific taxonomies, regulation and policy.

Climate change adaptation projects are often less suitable for green bond applications. Production of positive externalities, low commercial viability and measurement challenges create specific barriers. For example, restoring biodiversity is desirable for climate resilience, but the benefits are difficult to quantify. Similarly, in the case of water projects, tariffs that are not cost-reflective reduce commercial viability. Project complexity may also deter investors that perceive these assets as riskier investments owing to a lack of familiarity with their financial performance.⁶⁷

Regardless of project type, scale of issuance matters. Smaller bonds incur relatively high administrative costs as a proportion of proceeds, rendering them less attractive to investors. As a guideline, for a green bond to appeal to the larger investor universe, volume should be at least US\$ 300 million.⁶⁸ However, the minimum critical size varies from market to market; it may be as low as US\$ 75–100 million in smaller emerging markets like South Africa. Regardless of threshold level, many companies may not possess a pipeline of qualifying capital expenditures up to the desired or required size on their balance sheets. This same issue applies to governments at the national, regional and local levels.

If a substantial pipeline of eligible green projects does not emerge, investors will not develop capacity to assess green bonds. Often, the number of government entities prioritising strategic green projects is lacking. This results in a vicious cycle, since without projects and activities, green bonds cannot be raised.⁶⁹ Consequently, a lack of clarity about the green project pipeline among the investor community – in terms of number and type of potential projects – undermines engagement with the opportunity. If green projects are undertaken on an ad-hoc basis, the incentive to build capability in this space is diluted.⁷⁰ Regulators can enhance the development of eligible green project pipelines by promoting capacity-building and awareness-raising initiatives targeted at potential issuers.

Solution: Develop a priority list of strategic green projects

Develop a country priority list of green projects suitable for green bond issuance. Often, this entails establishing a planning committee/agency that takes the lead in identifying and developing a pipeline of key infrastructure projects, including green projects. For example, South Africa has established a body to prepare projects under its infrastructure-led economic recovery strategy, linked to the Infrastructure Fund. Importantly, the pipeline of projects should be linked to high-level targets and strategies for climate change and infrastructure development. Many countries have already developed this structure on a national basis, for the UN Nationally Determined Contributions (NDCs), for example.⁷¹ This should be done at scale to minimise transaction costs and grow absorption capacity,⁷² and communication should be transparent to build investor confidence.

When the commitment of public actors to large-scale green investments is visible, a reliable planning horizon is created. This predictability facilitates green bond market development through enabling resources to be allocated in advance. This was successfully demonstrated in the EU with establishment of the Green Infrastructure Investment Coalition. The Coalition's aim was to

^{xii} For example, stable income flows facilitate use of bonds, while nature and scale of asset enable use of ring-fenced structures such as project bonds and asset-backed securities.

help increase the flow of institutional investor capital to green infrastructure investments around the world. This brought together governments, investors and development banks regarding the green pipeline development process across EU member states.⁷³ Despite a focus on large-scale green investments, smaller projects can also be aggregated through pooling structures, like the planned green bond issuance of the Kenya Pooled Water Fund (see further information in Annex C).

Strategic partnerships and capacity building are fundamental to strengthen green project pipelines. For example, Access Bank in Nigeria benefited from partnerships with the IFC and the CBI, which connected them with flood resilience technical experts who could assist with project development. In the case of the Nigerian government issuances, Brazilian counterparts have helped the government with project development owing to the similarities in the regions' climates.⁷⁴

COSTS OF GREEN LABELLING

Additional costs associated with green labelling deter issuers, particularly when investor demand is uncertain. This is often the case for new green bond markets or green bond programmes:

- In nascent markets, market guidance and specialist capacity are limited, entailing greater reliance on international systems and resources, which may be more costly than domestic options;
- For new green bond programmes, a green bond framework is drafted at inception to facilitate programmatic capital raising, usually subject to external review, with the issuer incurring costs before realising any benefits. Market data suggests these costs add 0.3 to 0.6 basis points for a typical US\$ 500 million bond.⁷⁵ These costs come from two sources:
 - **Internally:** putting in place systems and processes for assessing eligibility and managing proceeds of issuance; establishing the administration of separate legal entities for ring-fenced structures; and regular reporting for both financial and environmental outcomes.
 - **Externally:** hiring consultants to assist with identifying eligible asset types under applicable guidelines/taxonomies, green bond frameworks and impact indicators; conducting external reviews; and possibly performing ongoing auditing of results (financial and environmental).

These additional costs can undermine the business case for green bonds as a fundraising strategy.⁷⁶

Transaction costs tend to be higher in emerging markets, for various reasons. These are captured in Table 3.

TABLE 3: Drivers of higher transaction costs in emerging markets

NO	FACTOR	DESCRIPTION
1	Scale of issuance	Issuance tends to be smaller than in more advanced economies. For green bonds, restrictions regarding the use of proceeds reduce scale further. This results in higher relative transaction costs, reducing the financial viability of green labelling.
2	Credibility	Relatively immature sustainable finance regulation and market practices create greater investor reliance on more costly external review strategies, such as verification and certification.

3	Project identification	Limited coverage by green asset tagging systems (e.g., energy performance ratings) and databases drives up search costs for individual issuers.
4	Market-specific capabilities: Market	Specialist skills shortages reduce ability to identify suitable applications and effectively develop green bond programmes. Of the respondents in a G20 Green Finance Study, 74% acknowledged a lack of green bond knowledge. ⁷⁷ Limited local presence by SPO providers and verifiers drives reliance on international organisations, which may be expensive in local terms.
5	Market-specific capabilities: Investor	Limited institutional investor awareness of sustainability issues and sustainable finance instruments transfers the burden of market education to the issuer.

Solution: Incentivise (credible) issuance

To compensate issuers for costs incurred in external review, regulators should incentivise credible issuance by subsidising it. This is important during the early years when investor confidence is lower. In new markets, issuers must work harder to instil investor confidence, including through external review and educating investors about sustainability and how their green bond programmes contribute to sustainability goals. Regulators in various African and Asian markets have introduced incentives to offset external review costs for new issuers (Table 4).

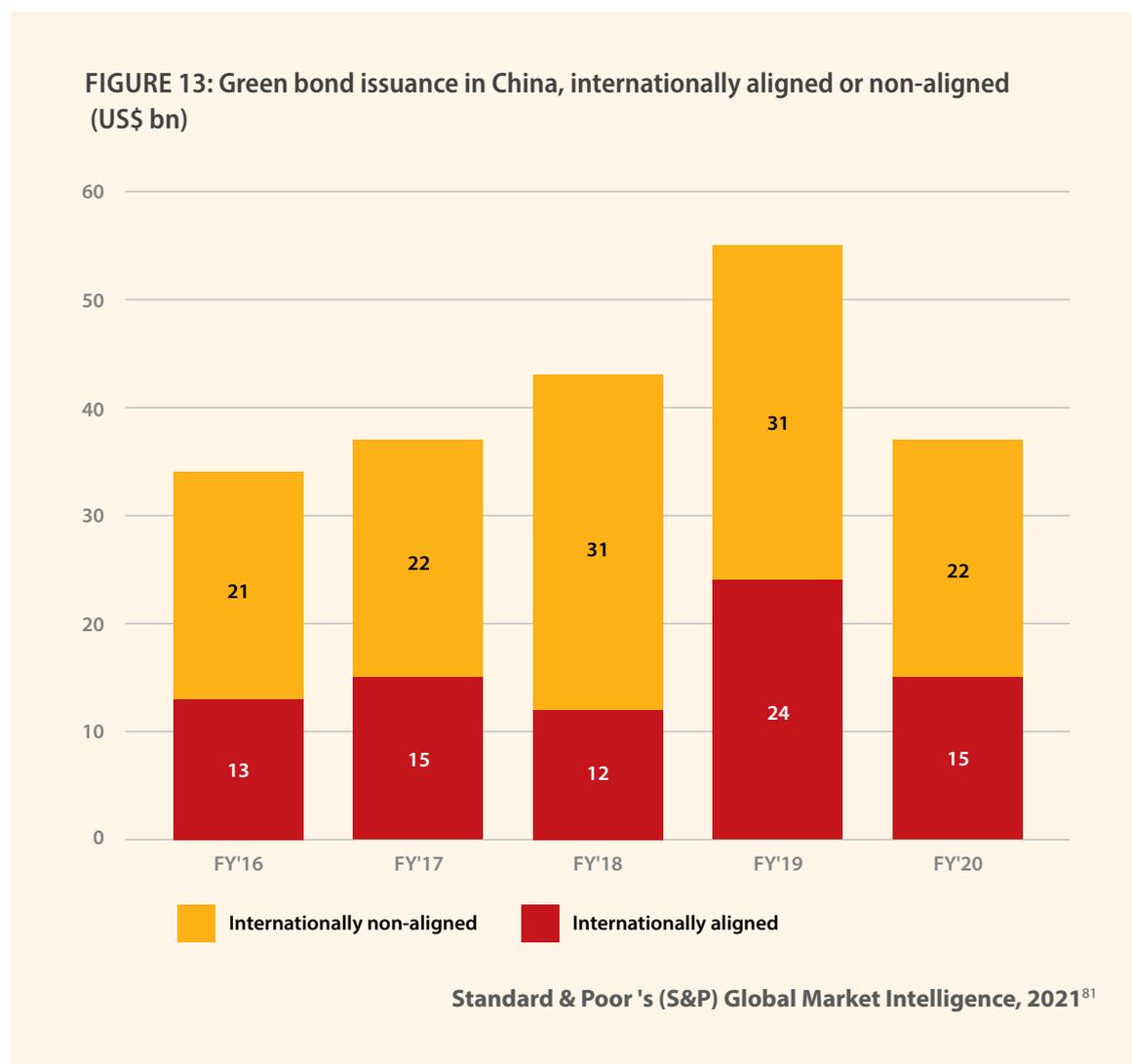
TABLE 4: Incentive programmes for green bond issuers in Asia and Africa

COUNTRY	INCENTIVE
<p>Thailand</p> 	Fee waivers have been used to incentivise issuers and serve as compensation for third-party review, which the bond issuers are required to carry out in accordance with the global standard. The waivers applied are for approval, and filing and bond registration fees. ⁷⁸
<p>Singapore</p> 	The Green Bond Grant Scheme was launched in 2017 to cover the costs of obtaining an external review. This scheme applies specifically to listed green bonds of SGD 200-100,000 million (~ US\$ 145-72,000) and a tenor of at least three years. ⁷⁹ Qualifying issuers exclude national government issuers, while including corporate entities or financial institutions.
<p>Hong Kong</p> 	The Hong Kong Monetary Authority has established a Green Bond Grant Scheme that provides subsidies to green projects eligible under the green finance certification scheme developed by the Hong Kong Quality Assurance Agency. This subsidy covers third-party verification based on international standards such as the CBI's GBP and China's Green Bond Catalogue.
<p>Kenya</p> 	In 2018, the Capital Markets Authority of Kenya submitted a proposal to the National Treasury of Kenya to zero-rate taxes on green bonds, with the plan being approved in 2019. The policy on zero-rated taxes is envisioned to increase the demand for green bonds and ultimately grow the Kenyan green bond market. (See further details on the Kenyan green bond market in Annex C.)

CREDIBILITY AND THREAT OF GREENWASHING

One of the main obstacles for both issuers and investors is the ambiguity regarding what qualifies as ‘green’, giving rise to concerns over greenwashing. Greenwashing can reduce investor confidence in the green bond market. This risk can apply at market level, where guidance regarding eligible use of proceeds is deficient in some respect, or at the issuer level, particularly where self-labelled green bonds do not go through a robust external review process to independently confirm their conformity to green bond standards.

The risk of greenwashing is heightened by fragmentation in green bond market definitions and standards. This risk is compounded in countries where external review remains voluntary.⁸⁰ A prominent market-related example is China’s 2015 Green Bond Guidelines, where the inclusion of fossil fuel projects such as “ultra-super-critical” coal-fired power led to international investor scepticism and – eventually – declining investment (Figure 13). Indeed, in emerging markets, there is often greater acceptance of economic activities incompatible with international environmental standards – even within the legislative sphere – resulting in lower environmental credibility overall.



Rigorous external review and assurance procedures are critical for signalling the credibility of green bond programmes. They are especially valuable for issuers with less well-established sustainability credentials. External review reduces informational asymmetries between issuers and investors by independently checking the claims made by issuers. Currently, approximately 60% of green bonds undergo some form of external review process.⁸² Yet, these activities add to the transaction costs of green bond issuance in both the short run (issuance) and long run (reporting), often deterring issuers. To lower the resulting hurdle, several governments have introduced financial incentives for issuers linked to external review.

Credible commitment by the issuer to an ambitious sustainability strategy is equally vital. Implementation of green bond projects and activities does not take place in a vacuum: the outcome is of little value to an impact-seeking investor if the issuer continues to pollute or otherwise damage the environment or society. Increasingly, investors in more mature markets scrutinise the broader scope of activity by an issuer when determining whether to invest in individual green bonds. All sustainability strategies, policies and practices are relevant to the decision to invest.^{xiii}

Robust, binding mechanisms are required to ensure ongoing compliance and environmental integrity. Currently, there are few consequences for green bond issuers that fail to deliver on their promises for allocating proceeds or achieving expected environmental outcomes. This is the case even where external review is undertaken at issuance: only in select cases are ongoing measures put in place to monitor conformity to standards. For example, CBI certification requires ongoing annual reporting; even then, the consequences of later non-compliance with the Climate Bonds Standard is not clear. In general, there is an absence of actionable legal rights for bondholders to ensure allocation exclusively to eligible use of proceeds.⁸³ Compliance with green bond obligations is usually not incorporated in issuer covenants; therefore, non-compliance does not trigger default, which would enable bondholders to take general legal action.

Solution: Strengthen green bond institutions

Regulators and policy-makers should work towards a credible institutional framework, including green bond market guidelines compatible with international guidance, credible national taxonomies, and regulations that promote external review and regular investor reporting. As they create these frameworks, they should carefully balance the tensions that arise between economic development and environmental sustainability, mindful of the impact on investor confidence of prioritising the former at the expense of the latter.

FRAGMENTATION

Fragmentation in standards and approaches to external review contributes to market confusion, deterring market participation.

The array of green bond market standards can significantly hamper developing green bond markets. The ensuing complexity raises transaction costs for market participants: investors must familiarise themselves with specific interpretations of global guidance each time they enter new markets. Whilst some diversity at a regional or national level may be necessary, additional transaction costs can act as an investor deterrent, especially for smaller markets.⁸⁴ Where it is necessary to have multiple standards, it is critical to ensure transparency on the differences and to explain the rationale underpinning adaptation to local conditions.

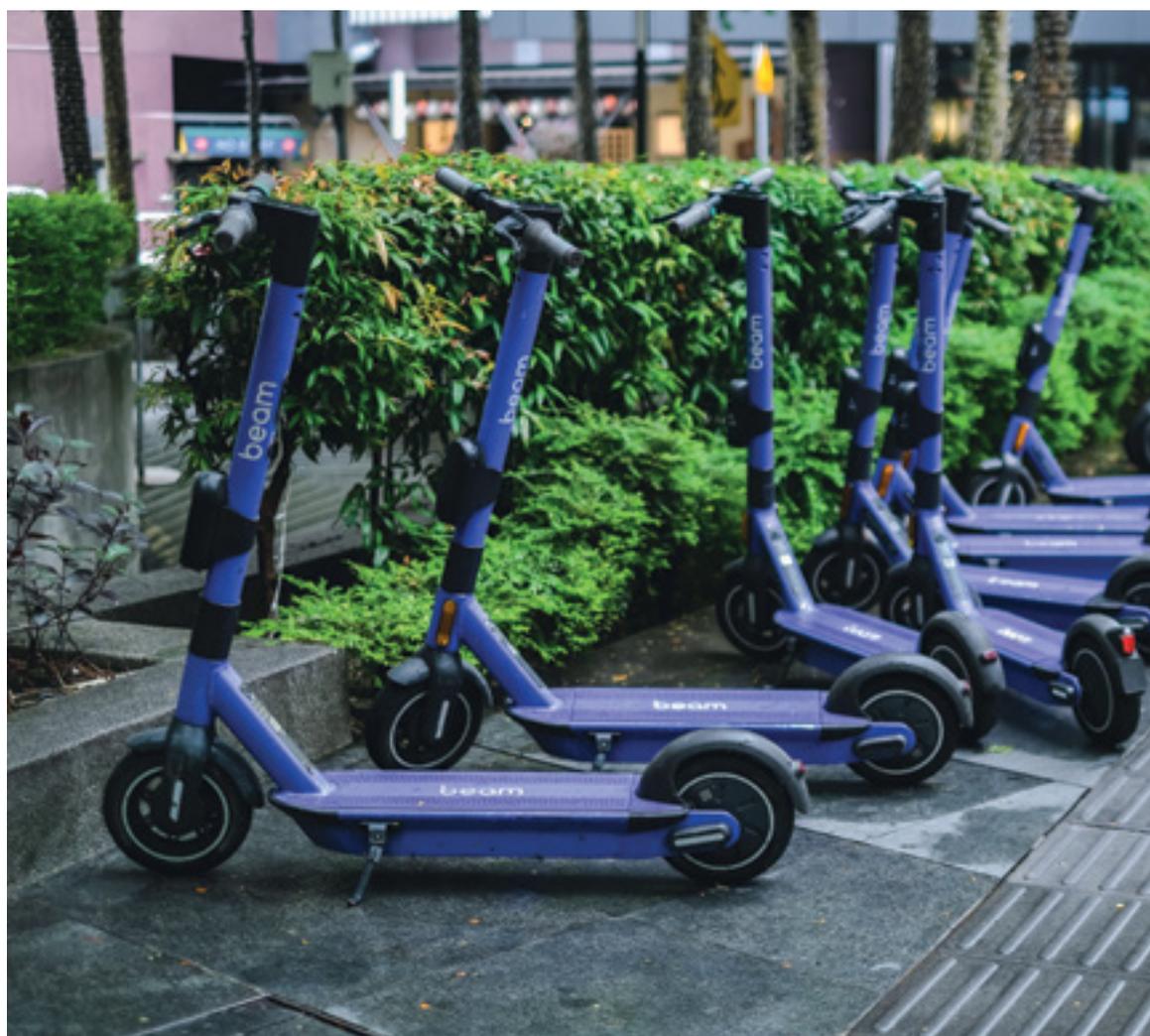
External review options are not uniform in scope or methodology. SPOs, verifiers and credit rating agencies apply different methodologies to green bond assurance. This raises questions over the interchangeability of the various external review options. For example, CICERO (which

^{xiii} This may explain why sustainability-linked bonds are gaining traction as general purpose corporate bonds with terms linked to overall ESG ratings.

has provided over 150 SPOs) uses a 'shades of green' approach, which provides some flexibility in classifying strengths of green projects.⁸⁵ For example, 'dark' green requires a direct contribution to the long-term vision of a low-carbon and climate-resilient future, such as renewable energy assets that integrate environmental concerns. 'Medium' green includes projects that move towards the long-term vision, such as plug-in hybrid buses, while 'light' green can include environmentally-friendly projects that do not themselves directly align to the long-term vision, such as efficiency in fossil fuel power generation. This quality assessment implies a degree of subjectivity. On the other hand, verification agencies may assess compliance against applicable standards (e.g., the Climate Bond Standard) without applying subjective measures of environmental integrity.

Solution: Limit and explain national divergence from international guidelines

Establishing a credible national taxonomy is an effective way to align international guidelines regarding use of proceeds with the domestic context. There is no one-size-fits-all solution to climate change mitigation, adaptation and environmental sustainability. However, there are taxonomies and/or eligible project catalogues developed or under development with different breadth of coverage and depth of detail in the EU, South Africa, Brazil, Malaysia, Mexico, Mongolia, Morocco, and the ASEAN region, among others. Where diversion in standards is deemed necessary, transparency about the deviation from accepted international standards must be clearly provided and justified. There may also be a perception of risk from international investors as to the robustness of a local green taxonomy in developing nations. It is integral, therefore, that national taxonomies be recognised and acknowledged by reputable actors in the international community.



Rental e-scooters ready to ride in Kuala Lumpur, Malaysia. Abdul Razak Latif via Shutterstock

The role of the public sector

The public sector plays a vital role in developing green bond markets. Broadly, four categories of institution can be defined, each with a distinct role to play:

- Development banks
- National governments
- Regional and other international bodies, such as ASEAN and CBI, respectively
- Others, e.g., local governments, parastatals, government agencies

The first three are examined in some detail here as the most important for broader market development.

DEVELOPMENT BANKS

For present purposes, this term encompasses IFIs with developmental mandates, DFIs, MDBs, and national and regional development banks.

Development banks underpin the green bond market. They have played various roles in catalysing new markets:

- a. Unlocking funds as a (landmark) Issuer for domestic green projects and activities, with demonstration effects;
- b. Attracting other investors through anchoring issuances, participation in structures investing in emerging market green bonds, and marketing opportunities within investor networks;
- c. Overcoming hurdles to domestic investment through currency risk and credit risk solutions; and
- d. Providing technical assistance to policy-makers, regulators and issuers.

Their participation is especially vital to catalyse potential in medium and small developing economies. For example, seven of the Philippines' 15 sustainability transactions have received some form of support or engagement by the Asian Development Bank and/or IFC.⁸⁶

These roles are explored in greater depth below.

Catalytic issuer

While development banks no longer dominate issuance, they continue to actively develop and de-risk green bond markets. As stated earlier, their institutional commitment to sustainability makes them highly credible issuers often able to attract a greenium to support green projects of national or regional significance. One of the ways in which they do so is by issuing paper in local currency to better align the returns offered with local investors' return requirements. In 2019, MDBs issued approximately US\$ 550 million in local currency sustainable bonds across nine emerging markets to stimulate local market development.⁸⁷ Previously, local investors (likely targeting returns in local currency) may have been reluctant to accept the currency risk of investing in paper issued in hard currencies. It must be noted that hard currency issuances may also play a role in catalysing domestic green bond markets (as outlined above); however, this is for green bond markets where there is insufficient domestic investor appetite or more appetite is expected from international investors.

Investing and marketing

Development banks can directly catalyse green bond issuance through anchoring a public placement by another issuer or engaging in a private placement for strategic reasons. Anchoring signals acceptable credentials to other investors and may be coupled to a credit enhancement strategy (e.g., tenor extension, subordination, partial credit guarantee). For example, when the IFC committed to an anchor investment of US\$ 75 million worth of green bonds issued by AC Energy Finance in Philippines, securing the overall US\$ 300 million offering, it sparked further interest from local and overseas bank investors. In addition, private placements are common in assisting (particularly national) issuers to establish the necessary frameworks, structures and regulations ahead of setting regulations for issuers at large.

Development banks can also broaden access to green bond investors. Drawing on their extensive networks, they can play a matchmaking role whilst endorsing green issuance through supporting roadshows and marketing efforts of issuers. Marketing efforts can be supplemented by credit-enhanced structures that improve risk-adjusted returns to acceptable levels for private sector investors. The Emerging Green One Fund launched in 2018 with US\$ 1.42 billion, and a further US\$ 256 million anchor investment from the IFC. One year later, its portfolio included 15 green bonds from seven emerging countries.

Currency and credit risk management

To enable local issuers to tap international capital markets, development banks can enable currency risk solutions. This can be done through subsidising the cost of hedging or providing longer-dated hedges than are locally available. Bonds denominated in hard currency exhibit international investor appeal, but create a natural asset-liability mismatch when proceeds are deployed towards local currency projects. Not only is this a financial risk for the issuer, but also (generally) worsens the creditworthiness of the issuer in the eyes of the investor. Accordingly, foreign borrowing is usually paired with a hard currency risk management programme. Commercial banks offer hedging options, but can be prohibitively expensive, particularly in less developed markets. In 2020, cooperation between the Eastern and Southern African Trade & Development Bank and the Currency Exchange Fund allowed for currency risk management solutions to be provided to member states. As a result, member states were better placed to enable fundraising efforts and local market development.^{xiv}

Development banks can use their balance sheet to share the credit risk with a green bond issuer. Instruments such as credit guarantees provide investor comfort and limit default risk through underwriting or guaranteeing issuers with weaker credit profiles, leveraging the higher credit rating of the development bank. Development banks can also support issuance at project level by issuing specific types of guarantees, akin to specific-event credit insurance. Several guarantee schemes have been established internationally, with some of Chile's success, for example, attributable to the effective leveraging of credit guarantee schemes to crowd-in investors.⁸⁸

Providing technical assistance

Development banks support the formation of institutional arrangements as well as best practice in issuance. Drawing on their experience elsewhere, IFIs and MDBs are particularly well placed to share knowledge with developing economy stakeholders, from policy-makers to issuers. Technical assistance can also be provided through funding consultants to develop national taxonomies, external reviewers for debut green bond programmes, and so on. Apart from ensuring that market guidelines and individual green bond programmes align with international guidance or expectations, this assistance reduces barriers to entry for both national governments and issuers, absorbing associated costs and reducing uncertainty and complexity.

^{xiv} TDB and TCX signed an MOU to cooperate on sustainable financing in eastern and southern Africa via local currency risk solutions. <https://www.tdbgroup.org/tdb-and-tcx-sign-an-mou-to-cooperate-on-sustainable-financing-in-eastern-and-southern-africa-via-local-currency-risk-solutions>.

NATIONAL GOVERNMENT

Green bonds issued by national governments have strategic value: they can accelerate the development of green bond markets. Issuance signals a country's commitment to green growth strategies, raising the profile of issuers and opening the market to international investors. National governments act as role models for other issuers, similarly to development banks. Moreover, national government green bonds represent a sizeable source of external financing, thereby providing the scale and liquidity needed to encourage trading and improve pricing domestically.

Green bond issuances by national governments can also boost financial centres seeking 'green hub' positioning. Singapore is a good example: The Deputy Prime Minister has stated that the green bond market can deepen broader market liquidity whilst attracting green issuers, capital and investors. Through taking a leadership position on green bonds, the government plans to spur private businesses into action as national government issuers are generally considered best practice.⁸⁹

However, national governments in lower-rated emerging economies face fiscal constraints, limiting potential. Such constraints include weak government creditworthiness, currency ceilings, and underdeveloped capital markets, which can significantly stifle international demand for green bonds. In this context, MDBs and supranational agencies will play a pivotal role as sponsors of green bond market development in emerging markets.

To date, global green bond issuances by national governments has been fairly modest, with the first green bond only being issued in 2017 (by Poland). To date, only 16 countries have issued national green bonds.^{xv} Issuance has nonetheless been resilient. Amid the Covid-19 pandemic, 40% of all outstanding green bonds by national governments consisted of first-time issuers, with growth continuing into 2021.⁹⁰

Fifty percent of countries issuing green bonds to date are emerging markets. This is a disproportionately high share considering that emerging markets make up only 20% green bond cumulative issuance. The list includes Brazil, Colombia, Mexico, Nigeria and India, to name a few.⁹¹ This list is likely to increase rapidly as governments recognise green bonds as a valuable tool to display leadership on climate change and sustainability more broadly, whilst funding infrastructure to achieve their Paris Agreement commitments.



Case study: Chile

Despite having a relatively small economy and capital market, Chile has become an exemplar for government-led green bond market development. Firstly, Chile issued its green bond guidelines in 2018 to provide clear guidance for prospective issuers.⁹² Secondly, the Financial Market Commission joined the Network for Central Banks and Supervisors for Greening the Financial System, whilst the Bolsa de Santiago – Chile's main stock exchange – opened a Green and Social Bond market segment, to increase market transparency and avoid the threat of greenwashing.⁹³

In 2019 Chile issued its first green bond (in both USD and EUR), making it the first national government green bond issuer within Latin America.⁹⁴ Its debut 30-year green bond was more than 12 times oversubscribed, with an interest rate of

^{xv} Environmental Finance Green Bonds Database

only 3.53% against a prevailing reference rate of 5.41%.⁹⁵ This was the lowest interest rate ever obtained by Chile on a bond with comparable maturity. Moreover, the rate was the lowest amongst emerging economy issuances during 2019. All subsequent issuances have achieved superior pricing, capturing a large greenium.

Factors supporting the success of the green bond programme include strong sustainability policy and performance, hard currency denomination, developed economy investor demand for green bonds from emerging markets (due to historically low domestic interest rates in developed markets), and the highest government credit rating in the region, due to prudent fiscal management and macroeconomic stability.

The next step is to diversify the issuer base by encouraging issuance by corporate entities. Due to insufficient domestic demand for ESG instruments, Chilean corporates are also seeking international investors, with an acceleration of ESG-focused programmes and the incorporation of sustainable finance strategies into their business models.

REGIONAL AND OTHER INTERNATIONAL BODIES

Voluntary associations representing capital market participants or green standards contribute greatly to building the institutional arrangements required to launch green bond markets. The first group includes ICMA, most prominently, whilst the second features the CBI. For present purposes, the role of the ASEAN Capital Markets Forum in successfully driving uptake in the smaller East Asian economies is examined.



Case study: ASEAN Capital Markets Forum

The Association of Southeast Asian Nations (ASEAN) is an intergovernmental organisation that promotes economic, political, and security cooperation among its 10 members namely: Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Vietnam.

The ASEAN Capital Markets Forum (ACMF) is a high-level grouping of capital market regulators from all 10 ASEAN jurisdictions. Established in 2004 under the auspices of the ASEAN Finance Ministers, the ACMF initially focused on harmonisation of rules and regulations before shifting towards more strategic issues to achieve greater integration of the region's capital markets.

The ACMF has taken the lead on developing the ASEAN Green Bond Standards. These were developed in collaboration with ICMA and based on the GBPs. Unlike in the case of the divergent guidelines issued in China, the ASEAN Green Bond Standard sets out a framework that aligns with international good practice regarding use of proceeds,

through explicitly excluding fossil fuels. Credibility is further boosted by encouraging more frequent periodic reporting. At the same time, local sustainable development is promoted by requiring issuers to have a geographic or economic link to the ASEAN region.

While the ASEAN Green Bond Standard offers a clear framework for green bond issuance, it does not constitute an obligatory, ASEAN-wide rule book. Member states have been allowed to follow the standards exactly or adjust them to develop their own.⁹⁶

Apart from regional associations, the CBI has assisted in developing green bond markets internationally, through capacitating key stakeholders, enabling bilateral engagements, and providing technical assistance or training (e.g., green bond 'boot camps'), for example.

The importance of impact reporting

Impact reporting is defined as the assessment of environmental outcomes from investing green bond proceeds. It is crucial to ensure that the issuer is achieving the environmental goals initially disclosed in the green bond framework from the proceeds. Impact reporting conducted periodically assists the investor in maintaining the green integrity of the bond until maturity while reducing any negative environmental consequences that may arise. Since the publication of the first separate environmental reports in 1989, the disclosure of impacts has improved, owing to enhanced market guidance on impact reporting and expanding non-financial regulatory disclosure requirements. Fifty-nine percent of all issuers have impact reporting in place; however, it may be weaker in certain regions. Approximately 60% of issuers report on all projects, 17% on some of the projects within the portfolio, and 23% at the aggregate or total level.⁹⁷

Impact disclosure may be undertaken at different phases of the green bond issuance:⁹⁸

- **Pre-issuance:** This refers to reporting contained in the green bond framework and/or external review documents. Impact estimates derive from existing assets, in the case of refinancing, or when some preliminary forecasting has been undertaken through an impact assessment. In this context, impact reporting is forward-looking and is estimated.
- **Post-issuance:** Most issuers that undertake impact reporting do so post-issuance. Post-issuance impacts may be estimated or measured. Measured impacts may be easily ascertained from project implementation efforts (e.g., capacity of renewable energy installed). However, in certain cases, it may be difficult to measure the specific environmental outcome, for example carbon abatement, which is not readily observed. For estimated impacts, it is critical that the issuer disclose methodologies used.

The CBI recommends that impact reporting be considered as long as projects are operational and impacts exist. Even if impacts are estimated, the issuer can always publish a correction once actual measurements have been taken. There have been few studies undertaken that quantitatively assess impact at the aggregate level based on impact reports in the public domain. The most comprehensive study of this nature was undertaken by Tolliver et al. (2019) on 53 of the largest issuances.⁹⁹ The environmental outcomes of the issuances are outlined in Table 5.

TABLE 5: Impact metrics for 53 large green bond issuances

GREEN BOND ASPECT	VALUE	UNIT
Annual greenhouse gas emissions reductions	108.75	million tonnes of carbon dioxide equivalent (tCO ₂ e)
Renewable energy capacity added	1.55	million megawatt (MW)
Annual renewable energy generation added	57.40	million megawatt hours (MWhs)
Annual energy savings	737.23	million megawatt hours (MWhs)

Tolliver et al., 2019¹⁰⁰

The determination of the overall environmental impacts across the green bond market is also difficult owing to the varied approaches to impact reporting. This is illustrated by the following points:¹⁰¹

- **Larger issuance sizes tend to report with less granularity.** This is possibly due to the increased capacity required for monitoring all projects within the portfolio.
- **Issuers report at varying levels of aggregation and granularity.** Therefore, it is not always possible to understand impact holistically.
- **Issuers of large bonds tend to be programme-level reporters,** which reduces the granularity of the overall reporting.
- **Impact attribution is difficult when the share of total project capital financed by the green bond is not disclosed.** Some impact reporting by an issuer focused on a single project may not disclose the percentage share of a project that has been financed from the green bond proceeds. Therefore, it is also difficult to attribute outcomes to the green bond. The GBPs do suggest that the issuer estimate the share of financing and re-financing.

Issuers must prioritise impact reporting processes to ensure that both pre-and post-issuance impacts are communicated to investors, thus minimising greenwashing. Appropriate impact reporting will ensure investor confidence in the long term. This also allows for investors to select green bonds that deliver maximum positive impacts while minimising negative consequences through the implementation of mitigation measures and safeguards.

Deciding on a label

Investors intending to issue a use of proceeds bond targeting environmental sustainability can choose from multiple bond labels, including green, sustainability, social, blue and others. The decision on whether to select a single label, or multiple labels, can be confusing for issuers. The following section outlines the possible advantages and disadvantages for considering multiple labels for the issuance.

INVESTOR TARGETING

The benefit of a single label is the ability to crowd in investors that have specific investment mandates. For example, there may be investors that have a specific focus on climate-related investments, or those that focus exclusively on social outcomes. Thus, labels may keep investing targeted.

Yet social or sustainability bonds may hold more currency in emerging markets. In some regions, environmental benefits alone may not be sufficient to meet the expectations of investors. This is often owing to the development backlog that results in social goods, such as poverty alleviation, improved living standards and job creation being required as co-benefits. Therefore, the use of multiple labels may be beneficial particularly to emerging market investors to screen and maximise selected outcomes.

REGULATION AND ADMINISTRATION

Labelled bonds are subject to greater regulatory requirements in terms of external review and reporting. These may differ depending on the label of the bond. For example, green and social bonds may be guided by different principles, external verification types and impact reporting metrics.¹⁰²

Adopting multiple sets of regulatory requirements may deter new issuers and issuance. The gradual growth of the green bond market suggests that greater awareness, capacity building and familiarity with the green bond issuance process has attracted more issuers over time. The adoption of multiple labels into a single bond may be more comprehensive in terms of communicating the envisioned outcomes of the proceeds. However, it is not recommended as it may also add further complexity for issuers, which may create confusion and increased transaction costs.

Reporting may also become more difficult with multiple labels. Currently, reporting in the green bond market is fragmented because of the varied styles adopted by issuers and third parties. It is likely that the use of multiple labels will result in further fragmentation and, thereby, move the market even further away from the consistent reporting that allows for comparability.¹⁰³

TRANSPARENCY

The primary benefit of the issuance should be communicated through targeted labelling.

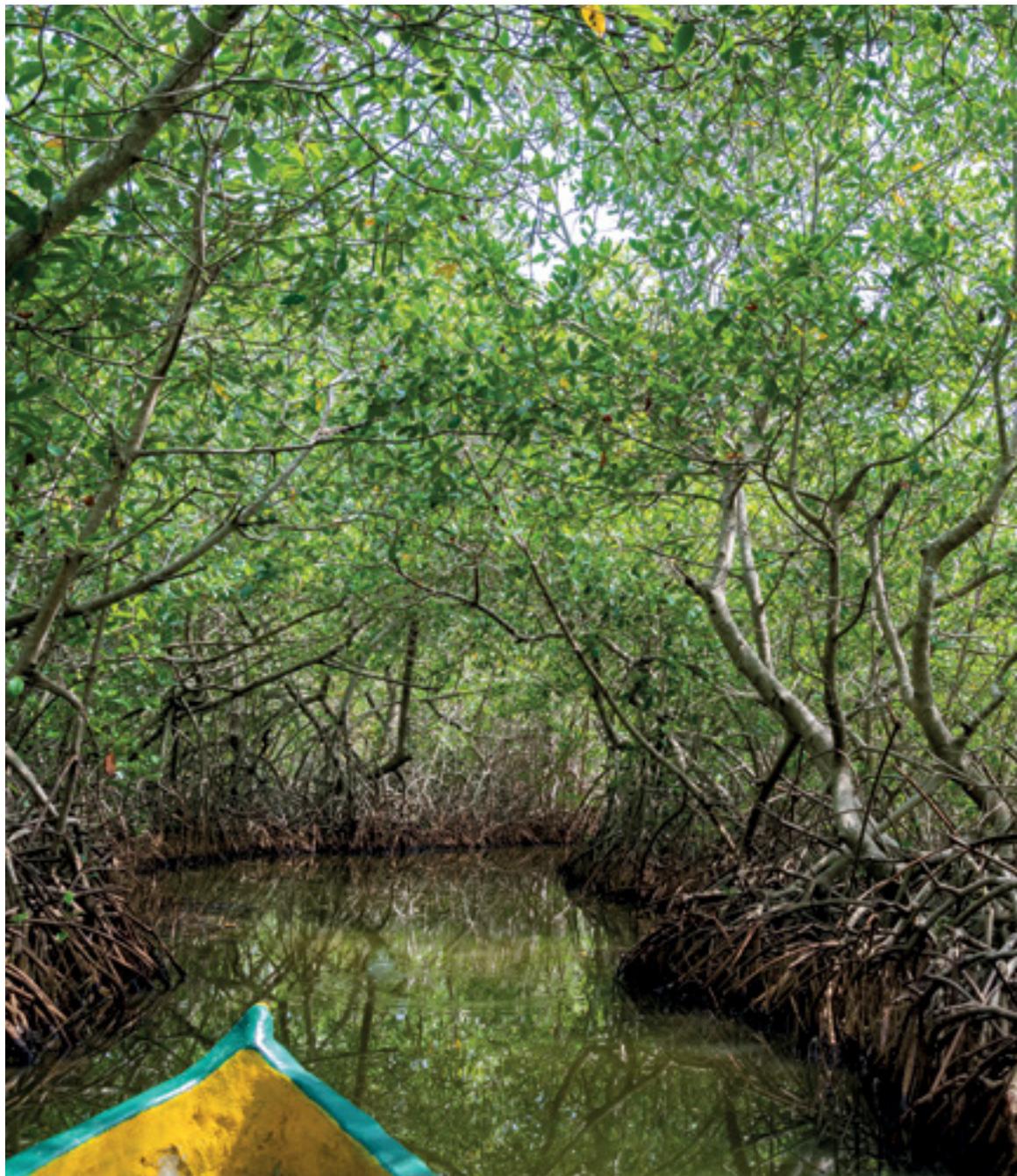
Projects may deliver environmental, economic, social, and other benefits to varying degrees. The separation of bond labels ensures that the primary benefit envisioned from the proceeds is declared through the label. Different labelled bonds may still result in wider co-benefits beyond its primary label. This ensures transparency with issuers so that expectations are managed regarding the outcomes of the bond issuance.

However, tunnel vision resulting from a narrow focus on a specific label may be disadvantageous. Issuers may undertake projects using an approach that is not holistic. For example, in the case of green bonds, it may be the case that indigent communities are unsustainably resettled from tracts of underutilised land to make way for large green infrastructure, agriculture or forestry projects. In the case of sustainability-aligned labels such as sustainability-linked or transition bonds, there may also be a heightened risk of greenwashing, as issuers choose labels with less prescriptive environmental requirements.

UNINTENDED CONSEQUENCES

Creating a new asset class can further fragment the market and result in unintended consequences. For example, the development of a specific adaptation and resilience bond label may promote greater investor interest in these project types. However, it may also limit the integration of climate resilience into other investment types, thereby limiting resilience as a category at the system-level.¹⁰⁴ At present, climate resilience may be mainstreamed into bonds using guiding principles such as the CBI's Climate Resilience Principles. These principles are envisioned to inform asset selection and design such that the investments are climate-proofed against future climate change impacts.

Despite the significant challenges that exist in emerging markets regarding the development of domestic green bond markets, there are several strategies that have and could be employed to stimulate issuances and investor demand. The role of the public sector will be crucial in creating a strong enabling environment to ensure that isolated green bond issuances are translated into a well-developed green bond market. Issuers must prioritise impact reporting processes to ensure that both pre-and post-issuance impacts are communicated to investors, thus minimising greenwashing. Appropriate impact reporting will ensure investor confidence in the long term. This also allows for investors to select green bonds that deliver maximum positive impacts while minimising negative consequences through the implementation of mitigation measures and safeguards.



Proceeds from the issuance of Colombia's first green sovereign bond will be used to finance projects related to renewable energy, transport, water management and biodiversity protection, such as mangroves in Cartagena. Mariano Gaspar via Shutterstock.

IV. Policy recommendations

Despite the growth of green bond markets globally, uptake within developing and emerging economies remains limited. There are several strategies that have been adopted by emerging market pioneers to catalyse market development. The following recommendations are focused on public sector policy-makers and cover the role of the public sector as both an issuer and a market enabler.



Policy and regulatory frameworks: A key element of the transition to sustainability is an enabling policy environment and a green bond regulatory framework. Policy-makers must prioritise introducing and promoting sound regulatory frameworks, which can be aligned not only to international guidelines but also to the national context through the development of domestic green taxonomies. A strong regulatory framework will ensure greater investor demand and confidence. It is likely that mandatory climate-related disclosures will also drive greater investor demand for green bonds in the long term.



Public sector market participation: National and domestic public financial institutions may drive green bond market development through debut or landmark issuance. While these issuances may be strategic (as they serve as a demonstration case to other issuers), they also signal a country's commitment to low-carbon development and climate resilience strategies, raising the profile of issuers and opening the market to international investors.



Market promotion and capacity building: Policy-makers must consider strategies and programmes to increase market awareness to stimulate issuances. The fragmentation of the market in terms of available guidelines, principles and standards often leads to confusion amongst market participants. Therefore, it is essential to build capacity and awareness in the early phases of market development.



Market support: To overcome the under-development of emerging capital markets, public sector institutions could support issuances through guarantees or fiscal incentives. Guarantees ensure protection for investors by reducing credit risk; however, they are not sustainable in the long term. Public sector entities may also support the market through offering technical assistance to reduce the cost of green labelling that may deter issuers.



Bankable project pipelines: One of the significant issues that limit green bond issuances is the lack of a well-developed project pipeline linked to national environmental objectives. Public sector actors must prioritise the development of a green project pipeline database or list that is available to all market actors. This may also increase public-private partnerships for green investments.

Annex A: Green Bond Principles and external reviews

Overview

While there is no universally accepted definition of and criteria for green bonds, the Green Bond Principles (GBPs) developed by the International Capital Markets Association (ICMA), are widely recognised as the guiding global framework. The primary purpose of the GBP is to promote integrity in the green bond market as well as provide issuers a set of voluntary guidelines that promote transparent, unified reporting on green bonds. The GBP is not envisioned to be all encompassing, as its stated purpose is “not to take a position on which green technologies, standards, claims and declarations are optimal for environmentally sustainable benefits” noting that “there are several current international and national initiatives to produce taxonomies”¹⁰⁵

The four prescribed components of the GBP are:

1. Use of proceeds;
2. Process for project evaluation and selection;
3. Management of proceeds; and
4. Reporting.

Use of proceeds

The primary factor that determines the ‘greenness’ of a bond is the use of proceeds for eligible green projects. An eligible green project should demonstrate clear environmental benefits and avoid harmful environmental impacts and technology lock-in effects,^{xvi} which is particularly a concern when dealing with waste management and clean transportation. It is the responsibility of the issuer to quantify these green benefits, where possible. It is also critical that the issuer discloses intended use of proceeds for refinancing existing projects.

There are six categories of green projects recognised under the GBPs (Table 6). They include climate change mitigation, climate change adaptation, natural resource conservation, biodiversity conservation, and pollution prevention and control.

The eligibility of green project types is often set at the national level when developing national green bond markets through taxonomies and other green project conventions or definitions, including aligned asset/project/activity certification systems.

^{xvi} Carbon lock-in occurs when fossil-fuel-intensive systems perpetuate, delay or prevent the transition to low-carbon alternatives – a situation that can seriously imperil climate action.

TABLE 6: Examples of specific project types under the Green Bond Principles

SECTOR	DESCRIPTION
 <p>Transport</p>	<ul style="list-style-type: none"> • Clean transportation • Electric, hybrid, public and rail forms of transportation • Non-motorised and multi-modal transportation • Infrastructure for clean energy vehicles
 <p>Renewable energy and energy efficiency</p>	<ul style="list-style-type: none"> • Renewable energy (production, transmission and distribution) • Energy efficiency • Energy storage • Smart grids
 <p>Sustainable water management</p>	<ul style="list-style-type: none"> • Sustainable water and wastewater management • Sustainable water infrastructure • Sustainable drainage management • Flood mitigation
 <p>Sustainable agriculture</p>	<ul style="list-style-type: none"> • Natural resource and land-use management • Sustainable smart agriculture • Sustainable animal husbandry • Sustainable fisheries and aquaculture • Sustainable forestry (afforestation and reforestation) • Soil remediation
 <p>Waste</p>	<ul style="list-style-type: none"> • Pollution prevention and control • Waste prevention, reduction and recycling • Waste-to-energy initiatives • Circular economy initiatives
 <p>Resilience</p>	<ul style="list-style-type: none"> • Climate change adaptation • Resilient infrastructure • Climate observation and early warning systems • Terrestrial and aquatic biodiversity conservation
 <p>Buildings</p>	<ul style="list-style-type: none"> • Green buildings that meet regional, national or internationally recognised standards or certifications for environmental performance • Energy efficient (new and refurbished) buildings

ICMA, 2017¹⁰⁶

Process for project evaluation and selection

The onus falls upon the issuer to define a robust process for determining project eligibility, including positive and negative screening where applicable. Positive screening refers to establishing conformity with green project definitions. Negative screening refers to applying criteria to avoid unintended damaging environmental and/or social outcomes, aligned with the principle to 'do no harm'.

The GBP does not take a specific position on green investments that deliver environmental benefits. The Principles note that taxonomies and standards produced by international and national actors could ensure comparability. Taxonomies are highly recommended, as they provide issuers with guidance on project types that fulfil the green eligibility criteria recognised by investors. The GBP recognises that green definitions and taxonomies may differ by region and sector.

The Principles encourage issuers to disclose the following aspects for project evaluation processes and selection:

- The overarching context for the issuer's objectives, strategy and policy objectives;
- Environmental objectives for the eligible green projects;
- The process for determining how the green projects align with the eligible green project categories outlined in green taxonomies, eligibility criteria, green standards and certifications; and
- Measures that the issuer will implement to manage any social and environmental risks from project implementation.

Management of proceeds

The proceeds of green bonds can be managed on a bond-by-bond or aggregated basis (a portfolio of green bonds). The net proceeds of the green bond should be tracked in an appropriate manner and should be linked to the internal processes of the issuer for eligible green projects. The net proceeds should also be cross-referenced with the allocations made to eligible green projects. The GBPs recommend that the issuer discloses to investors the types of management processes used for the management of the balance of the unallocated net proceeds. In addition to the internal management processes, the Principles suggest the use of an external audit by a third party to verify the tracking processes and the allocation of green bond funds.

Reporting

Issuers must undertake annual or periodic reporting on the use of proceeds until full proceed allocation. Annual reports usually include a list of green projects, a breakdown of how proceeds have been allocated within the portfolio, and a brief description of the projects and their expected impact. In certain cases, reporting processes may require that confidential information be presented in general terms.

Impact reporting should accompany financial reporting. The ICMA recommends that the disclosure of impact metrics should be accompanied by the underlying methodology as well as any key assumptions that were made during the analysis. The Principles also suggest that both qualitative and quantitative impacts be documented. The format for impact reports should adhere to the ICMA harmonised framework for impact reporting.¹⁰⁷

Assurance

As prescribed by the GBP, issuers must declare the green integrity of the bond issuance through internal or external review. Internal reviews involve issuers undertaking self-labelling – or they may commission an external review by a third party.¹⁰⁸ External reviews may take different forms and are undertaken pre- and post-issuance for different purposes. However, all external reviews are ultimately envisioned to assess the integrity of the bond in terms of its green credentials.

Pre-issuance reviews

Pre-issuance reviews ensure that the underlying use of proceeds align with the green objectives stated by the issuer, i.e., the bond will finance projects that deliver positive environmental benefits.¹⁰⁹ Therefore, pre-issuance reviews also act as a signal for investors that may be focused on ESG- or SRI-aligned priorities to create greater investor confidence in the market. There are different advantages to different forms of external review in terms of cost, investor trust and methodological robustness. Table 7 provides an overview of pre-issuance reviews.

TABLE 7: Types of pre-issuance review for green bonds

TYPE OF REVIEW	DESCRIPTION	REVIEWING ENTITIES
Verification/ assurance	Third party assurance assessments are undertaken by accounting and auditing firms. Focus is placed on whether the issuance aligns with green bond principles.	KPMG, PwC, Deloitte, DQS Group, EPIC Sustainability, ERM Certification & Verification Services, First Environment ¹¹⁰
Second Party Opinion (SPO)	SPOs are assessments of an issuer’s green bond framework and governance processes with a specific focus on the green integrity of the projects to be financed under the issuance. SPOs are typically independent organisations, thereby ensuring impartiality. Different SPO providers adopt their own methodology for assessing a green bond. Certain SPO providers may also provide a green rating as an indicator of the level to which the green bond is aligned to a particular standard or methodology.	Sustainalytics, Vigeo Eiris, DNV GL, Shades of Green CICERO and the ENSO network
Green Bond Rating	There are certain rating agencies that offer green bond rating services. As is the case with assurance providers, green bond ratings measure the alignment of issuances with the GBPs and check the green credentials of the bond.	Moody’s and S&P Global Ratings

<p>Pre-issuance verification according to the Climate Bonds Standard</p>	<p>The Climate Bonds Standard is currently the only standard available in the market.¹¹¹ The standard is voluntary. The verification is against the Climate Bonds Standard specifically, rather than the GBP generally.</p>	<p>Entities approved by the CBI to offer verification under the Climate Bonds Standard and Certification Scheme</p> <p>Example entities: Vigeo Eiris, Sustainalytics, ISS Corporate Solutions, Oekom Research</p>
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Shislov et al., 2018¹¹²

SECOND PARTY OPINIONS

SPOs are one of the most common types of external review for green bond issuances. This methodology was adopted for the first green bond issuance by the World Bank and European Investment Bank in 2008.¹¹³ The methodology for developing an SPO differs by organisation, with the service offering changing depending on the expertise of the organisation.¹¹⁴ In 2019, for example, CICERO Shades of Green provided SPOs on green bonds issuances equivalent to US\$ 63 billion across more than 30 industry sectors.¹¹⁵ The organisation is affiliated to a research institution – the Center for International Climate and Environmental Research – and their approach, therefore, integrates climate science projections and scenarios within the qualitative review.

CICERO uses a 'shades of green' framework for assessment, based on long-term views of activities that would enable and deliver a low-carbon and climate-resilient pathway. The qualitative and adaptive nature of the methodology allows for the offering to cover multiple regions, sectors and organisations. The extent to which green bonds are environmentally sound are also evaluated through a green ratings scheme. Different shades of green are allocated to project categories based on the following criteria:¹¹⁶

- Alignment with the GBPs and green finance taxonomies;
- Evaluation of project-specific environmental strengths, weaknesses, and pitfalls. Focus is also placed on avoiding lock-in emissions over a specific period of the asset, thereby adopting a long-term view to climate transitions; and
- Assessment of the governance processes of the issuer to support the implementation of the green bond framework.

CLIMATE BONDS STANDARDS

The Climate Bonds Standard is a labelling scheme offered by the CBI and affiliates.¹¹⁷

It uses scientific standards and criteria to define 'green' products and activities by sector, with clear requirements and eligibility criteria to achieve CBI certification standards. The standards used for evaluation are consistent with the 1.5-degrees Celsius target under the Paris Agreement.¹¹⁸ As of October 2022, certified green bonds equivalent to US\$ 254 billion have been issued in the market.

More specifically, the Climate Bonds Standard evaluates:¹¹⁹

- Alignment with the ICMA's Green Bond Principles;
- The tracking, reporting and verification of internal controls for the management of green bond proceeds; and
- Ensuring that the green bond supports projects consistent with achieving goals set out under the Paris Agreement.

POST-ISSUANCE REVIEWS

There are three types of reviews, as outlined in Table 8, with comparability impacted by varying scope. The granularity of reporting requirements varies widely depending on deal size, issuer type and region.

Ultimately, all post-issuance disclosure frameworks are envisioned to ensure transparency and accountability in the green bond market, fostering trust between market participants in the long term. As the green bond market has grown, there has been a significant interest in use-of-proceeds reporting and impact reporting by investors. Use-of-proceeds reporting refers to reporting that seeks to evaluate whether proceeds have been used as outlined in the green bond framework of the issuer, while impact reporting seeks to assess the environmental outcomes realised from the use of proceeds.¹²⁰ There are 77% of the issuers, representing 88% of the amount issued, who undertake use-of-proceeds reporting, while only 57% of issuers, representing 73% of the amount issued, have reported on impacts.¹²¹ In summary, considering the data quality issues, there is a need for a common reporting framework that allows for comparability and transparency in the market.

TABLE 8: Types of post-issuance review for green bonds

TYPE OF REVIEW	DESCRIPTION	REVIEWING ENTITIES
SPO or third-party assurance report	Assurance reports are envisioned to ensure that green proceeds have been correctly allocated. This reporting type is sometimes referred to as the 'use-of-proceeds' post-issuance reporting.	Accounting and auditing firms, ESG providers, research and think tanks, scientific experts
Impact reporting	Impact assessments are different to assurance reports in that they seek to quantify the climate and environmental impacts that the use-of-proceeds have achieved through project implementation.	Internally by issuers supplemented by third-party verification, audit firms, ESG providers and scientific experts
Post-issuance verification according to the Climate Bonds Standard	The Climate Bonds Standard is currently the only standard available in the market. The standard is voluntary. Assuming that the Climate Bonds Standard pre-issuance criteria have been met, the issuer must update the green bond framework and climate bond information form. Thereafter, the issuer should engage with the verifier. The verifier should be the same entity used for the pre-issuance certification. Thereafter, all documents are submitted to the CBI for certification.	Entities approved by the CBI to offer verification under the Climate Bonds Standard and Certification Scheme

CBI, n.d., Introduction and context¹²²

Annex B: Country focus on India

India has made ambitious commitments to decarbonisation. Under the 2015 Paris Agreement, it agreed to reduce greenhouse gas emissions intensity by 33% to 35% below 2005 levels, as well as for 40% of the country's installed electric power capacity to be generated from non-fossil sources by 2030.¹²³

Achievement of these goals requires a nine-fold increase in annual investments. India requires an estimated ~INR 187 thousand crores (US\$ 2.5 trillion) from 2015 to 2030 to implement its NDC, or roughly INR 12 thousand crores (US\$ 170 billion) per year.¹²⁴ The magnitude of the investment requirement is influenced by India's heavy dependence on fossil fuels.¹²⁵

Green bonds can support India's climate policy objectives by mobilising institutional capital at scale. For investors, green bonds represent familiar fixed-income instruments offering stable and predictable returns while supporting projects with clear environmental benefits. For issuers, green bond issuance provides a means to broaden their investor base and sends a signal to the market on their commitment to environmental considerations. While many emerging markets faced unprecedented challenges in 2020, as a result of the Covid-19 pandemic, the emerging green bond market remained resilient.

This case study examines the role of green bonds in mobilising capital for India's low-carbon, climate-resilient transition. It considers the extent to which India was well poised to launch a green bond market and how the country has overcome some of the major challenges to expanding it. It concludes by providing recommendations for financial sector policy-makers in both India and other similar developing economies.

Experience to date

GENERAL MARKET TRENDS

As shown in Figure 13, India has a very large economy that has gained from more than a decade of sustained high growth (6–8% annually).¹²⁶ With a GDP of almost US\$ 2.9 trillion, India has emerged as the fifth largest and fastest growing major economy in the world, contributing approximately 7% of the world's GDP.^{127, 128} Global forecasts suggest that India has the potential to sustain average annual growth of 3.9–5% for the next 20 years, resulting in the economy tripling in size and doubling its share of global GDP.¹²⁹

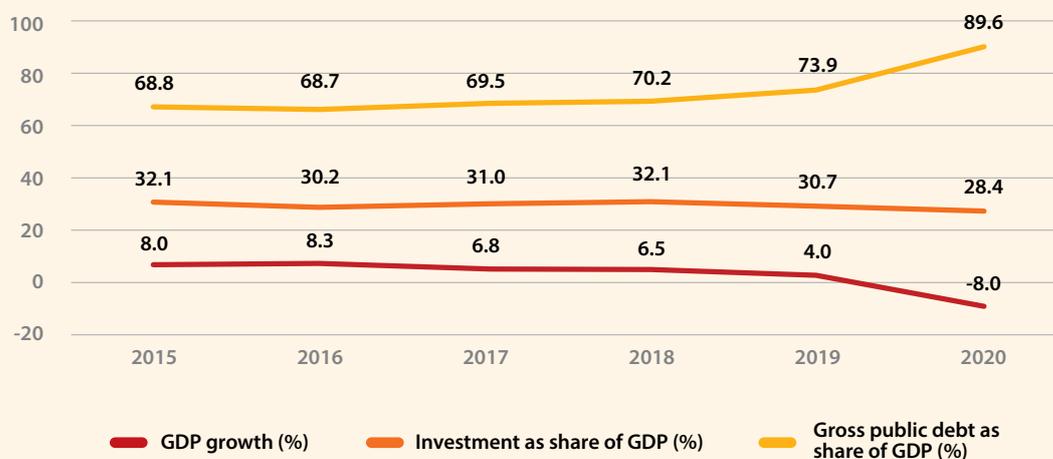
However, volatility in India's debt capital markets since 2017 has slowed the growth of new markets. Generally weak debt capital market conditions have resulted in fluctuating issuance since 2018. This was exacerbated by the Covid-19 pandemic, with disruptions to cash flows and weakening balance sheets leading issuers to prefer more flexible bank financing terms.^{130, 131} India-specific challenges, including borrower defaults, have led to a tightening of credit flows and general malaise in the Indian economy.¹³²

GREEN BOND MARKET TRENDS

India hosts the second-largest green bond market amongst emerging markets. As shown in Figure 14, not only has India's green bond market shown significant growth, with approximately US\$ 16 billion in issuance as of August 2021,^{xvii} but each green bond has attracted a wider pool of investors compared to conventional bonds by the same issuers.¹³⁴ Growth in the green bond sector has been spurred by an enabling policy and regulatory framework, massive investment in renewable energy infrastructure, and issuance in hard currency.

^{xvii} Environmental Finance Database as of 25 August 2021

FIGURE 14: Indicators of India’s economic performance, 2015–2020



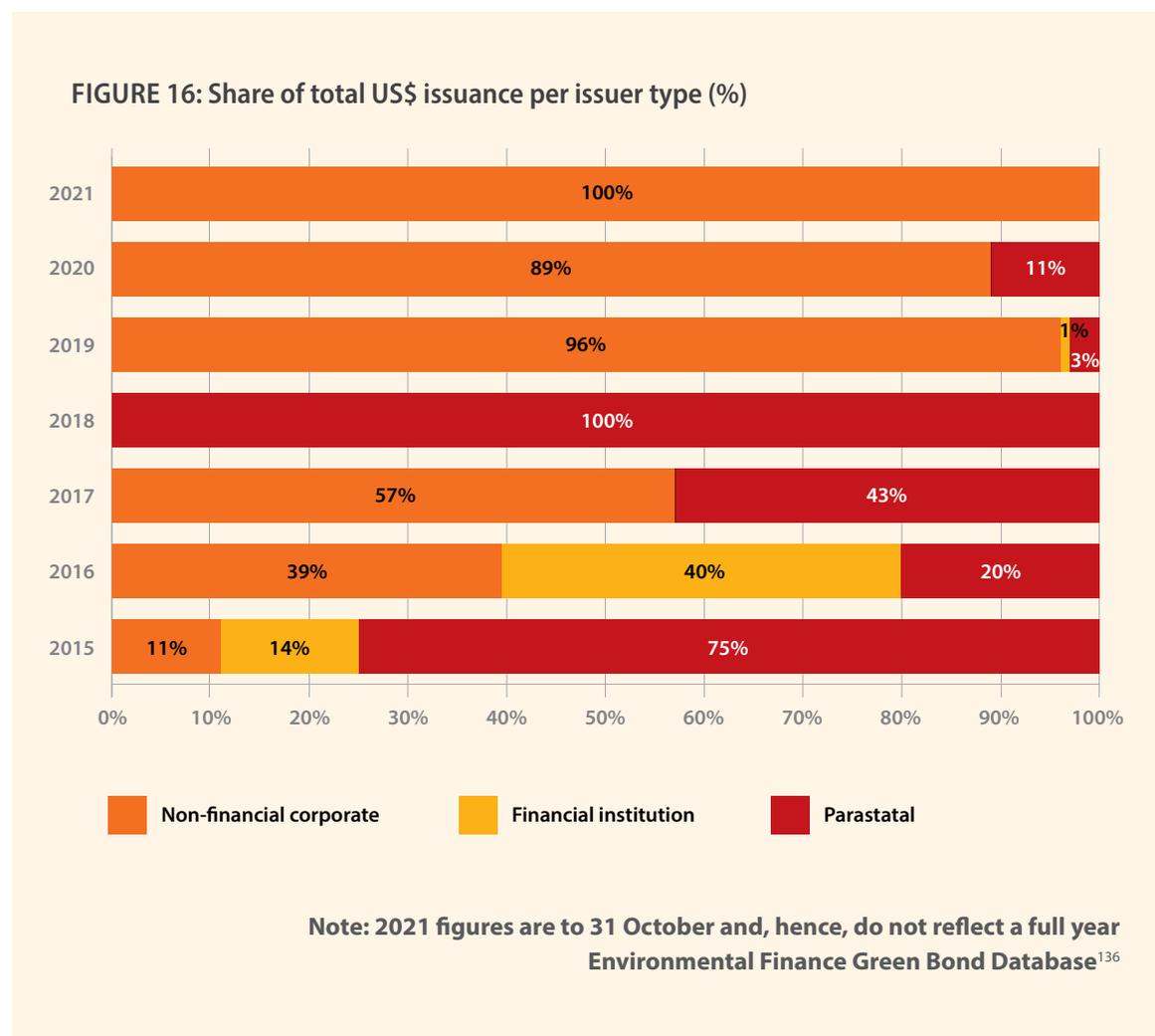
IMF, 2021¹³³

FIGURE 15: India’s green bond issuance to date (US\$ bn; up to 31 October 2021)



Note: 2021 figures are up to 31 October, hence not strictly comparable to prior years
Environmental Finance Green Bond Database¹³⁵

The green bond issuer base has diversified over time, suggesting that green bonds have been mainstreamed into the traditional bond market (Figure 16). Issuers to date include non-financial corporates such as Greenko, private banks like Yes Bank, and parastatals like IREDA and the Indian Railway Finance Corporation. Whilst in 2015, three quarters of the issuance came from parastatals, they accounted for just 10% volume in 2020. Corporates accounted for 90% volume in 2021.



However, sectoral application is still largely limited to renewable energy. In India, large-scale renewable energy projects are developed within a credible public institutional framework for procuring utility-scale renewable energy, further benefiting from IFC management support.¹³⁷ This has made debt financing these projects very attractive to bond investors. Transport infrastructure is the second largest sector to benefit – another common use of proceeds for green bonds globally. In 2021, renewable energy received 91% of capital raised by green bonds, with transport receiving the balance. On the other end of the spectrum, adaptation action in agriculture and land use remains unexplored, despite the Securities and Exchange Board of India (SEBI) noting that these are focus areas for green bond investment.

Green bonds have the potential to channel significant private sector funding into adaptation projects within India. However, in order to realise this potential, several barriers need to be overcome. Table 9 outlines these in the context of emerging markets generally, suggesting potential mechanisms/approaches that India could implement.¹³⁸



Electric bus in New Delhi, India. PradeepGaur via Shutterstock

TABLE 9: Barriers and recommendations to using green bonds for adaptation financing

BARRIERS TO SCALING GREEN BONDS FOR ADAPTATION PROJECTS	RECOMMENDATION
<p>A lack of investor awareness of and investor capability with regard to adaptation investments due to short-term mindsets and a lack of sector expertise.</p>	<p>Increase investor and issuer awareness of climate-related risks to businesses in the key sectors in need of adaptation. Green bond review processes should systematically highlight adaptation- and resilience-related risks wherever relevant.</p>
<p>A lack of consensus on definitions of adaptation and resilience makes it difficult for issuers and investors to understand the potential eligibility of such investments.</p>	<p>Guidance on adaptation investments, in the form of a taxonomy, could increase the inclusion of adaptation- and resilience-type activities in green bond frameworks.</p>
<p>A lack of project pipeline associated with inadequate resilience-related revenue streams, small transactions, and difficulties in quantifying the benefits of adaptation projects.</p>	<p>Make efforts to develop projects that are appropriate for green bonds, for example revenue-generating large-scale or pooled projects, including through public-private partnerships.</p>

Green bond market readiness

This report identifies four factors as critical for successfully establishing a green bond market, outlined in detail in section 3 of the main report under "Critical success factors for green bond market development".

India's green bond market will be analysed in terms of their alignment to these pre-requisites. A snapshot of India's performance against these prerequisites has been outlined in Table 10 below, revealing that India scores moderately or very well on each dimension of market readiness.

TABLE 10: India green bond market readiness assessment

DIMENSION	OVERALL READINESS	POSITIVE FACTORS	DETRACTING FACTORS
Policy and regulatory environment		<ul style="list-style-type: none"> • Early emphasis on the role of FIs in corporate social responsibility (2007). • Mandated sustainability reporting for companies (2012). • Issuance of national green bond guidelines by SEBI (2017). 	<ul style="list-style-type: none"> • Limited criteria defining what constitutes 'green'. • Lack of formal taxonomy. • Lack of regulatory incentives or prescriptions promoting green bond issuance or investment.
Investor demand		<ul style="list-style-type: none"> • Significant demand for green bonds and ESG-linked instruments globally, accessed by issuance in hard currency. • Credit risk profile of green bonds linked to renewable energy projects attractive due to developer credibility and national government backing. • Uptake of Climate Bond Standard certification by several issuers. 	<ul style="list-style-type: none"> • Currency risk and low liquidity quell foreign investor interest in local currency bonds. • Immature market for corporate bonds restricts issuance potential outside the public sector. • Prescribed investing regulations limit appetite by pension funds and insurance companies.¹³⁹
Public sector participation and collaboration		<ul style="list-style-type: none"> • DFIs have played a key role in green bond markets via issuance, anchoring investment, and credit risk underwriting via guarantees. • Ambitious renewable energy targets have been set by the government, supporting the project pipeline. • Eligible project pipeline supported by development of a National Infrastructure Pipeline. 	<ul style="list-style-type: none"> • No national or subnational government issuances have taken place to date.
Stable political and macroeconomic conditions		<ul style="list-style-type: none"> • Local currency has been relatively stable. • Foreign borrowing levels are modest relative to other emerging markets. • Political stability is supported by a large parliamentary majority. 	<ul style="list-style-type: none"> • High share of non-performing loans. • Terrorist attacks in major cities and civil unrest remain a risk. • Covid-19 related economic uncertainties remain, with public debt rising due to the pandemic.

Own analysis

POLICY AND REGULATORY ENVIRONMENT

Indian regulators were early adopters of sustainable finance measures, paving the way for the launch of new financial asset classes. The Reserve Bank of India has led the discussion domestically on the critical role of banks in financing sustainable development and disclosure on non-financial performance since as early as 2007. A major strategic move occurred in 2012 when SEBI made it mandatory for the top 100 listed entities at the Bombay Stock Exchange and National Stock Exchange to publish annual business responsibility reports, a requirement that has since been further refined.¹⁴⁰

The publication of SEBI's green bond guidelines^{xviii} in 2016 made India the second emerging market to have such a framework, after China. SEBI improved clarity around eligible project types and disclosure via a circular in 2017, aligning with International Capital Market Association's GBPs. This move established confidence in the green bond market, evidenced by a rapid increase in issuances from 2017.

Alignment with international standards has contributed to investor appetite. Green projects or assets are deemed eligible if they fall into one of the eight broad green categories: renewable and sustainable energy, sustainable water management, clean transport, climate change adaptation, energy efficiency, sustainable waste management, sustainable land use, and biodiversity conservation. This scope has been kept wide to include most types of green projects.¹⁴¹ Disclosure requirements are slightly more stringent than in the case of the GBP, stipulating half-yearly reporting on the use of proceeds, for example, as an added measure to support the integrity of the green bond market.¹⁴²

To improve its attractiveness to international investors, India is developing institutions to target foreign investment. In 2017, India launched its first international stock exchange, India INX, which permitted the listing of green bonds, offering issuers an alternative to listing in London or Singapore. Currently, the government is establishing a Sustainable Finance Hub at the International Financial Services Authority.^{xix} This will act as a gateway for channelling foreign capital into India to support climate action, including through tax incentives and improved regulatory frameworks.

Domestically, regulatory restrictions on long-term investors have hampered subscriptions to green bonds. Subscriptions refer to newly issued securities that an investor agrees or intends to buy prior to the official issue date. Insurers can invest only in public limited companies, ruling out green bonds issued by special purpose vehicles used for ring-fenced projects (e.g., project bonds, asset-backed securitisation). Also, retirement funds are obliged to invest in corporate bonds with at least an AA rating, eliminating most of the green bond issuances to date.¹⁴³

INVESTOR DEMAND

High demand, especially from international investors, has yielded financial benefits for green bond issuers, countering the additional cost and complexity of green labelling. Greater investor diversification and high levels of subscription have reduced reliance on individual sources of funding whilst at times being associated with a pricing advantage or greenium (see page 14). All of India's green bonds have been oversubscribed by 2–9 times at the time of issuance, despite being in the high-yield category, and have attracted a wider array of investors than conventional equivalents by the same issuer. Preliminary estimates suggest a greenium in the region of 7 to 14 basis points accruing to issuers at the time of listing green bonds.¹⁴⁴

^{xviii} See SEBI's Disclosure and Requirements for Issuance and Listing Green Bonds available at: https://www.sebi.gov.in/sebi_data/meetingfiles/1453349548574-a.pdf

^{xix} The International Financial Services Centres Authority was established in April 2020 under the International Financial Services Centres Authority Act (2019). The authority is a unified authority for the development and regulation of financial products, financial services, and financial institutions in India. <https://www.ifsc.gov.in/>

Unlocking further domestic institutional investor demand requires de-risking of these new assets. Banks currently provide most of the funding for infrastructure projects due to infrastructure bonds generally achieving national credit ratings of BBB: too low to meet institutional investor criteria. Consequently, credit-enhanced bond structures^{xx} instruments,^{xxi} or risk transfer mechanisms^{xxii} are required to tap into this large pool of capital.¹⁴⁵ In 2015, the Asian Development Bank and India Infrastructure Finance Company Ltd. jointly guaranteed a Rs 4.51 billion (US\$ 68 million) project bond for ReNew Power Ventures Private Ltd., a New Delhi-based independent power producer. This resulted in the bond credit rating improving from BBB to AA+, attracting many institutional investors.¹⁴⁶

PUBLIC SECTOR PARTICIPATION AND COLLABORATION

Parastatals have been regular issuers, accounting for 25% of total issuance to date.^{xxiii} This has helped to establish the market through demonstration effects and contributed to developing a green bond yield curve. Key players include the state-owned EXIM Bank, state utility NTPC, Indian Renewable Energy Development Agency, Indian Railway Finance Corporation and State Bank of India (SBI). The Indian government plans to launch its first green bond in 2022.¹⁴⁷

IFIs and MDBs have regularly invested in and supported the development of India's green bond market. The IFC has been the largest source of finance, followed by the Asia Development Bank. The IFC's extensive experience with sustainable and infrastructure finance has been critical in supporting various green bond issuances,^{xxiv} particularly debut issuance: India's first green bond (by YES bank) and the first green bond by Continuum (India's leading renewable energy developer). Consequently, the IFC is playing a critical role in supporting India in achieving its climate transition through anchoring issuances and building investor confidence.¹⁴⁸

STABLE POLITICAL AND MACROECONOMIC CONDITIONS

India has enjoyed a period of relative economic and political stability. This has created a conducive environment for foreign and domestic investment generally. India is currently listed as having a country risk rating of BB according to the Economist Intelligence Unit's scale, showing national capacity and commitment to honour obligations currently, although the country is susceptible to changes in economic climate. In July 2021, S&P Global ratings affirmed India's credit rating at the lowest investment grade of BBB for the fourteenth year in a row, with a stable outlook.¹⁴⁹ Rating agencies expect that India's economy will recover from the Covid-19 pandemic, and that the country's strong external macroeconomic outlook will act as a buffer against financial strains despite elevated government funding needs over 2021 and 2022. This is reflected in the IMF's forecasts of GDP growth of 12.5% in 2021 and 6.9% in 2022. The presence of democratic institutions that promote policy stability and encourage compromise are helping to bolster the positive outlook for India's post-Covid recovery.

India's long-standing reform priorities^{xxv} are expected to help maximise the country's long-term recovery and future growth. These reforms are also expected to help alleviate poverty and inequality and deepen the country's integration into global value chains. Elevated public spending is expected to expand capacity utilisation and encourage private investment in 2021/22, suggesting increasing activity in debt capital markets.

^{xx} For example, senior, secured bonds

^{xxi} For example, senior notes in asset-backed securitisation

^{xxii} For example, credit guarantees

^{xxiii} Own analysis based on data from Environmental Finance Green Bond Database ending on 24 August 2021

^{xxiv} The IFC's long-term financing is supporting India's renewable energy goals, building confidence and encouraging investors, particularly financial institutions, to develop a green market. The IFC has, therefore, played a supporting role in supporting India's green bond market through anchoring investments and providing technical support through knowledge building and capacity.

^{xxv} These priorities include ongoing labour and land reforms, infrastructure investment, improvements in governance, continued trade and investment liberalisation, and improving education outcomes.

Overcoming challenges to green bond market development

UNDERDEVELOPED CAPITAL MARKETS

In India, as with many other emerging markets, an underdeveloped domestic bond market has dampened growth prospects of the green bonds. The immature market for corporate debt limits the debt financing options available for green projects. It has been acknowledged that the secondary market for green bonds is shallow, limiting liquidity and thus participation by green bond investors. This lack of depth is one of the main reasons for foreign issuances of green bonds by Indian entities. As a result, project developers in India largely rely on commercial banks for finance, although this source of debt is not ideal for funding large-scale infrastructure due to high pricing and limited capital availability.¹⁵⁰



Olympia Tech Park – The first largest LEED Certified Gold rated Green Building in Chennai Park, India.
Eudaimonic Traveler via Shutterstock

Lack of liquidity is often a function of currency risk, deterring international investors.

Investors with green bond-aligned mandates (i.e., climate/ESG/impact/thematic) are frequently located in advanced economies with stable currencies. Even the prospect of achieving substantially higher yields in emerging markets often fails to convince them to take risk on volatile emerging market currencies.

To overcome these challenges, India has leveraged the ability of several issuers to list bonds offshore. To date, approximately three-quarters of India's green bonds have been issued in USD.¹⁵¹ From the start, this has offered issuers access to more sophisticated investors with appetite for – and possibly specialised mandates targeting – green bonds as an emerging asset class. However, it should be noted that issuance in hard currency is suitable only for select issuers with the requisite scale, revenue base, and treasury capabilities to manage the consequences of raising debt in foreign currency.

Private placement has provided a useful alternative to listing on international exchanges for India's local currency issuers. For example, the SBI has issued two CBI-certified green bonds which were distributed through private placement. Private placements can avoid some of the challenges of underdeveloped capital markets through offering issuers preferential terms associated with tailoring the use of proceeds and reporting framework to the requirements of single-impact-focused investors, while limiting administrative costs. Private placement accounts for more than 90% of corporate bond issues in India.¹⁵²

COST BURDEN

Often the incremental costs of issuing and maintaining green bonds have deterred issuers, especially in immature bond markets. Costs refer to both the additional external costs (e.g., sustainability consultants, external reviewers) and the internal costs associated with the greater complexity inherent in administration of a green bond programme: managing earmarked/ring-fenced proceeds, complying with monitoring and reporting protocols, and so on. Issuers developing green projects may forgo adoption of a green label when the benefits of doing so do not compensate for the additional costs.

The impact of this cost has been reduced by the size of green bonds typically issued by Indian issuers. Economies of scale enable the spreading of fixed costs across a larger volume of proceeds, reducing the effective cost per unit of funding raised. The additional costs are especially burdensome when issuance falls below US\$ 100 million. Fortunately, only 13% of Indian issuers fall into this category. In some cases, the achievement of a pricing advantage has also helped. Anecdotal evidence of a greenium has been presented earlier.

LACK OF TAXONOMY

The absence of a national taxonomy describing eligible green projects has hindered green bond market development in India. The lack of agreed definitions has been called a “bottleneck in the development of the green finance market”.¹⁵³ In emerging markets particularly, less well-developed environmental regulations and standards raise the (perceived) risk of greenwashing by issuers, which operate with less market guidance in relation to acceptable use of proceeds for green bond issuance. If India were to establish a formal definition, or taxonomy, it would result in accelerating the development of green financial products or services, providing definitional consistency and standardisation for issuers and investors.¹⁵⁴

Against this backdrop, uptake of Climate Bond certification early on has mitigated the risk to some extent. For Indian issuers, certification enables tapping deeper pools of capital, like those held by foreign institutional investors. ReNew Power Private Ventures Ltd., for example, has issued six green bonds between 2016 and 2020, with all bonds being certified under the Climate Bond Standard. Certification has been instrumental in ensuring international investor confidence in the credentials of the Indian green bond market. However, certain CBI sector standards are not as readily applied in emerging markets,^{xxvi} limiting the applicability of this solution.

PROJECT PIPELINE

The lack of viable projects has often undermined the potential for issuance of innovative financial instruments in emerging markets. This is especially the case outside the energy, building and transport sectors. Together, these sectors raised an overwhelming 85% of green bond proceeds in 2020 globally.¹⁵⁵ Similar trends have been exhibited in India.

The Indian government has stimulated supply of eligible projects through targeted infrastructure policy and facilitation initiatives. It established a National Infrastructure Pipeline under its Infrastructure Vision 2025 to provide sustainable and world-class infrastructure whilst streamlining project priorities, creating the right conditions for implementation, and facilitating investment. The projects under the National Infrastructure Pipeline are expected to receive funding of US\$ 1.4 trillion over the next four years, with the five priority sectors being roads, urban development including housing, railways, energy, and irrigation. While not all projects will qualify, this initiative has helped create visibility for projects that may be suitable for green bond financing.

Recommendations for policy-makers

Firstly, as issuers, the Indian government could raise capital for climate action while credibly signalling commitment to accelerating development of the green bond market. India's strong political commitment and leadership position on climate issues render the national government a good candidate to tap green bond markets. Very low levels of foreign public debt increase the feasibility of this strategy. Potential also exists at state level, where governments increasingly look to private investors for funding. State reliance on market borrowing (as a proportion of their total annual borrowing) has grown from nearly 60% in 2016 to approximately 90% in 2021. Similarly, Indian local governments with climate-aligned investment programmes may supplement public funding with capital raised from green bond investors.

^{xxvi} For example, due to lack of proxy certifications at asset level (e.g., recognised green building certification programmes), which signal eligibility or the required data to benchmark assets and prove their eligibility (e.g., energy performance data for buildings).

Secondly, policy-makers should consider mandatory disclosure of corporate climate risks to inform investment decisions in India. Disclosure helps markets to appropriately price climate-related risks and ensure efficient allocation of capital. France has demonstrated the effectiveness of this strategy. In 2015, when France hosted the COP climate talks, it took the lead in requiring financial institutions and asset managers to disclose their exposure to climate risks. The positive impact of this decree has been widely acknowledged. French investors have reduced their exposure to companies in the fossil fuel sector by 39% since 2015, channelling EUR 28 billion (US\$ 33.34 billion) elsewhere.¹⁵⁶ This has nurtured the development of green bonds as an asset class aligned with the transition to a low-carbon, climate-resilient economy, resulting in France consistently ranking within the top three green bond markets.

Thirdly, policy-makers should introduce a green taxonomy to aid in the identification of green projects. A taxonomy encompasses a list of eligible green assets, including environmental performance thresholds and metrics for determining eligibility. Included projects and activities should cover the full spectrum of climate action required for the achievement of India's policy objectives, including climate adaptation.

Fourth, regulators should consider more rigorous external review protocols to improve the legitimacy of India's green bond market. While the SEBI regulations are GBP-aligned, a lax approach to external review in the Indian market has reduced investor confidence.^{xxvii} However, whilst external reviews reduce informational asymmetries between issuers and investors by verifying claims made by an issuer, they add to the transaction costs of green bond issuance. Elsewhere in Asia, regulators offer fiscal incentives (e.g., reductions in standard security listing fees) to offset the additional cost. Incentives stimulate issuances when markets are nascent, local external review capacity is limited and green bond issuers are not yet sufficiently experienced or strong enough to limit the associated costs. India should consider the introduction of incentives alongside an external review requirement, particularly early on.

Fifth, policy-makers should consider reforming capital market regulations, which are currently hampering expansion of the green bond markets. These measures, while not specific to the green bond markets, prevent the deepening of the corporate bond market, ultimately limiting participation by domestic long-term and international investors. These investors have played a vital role in growing bond markets globally. As bond markets develop, more sophisticated bond structures – such as securitised notes – will emerge, allowing banks and other financial intermediaries to recycle capital through selling off green financial assets and so increasing capital availability for new projects. For example, climate adaptation funds can be raised by securitising the National Disaster Relief Fund.¹⁵⁷ At the same time, the credit enhancement offered by these structures also increases the universe of investable opportunities for retirement funds.

Finally, the public sector – including government and DFIs – should selectively expand credit enhancement strategies to attract private capital. Through provision of credit guarantees, Indian issuers could leverage the superior credit ratings of the national government or IFIs/MDBs to de-risk green bonds by corporate issuers to attract institutional investors that would otherwise be unwilling to opt for such high-risk bonds. Correctly applied, credit enhancement could mobilise India's sizeable domestic savings base to support low-carbon infrastructure and other critical climate investments on enabling terms. This would reduce the reliance on public funds whilst offering project developers access to longer term, more affordable debt.

^{xxvii} Recently, Amundi removed SBI green bonds from its Planet Emerging Green One Fund due to SBI's green bonds being utilised to finance the Carmichael thermal coal mine in Australia, which has been criticised heavily due to projected damage to the Great Barrier Reef.

Annex B: Country focus on Kenya

Despite the imminent risk posed by climate change and biodiversity loss, the African continent, including countries like Kenya, has not seen the level of investment flows required to facilitate the transition to a low-carbon, climate-resilient future. In 2018, approximately US\$ 2.4 billion was invested in climate change activities; this represents only half of the annual climate finance needs as communicated in the Kenya NDC.¹⁵⁸ Green bonds – conventional bonds with proceeds earmarked for green projects – represent a growing opportunity for the continent’s market actors to meet the shortfall in climate finance needed.¹⁵⁹ The growth of the market since the first global green bond issuance in 2007, coupled with the capacity-building and market development efforts by donors, non-governmental organisations and DFIs has resulted in green bonds being a viable option for African actors.¹⁶⁰

The primary objective of this case study is to provide a detailed overview of the Kenyan green bond market. Aligned to the target audience of the report, the case study is envisioned to provide learning to financial sector policy-makers and green bond market actors in developing and emerging countries beyond Kenya. The current nascent state of the market resulted in the analysis focusing on the enabling environment for green bond issuances in Kenya; the barriers limiting further green bond market growth; a case study of the Acorn Holdings Limited green bond issuance of 2019; and factors based on experiences in mature markets that need to be considered to further grow the Kenyan green bond market.

Experience to date

GENERAL AFRICAN MARKET TRENDS

Even though the potential of green bonds is well-documented, the African green bond market is still in a nascent state with a total green bond volume issued between 2010 and 2021 totalling US\$ 7.0 billion, covering nine countries and composed of 18 issuers (Table 11).¹⁶¹ The African Development Bank (AfDB) and South Africa have the highest green bond issuance volumes, with amounts totalling US\$ 2.63 billion and US\$ 2.71 billion, respectively. There have also been significant issuances by Moroccan (US\$ 356 million) and Nigerian (US\$ 136 million) actors. There have also been smaller issuances by actors in Namibia and the Seychelles. As of September 2022, there has only been one green bond issuance in Kenya: a real estate corporate issuance by Acorn Holdings Limited of approximately US\$ 41.5 million.¹⁶² A significant portion of African green bonds have been issued in local currency to reduce currency risk, thereby reducing the reliance on foreign currency borrowing.

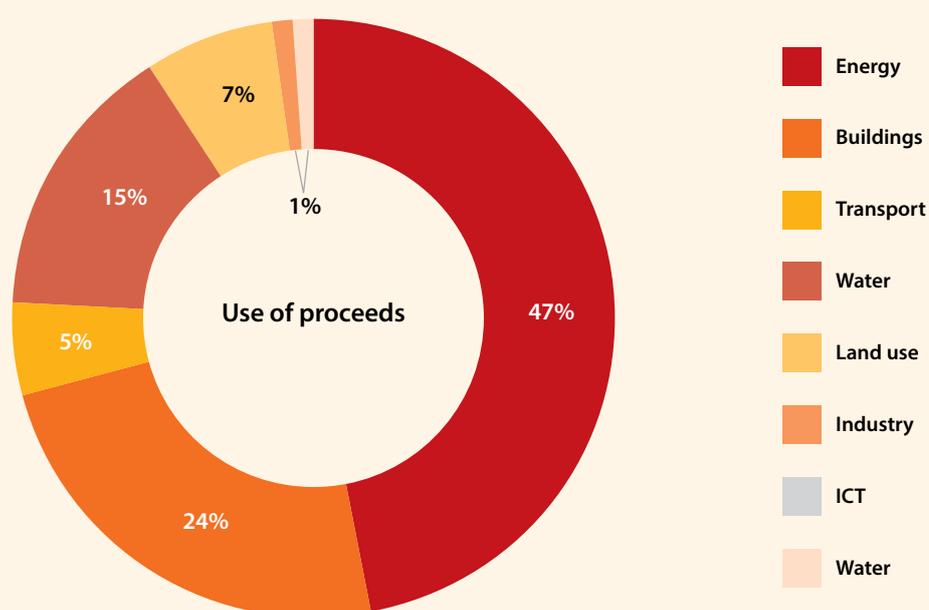
TABLE 11: Total green bond issuances in Africa by volume and country between 2010–2021

COUNTRY	AMOUNT ISSUED (US\$ BN EQUIVALENT)	ISSUED CURRENCIES
AfDB (supranational)	2.63	USD/SEK/AUD
South Africa	2.71	ZAR
Morocco	0.36	MAD/EUR
Nigeria	0.14	NGN
Ghana	0.04	EUR
Kenya	0.04	KES
Seychelles	0.02	USD
Namibia	0.01	NAD
Egypt	0.75	USD
Mauritius	0.30	USD

Environmental Finance Green Bond Database¹⁶³

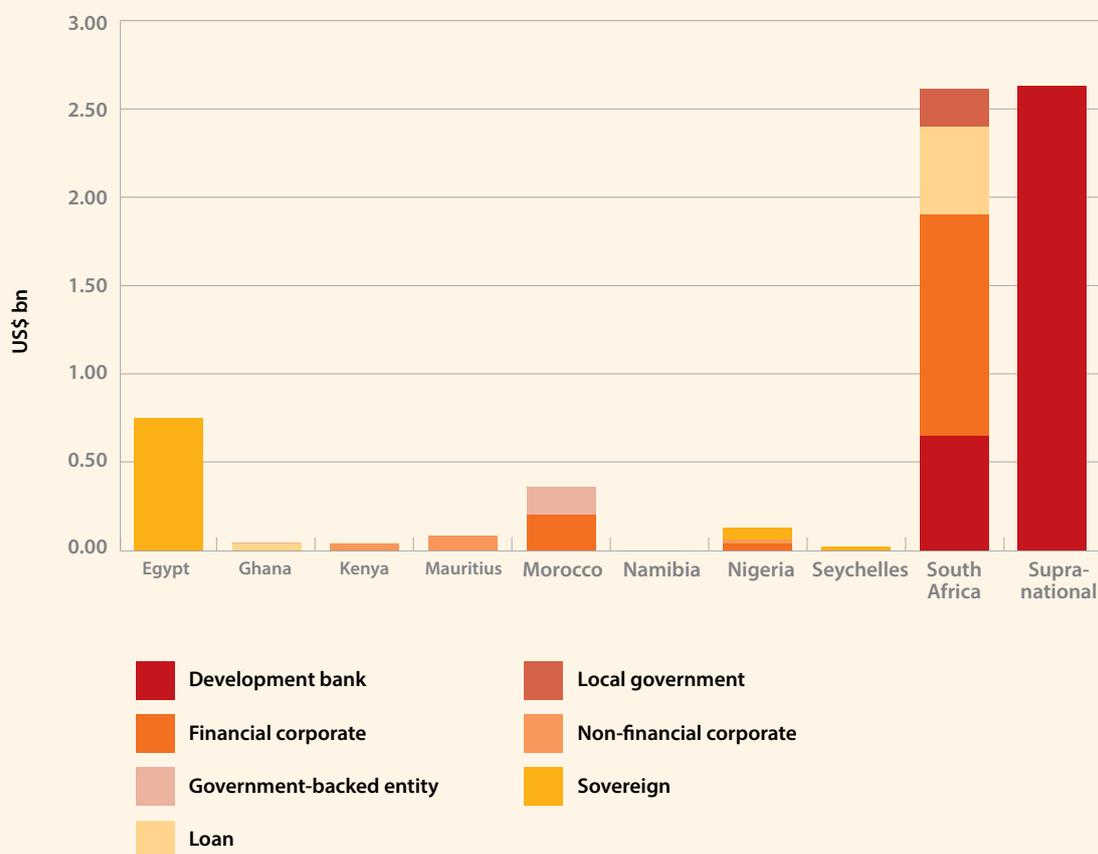
As outlined in Figure 17, energy (47%), buildings (24%) and water (15%) represent the sectors with the highest use of proceeds from African green bond issuances between 2012 and 2020. This is similar to trends in the global green bond market where energy, transport and buildings dominate issuances. The higher proceed allocation towards energy, buildings and water sectors likely represents the development priorities of African actors. Because energy, transport and green buildings are also likely to deliver greater returns on investment, these sectors tend to be more attractive to private sector issuers as well.

FIGURE 17: Use of proceeds from African green bond issuances (2012–2020)



Environmental Finance Green Bond Database¹⁶⁴

FIGURE 18: Breakdown of project categories under the use of proceeds for African issuances (2012–2021)



Environmental Finance Green Bond Database¹⁶⁵

The adaptation and resilience project category accounts for the smallest percentage of use of proceeds (0.63%). However, there are certain sectors, such as water, that may be imminently at risk from climate change and, therefore, may deliver adaptation and resilience co-benefits. Lower allocations towards adaptation and resilience project categories are expected as these projects typically have lower returns on investment, thereby making them less attractive to investors. In general, however, there has been an increasing trend in green bond volumes over time, which suggests the awareness of the asset class has improved amongst financial stakeholders. This is also signalled by the diversity of issuers in the African green bond market, as illustrated in Figure 18.

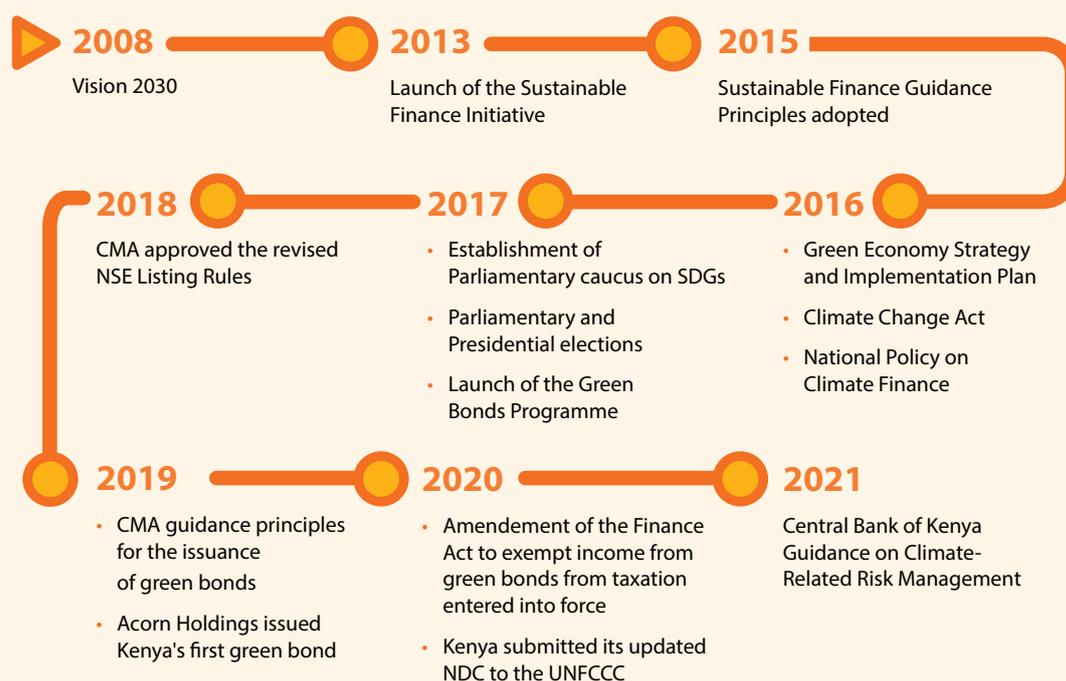
GENERAL KENYA BOND MARKET TRENDS

The Government of Kenya has estimated its financing needs to meet its NDC target by 2030 to be approximately KES 4.040 billion (US\$ 40 billion).¹⁶⁶ At present, current climate finance flows (US\$ 2.4 billion in 2018) account for only a third of the financing needs required annually. A strong green bond market will be essential if the government is to raise the finance required for the implementation of the NDC and Vision 2030 document. The existing climate policy framework in Kenya is advantageous, as it creates strong market signals for issuers and investors further enabling the growth of the domestic green bond market.

The evolution of the green bond market has been on-going since 2008. Figure 19 provides an overview of this evolution. Initially, the labelling of green investments was not a standard practice amongst Kenyan green bond market actors. The primary legislation and policy drivers for green bonds in Kenya are the Vision 2030 policy document and the Constitution. The initial growth of the sustainable finance sector, however, was supported by the launch of the Sustainable Finance Initiative (SFI) in 2013 and the Green Economy Strategy and Implementation Plan in 2016.¹⁶⁷ The SFI, which was initiated by the Kenya Bankers Association, adopted five guiding principles that outlined the need to balance banking considerations with environmental and social goods. The adoption of the SFI's principles as well as the SFI trainings offered to Kenyan bankers were fundamental to creating greater sustainable finance awareness amongst market actors.¹⁶⁸

Besides increasing sustainable finance awareness, other notable actions included the establishment of a parliamentary caucus on the Sustainable Development Goals and the development of the Kenya Green Bond Programme in 2017.¹⁶⁹ The parliamentary caucus was envisioned to support the lobbying internally for sustainable finance, while the Kenyan Green Bond Programme aimed to encourage the development and growth of the domestic green bond market in Kenya. More recently, the programme has created further guidance on green bond issuances. This culminated in Kenya's first green bond issuance in 2019 as well as legislation changes regarding taxable income from green bonds in 2020.

FIGURE 19: An overview of sustainable finance market development in Kenya since 2008



Mooldijk and Lütkehermöller, 2021¹⁷⁰

From a stakeholder perspective, the green bond market development has been strengthened significantly as a result of the Kenya Green Bond Programme, despite the solitary issuance in the market. The Programme is a collaboration between Kenya Bankers' Association, Nairobi Securities Exchange, CBI, Financial Sector Deepening Africa, and the Dutch development bank, FMO.¹⁷¹ A key driver for the growth of the Kenya Green Bond Programme has been the involvement of key market actors such as the Kenyan Bankers Association. The Programme has also managed to involve other stakeholders: the Central Bank of Kenya, Capital Markets Authority, and the National Treasury. Endorsement from these stakeholders has provided the Kenya Green Bond Programme with further momentum to lobby and create a hospitable regulatory and policy environment for future green bond issuances.¹⁷²

Despite efforts being placed on developing the policy and regulatory frameworks as well as the pricing incentives by green bond market actors, there has only been one green bond issuance in Kenya as of September 2022. There are some positive sentiments which suggest that future issuances are likely. According to the Central Bank of Kenya, a green bond issuance by the national government is imminent. This is also signalled by the Government of Kenya's green bond framework and SPO external verification to assess the green integrity of the bond.^{173, 174}



Case study: Acorn Holdings Limited's 2019 green bond issuance

Acorn Holdings Limited issued the first green bond in Kenya in October 2019.¹⁷⁵ Acorn is a real-estate company focused on developing rental housing for students and younger clientele. The company decided to focus on a green bond issuance, citing the integration of sustainability – social, environmental, economic, and financing – into the strategic considerations.

The Acorn Green Bond is a fixed rate (12.25% per annum) with a five-year tenor.¹⁷⁶ The land and housing developments serve as collateral. Acorn obtained a partial credit guarantee on 50% of the principal and interest due. The bond was certified as a green bond under the Climate Bond Standard and was offered through a restricted public offer, which meant that it was envisioned to raise funds from a limited set of investors. Funding of the coupon payments was supported through equity from Acorn Holdings Limited.

The use of proceeds was focused on green buildings aligned to the IFC's Edge tool.^{xxviii} The specific projects cited in the Acorn Green Bond Framework include water use, energy efficiency and embodied carbon reductions through the building's lifecycle.¹⁷⁷ The bond was used to finance the construction of six student accommodation projects in Nairobi. In terms of outcomes, the Acorn Green Bond issuance raised KHS 4.3 billion (~ US\$ 41 million). The minimum target threshold was KHS 2 billion (~ US\$ 19 million). The issuance was able to attract interest from a diverse group of local investors, including local pension funds, commercial banks, insurance and reinsurance companies and a DFI.¹⁷⁸

^{xxviii} <https://edgebuildings.com/>

In summary, the Acorn green bond issuance was positive because:¹⁷⁹

- The issuer – Acorn Holdings Limited – has a solid track record and was focused on a sector with a positive growth outlook. The issuer was backed by a leading international private equity firm;
- The structure of the green bond is robust and includes measures to manage risk. The inclusion of a partial risk guarantee reduces the risk exposure of the bond, making it more attractive to investors; and
- The use of well-respected green building methodologies and approaches, such as the IFC's Edge tool, together with certification from the CBI add to the credibility of the issuance.



Case study: Kenya Pooled Water Fund

From a policy perspective, the provision of universal access to water and sanitation is recognised in the Kenyan Constitution and Vision 2030 policy document. At present, only 59% of Kenyans have access to basic water services while only 29% have access to sanitation services.¹⁸⁰ The capital investment required for the water and sanitation coverage for the entire Kenyan population is estimated to be KHS 1.765 billion (~ US\$ 16.2 billion) by 2030, with the financing gap estimated to be KHS 1.172 billion (~ US\$ 10.7 billion). This represents a financing need of KHS 100 billion (~ US\$ 918 million) annually until 2030.¹⁸¹

The Kenya Pooled Water Fund (KPWF) is a non-profit company established to assist local water service providers with access to finance for water and sanitation infrastructure needs. The Fund views long-term water security as a starting point for development whereby a stable water supply can attract investments in real-estate, industry and manufacturing while creating jobs for local communities. The KPWF provides donors and governments with a conduit to support water security through grants, concessional loans and guarantees, which can be used to enhance the financing offered by the Fund.

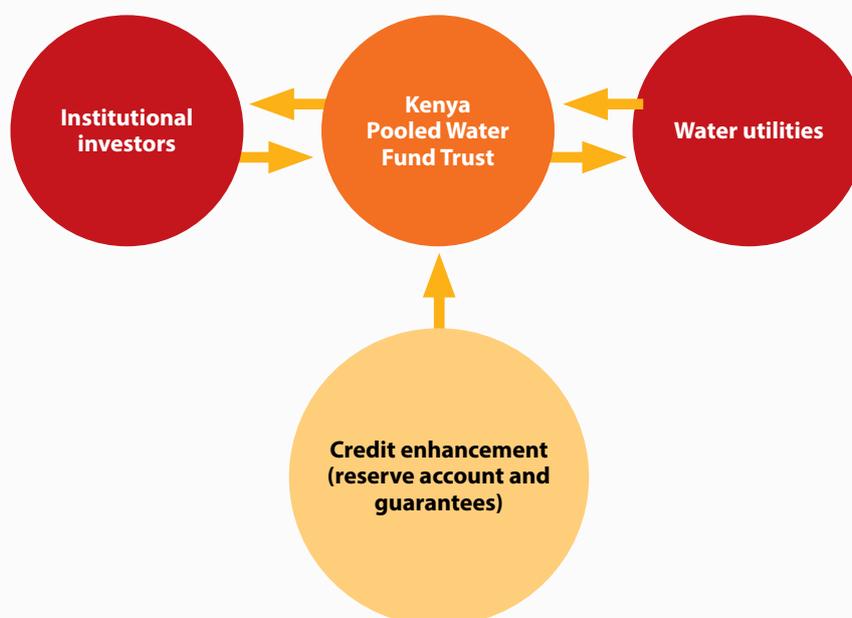
Within the KPWF, bonds are issued to the domestic capital market with proceeds lent to water service providers implementing water and sanitation services. The financing to the service providers are in the form of loans in local currency, while investors are paid from loan repayments made by service providers. The pooling of loans written to water service providers reduces the risk exposure of bond investors, while guarantees (and other forms of credit enhancement) are pursued to ensure bonds are secure.

In terms of the benefits to the service providers, loans offered by the KPWF are envisioned to be lower in cost than commercial financing. This helps to ensure that the tariff structures remain inclusive and equitable for the poorer consumers. The loans provided to service providers are based on their credit rating rather than project cashflows. The KPWF seeks to ensure the service delivery of water to communities by integrating future climate

risk considerations into the design of projects, thereby protecting water supply both upstream and downstream while reducing financial risks to investors. The envisioned financial structure of the KPWF is presented in Figure 20.

As outlined in the policy recommendations (section 4), the KPWF has the potential to be a viable green bond solution, as it is supported by strong policy and enabling frameworks from the Government of Kenya. Furthermore, market support, such as credit enhancement measures, reduce the risk exposure for institutional investors, making the green bonds more attractive. Lastly, the active participation of water utilities also suggests that public sector market participation strengthens the possibility of green bonds being issued.

FIGURE 20: The financial structure of the Kenya Pooled Water Fund



Green bond market readiness

POLICY AND REGULATORY ENVIRONMENT

The Kenyan government possesses a well-developed policy framework that communicates its position related to climate change action, green economic growth and climate finance. The Constitution of Kenya cites the right for all Kenyans to a clean and healthy environment, while the Vision 2030 policy document sets out the long-term national development framework.^{182, 183} From a climate change perspective, the position of the Kenyan government is communicated by its National Climate Change Action Plan. The 2016 Climate Change Act provides the legal framework for climate change policies. Lastly, the Green Economy Strategy and Implementation Plan outlines the green economic roadmap for the country, while the National Policy on Climate Finance signals Kenya’s stance on climate finance.^{184, 185} A comprehensive list of the relevant policies, plans, strategies, and laws that are likely to influence or enable the growth of the green bond market are presented in Table 12.

TABLE 12: Climate change and climate finance policies, plans, strategies and laws across Kenya

TYPE OF POLICIES, PLANS, STRATEGIES AND LAWS	TITLE
Overarching	<ul style="list-style-type: none"> • Vision 2030 • The Constitution
National climate plans	<ul style="list-style-type: none"> • National Climate Change Action Plan (2018–2022) • Climate Risk Management Framework for Kenya • National Climate Change Response Strategy • National Adaptation Plan • National Climate Change Framework Policy (2010, 2013–2017)
Sectoral plans	<ul style="list-style-type: none"> • National Wildlife Strategy 2030 • Kenya Climate Smart Agriculture Strategy (2017–2026)
Cross-cutting plans	<ul style="list-style-type: none"> • National Policy on Climate Finance • National Environment Policy (2013) • National Disaster Plan • National Policy for Disaster Management • Green Economy Strategy and Implementation Plan (GESIP) • Green Economy Initiative Kenya
Climate finance-related plans and strategies	<ul style="list-style-type: none"> • NDC Financing Strategy (under development) • Public Finance Management (Climate Change Fund) Regulations (2018) • National Climate Finance Policy (2016) • Sustainable Finance Initiative (SFI) Guiding Principles
Green bond-related plans and strategies	<ul style="list-style-type: none"> • Kenya Green Bond Guidelines • Policy Guidance Note (PGN) on Issuance of Green Bonds • Green Bond Listing Rules • Green Bond Issuer’s Guide

Source: Own analysis and LSE, 2021¹⁸⁶

Overcoming challenges to green bond market development

Despite the well-developed policy framework for green bonds in Kenya, there are still several barriers that inhibit the growth of the market. These barriers include:

Political uncertainty: This is not a concern restricted to Kenya. Political uncertainty results in lower market confidence. Considering the policy barriers that exist, strong political support for green bonds is needed for the long-term growth of the market. Political uncertainty is difficult to manage as changes in government regimes are determined by election cycles, and policy positions vary depending on election outcomes. This can often lead to wasted resources as policy and legal processes are time consuming and may not be finalised between elections. The government has managed political uncertainty by including statements regarding green bonds within the National Climate Change Action Plan (NCCAP), Green Economic Strategy and Implementation Plan, External Resource Mobilization Policy and budget policy statements. The aim is to ensure that green bonds are embedded in policy beyond political and election cycles.

Green bonds versus development finance: The cost of capital from development finance sources and donor aid may provide Kenyan project developers with a cheaper option as compared to green bond issuances. Therefore, concessional finance disincentivises the need for green bond issuances.¹⁸⁷ Furthermore, the high interest rates and the increased transaction costs may also deter issuers, especially those with less familiarity and capacity to manage the regulatory requirements.

Green bonds issued by national governments versus corporate green bonds: Kenya's conventional bond market is dominated by national government issuances. Ninety-nine percent of bonds issued in recent years has been by the government.¹⁸⁸ These issuances are more attractive to investors as they are generally less risky than corporate issuances. Furthermore, government bond issuances for infrastructure may be tax-exempt, making them more attractive. Consequently, the growth of corporate bond issuances in comparison to government bonds may be slower. In 2019, the Finance Act was amended to include tax exemption for green bonds. This may incentivise improved growth in green bond corporate issuances in the future.

Awareness and regulatory frameworks: Awareness regarding green bond asset classes is still developing in Kenya. Despite an understanding of risks posed by climate change, many issuers and investors are still unfamiliar with green bonds. The Kenyan Green Bond Programme launched in 2017 has catalysed greater awareness; however, further capacity building is required.

Market experience: In the case of national government issuances, negative experiences related to conventional bond issuances may also influence the trust in green bond issuances. In the case of Kenya, there was significant public outcry over debt sustainability from the 2017 Eurobond issuances. This may reduce the likelihood of a green bond issuance by the national government, despite proceeds being earmarked for specific green projects.¹⁸⁹

Horizontal and vertical coordination: Within the National Treasury of Kenya, the need for internal coordination is also evident. Climate finance issues are managed by a separate unit, while the bond issuances are handled by the debt management division. The separation of functions even within the Ministry of Finance creates complications around internal buy-in on the benefits of green bond issuances.

Green project pipelines: Kenya has significant opportunities for green projects focused on energy and manufacturing.¹⁹⁰ Despite this potential, green project pipeline development continues to be a challenge. In the case of the Government of Kenya's green bond strategy, the development of green projects is not targeted; rather, it is focused on refinancing existing projects that may be 'green' or deliver green benefits.¹⁹¹ According to the SPO undertaken for the Government of Kenya issuance, although the specific allocation of proceeds could not be determined, "approximately 60% of proceeds will be allocated to projects and 30% to programmes", with the ratio of financing versus refinancing at 70:30.¹⁹²



Water sellers in Nairobi, Kenya. Ooo.photography via Shutterstock. The Kenya Pooled Water Fund lends proceeds from bond issuances to water service providers to implement water and sanitation services

Recommendations for policy-makers

Considering the maturity of the Kenyan green bond market, it is difficult to postulate factors that would result in greater volumes of issuances in the short term with certainty. There are various strategies that have been adopted by emerging market pioneers to catalyse market development. The following recommendations outline some of the key options that **could** influence market growth and provide a strong foundation for green bond issuances. The following recommendations are focused on public sector policy-makers and cover both the role of the public sector as an issuer and market enabler.

Policy and regulatory frameworks: A key element of the transition to sustainability is an enabling policy environment and green bond regulatory framework. Kenya has a well-developed sustainable finance policy landscape. A strong regulatory framework will ensure greater investor demand and confidence. It is essential that Kenya continue to refine green finance-related policies to ensure that investor demand for green bonds is enhanced.

Market promotion and capacity building: The fragmentation of the market in terms of available guidelines, principles and standards often leads to confusion amongst market participants. The successful efforts of the Kenya Green Bond Programme in terms of awareness-raising and training ultimately resulted in Kenya's first green bond issuance. This was also supported by the dissemination of a policy guidance note, listing rules and a green bond issuer's guide. This signals the importance of promoting the asset class amongst issuers and investors that are not familiar with green bonds. Awareness-raising and capacity-building programmes could be posed to donor assistance programmes, or by engaging with green bond research and non-governmental organisations if external support is required.

Bankable project pipelines: The lack of a well-developed project pipeline will likely cause the domestic green bond market to stagnate. Focus must be placed on creating bankable projects that deliver green benefits. It is likely that external assistance will be needed in the short term for issuers that are unfamiliar with green project types. Strategic engagement with donors and DFIs could support

Kenyan actors in structuring these project types. A publicly disclosed green project pipeline may also increase public-private partnerships for green investments.

Public sector market participation: The under-developed nature of capital markets in emerging economies makes the implementation of traditional market development measures challenging. One of the avenues used by several emerging economies is the issuance of a green bond to demonstrate leadership and awareness of the asset class. The Kenyan government has already developed a green bond framework for potential issuance, and it is likely that the issuance will catalyse further market activity. The issuance will also signal Kenya's commitment to green growth strategies, raising the profile of issuers and opening the market to international investors.

Market support: Unlocking barriers, such as reduced taxable income from green bonds and the removal of the interest rate cap that makes green bonds more attractive to investors, are two solutions that have already been implemented to improve green bond market growth. Since the price differential for green bonds is not certain, reduced listing fees for green bonds and offering private placements (see "[Solution 3: Private placement](#)" on page 33)^{xxix} and donor-supported technical assistance for transaction costs could be additional strategies to further incentivise issuances. To overcome the under-development of emerging capital markets, Kenya's public sector institutions could support issuances through guarantees. Guarantees ensure protection for investors by reducing credit risk; however, they are not sustainable in the long term.

Despite the well-developed sustainable finance landscape in Kenya, the future development of the green bond market will be determined by the implementation of the regulatory framework. Public sector entities, whether domestic or international, can actively promote the Kenyan green bond market through developing institutional frameworks (e.g., regulations for green bond markets), providing technical assistance to compensate for green bond-specific capacity gaps, and participating in green bond markets as landmark issuers or anchor investors. Ultimately, the ability of a country to establish a green bond will depend on the presence of a conducive, stable macroeconomic environment driven by political will.

^{xxix} A private placement refers to the sale of an asset to a pre-selected set of investors and institutions rather than through an open listing in the market.

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Cuiabá, Brazil. Latin America's first water infrastructure green bond will be used to capture, treat and distribute water and collect sewage in the cities of Cuiabá and Paranaguá in Brazil.
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