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KEY DRIVERS OF SUSTAINABLE FINANCE IN EMERGING MARKETS: A FOCUS ON CHILE, INDONESIA, AND SOUTH AFRICA

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Table of Contents

Introduction

Sustainable finance plays a vital role in advancing the Sustainable Development Goals (SDGs)—a global agenda aimed at fostering environmental sustainability, social inclusion, and inclusive economic growth by 2030. At its core, sustainable finance integrates these priorities into financial decision-making. Central to this approach is the Environmental, Social, and Governance (ESG) framework, which provides a set of standards for investors and corporations to evaluate and manage risks and opportunities responsibly. By aligning investment and corporate strategies with ESG principles, sustainable finance becomes a key lever in driving progress toward the SDGs.

While international capital inflows receive significant attention, there is a vast amount of untapped domestic capital that could play a transformative role in achieving the SDGs. Globally, Domestic Institutional Investors (hereinafter, "DIIs")—comprising pension funds, sovereign wealth funds, insurance companies, mutual funds, endowment funds, hedge funds, private equity, index funds, and exchange-traded products (ETFs/ETPs)—collectively manage significant long-term assets. Investing in domestic markets presents numerous advantages: it mitigates exposure to foreign exchange fluctuations and the associated risks, while also fostering economic growth and development. This influence extends beyond infrastructure improvements, crucially enhancing the local financial sector and capital markets. Thus, reallocating just 1-2% of assets from insurance companies, pension funds, and sovereign wealth funds could significantly finance the investment gap, utilizing debt and equity instruments to promote sustainable finance.

Sustainable finance tools have advanced significantly, offering investors a growing array of instruments to align portfolios with ESG goals while managing long-term risk. Sustainable labeled bonds and sustainability-linked loans now offer reliable means to fund projects that deliver clear environmental or social benefits. In 2024, the world's annual issuance of sustainable bonds totaled $1.3 trillion, with a cumulative issuance of $6.2 trillion to date. The green bonds issued dominate the overall market, accounting for 69% in advanced markets and 66% in emerging markets (World Bank, 2025). Additionally, in 2023, the number of sustainability-themed funds worldwide reached 7,485, more than 4 times the 2014 figure, and their asset value reached nearly $3 trillion. Sustainable investment funds remain geographically concentrated, with Europe and the United States accounting for 73% and 9% of the global market, respectively (UN, 2024). The value of Europe's assets is approximately $2.5 trillion, representing 85% of the market.

In the past decade, there has been a notable consolidation of the ESG disclosure ecosystem, with enhancements and standardization of ESG data, driven by regulatory mandates and investor demand for transparency. Currently, among the 5,800 companies in the 100 largest companies in 58 countries, 79% report on sustainability (KPMG, 2024), a notable increase from 40% a decade ago (KPMG, 2022). Moreover, sustainable stock indices such as the DJSI, MSCI, and S&P play a crucial role for investors aiming to incorporate sustainability into their strategies by promoting transparency and encouraging companies to improve their ESG performance. Furthermore, advancements in digital technology, such as AI and blockchain, enhance transparency and traceability, thereby

increasing investor confidence and paving the way for the future increase of sustainable investments.

Despite positive trends in sustainability investment globally, emerging markets and developing economies (EMDEs) face significant challenges due to the growing investment gap needed to achieve the 2030 goals. According to the World Investment Report, 2023, published by the UN, the annual SDG investment gap in these countries has increased from $2.5 trillion in 2015 to approximately $4 trillion in 2023. Significant gaps persist in energy, as well as in water and sanitation, transportation, telecommunications, food and agriculture, biodiversity, health, and education, and EMDEs require greater efforts relative to their economies' size to close these gaps. For instance, when comparing the capital spending in physical assets required under net-zero 2050 scenarios, emerging economies need 9.8% of GDP, compared with 5.9% in other economies (Mckinsey & Company, 2022).

Mobilizing capital for sustainable sectors in EMDEs is far from straightforward. There is a significant structural gap between the financing needs, estimated at $4 trillion annually, and the available supply of domestic savings, as well as public foreign and multilateral finance within these economies (Fritsch and Garcia, 2024). This gap poses challenges for many of these countries to self-finance the achievement of the SDGs. Nevertheless, they have made considerable progress in de-risking financial instruments to attract foreign investment. The use of sustainability-labeled bonds issued in hard currency, partial credit guarantees, and grants backed by Multilateral Development Banks (MDBs) has become increasingly common (Climate Policy Initiative, 2024). Moreover, some governments have turned to currency hedging instruments, albeit often at a significant cost, to mitigate foreign exchange volatility and foster a more secure environment for international investors (e.g., Eco Invest Brasil Program, launched in 2024).

Public policy and regulation can play a pivotal role in unlocking the participation of DIIs in EMDEs, helping to address persistent constraints that have limited the scale and effectiveness of private sector finance, both local and foreign. These constraints encompass supply- and demand-side barriers, macro-financial volatility, and microeconomic inefficiencies, as well as deeper systemic issues such as unattractive risk-return profiles in nascent markets, the enduring dominance of fossil fuel investments, and widespread data limitations that erode investor confidence (Prasad et al., 2022). The gap between the risk-return profiles of development projects and institutional investor expectations, along with limited ESG integration capacity, discourages participation. Regulatory constraints complicate engagement, as many development institutions face outdated mandates, unclear fiduciary guidance on sustainable investing, and restrictions on asset classes. These challenges hinder the mobilization of long-term domestic capital.

This report identifies the key drivers behind sustainable investments from the perspective of domestic institutional investors (DIIs), based on case studies from Chile, Indonesia, and South Africa. It then distills these insights into actionable policy roadmaps aimed at supporting the development of sustainable investment ecosystems in EMDEs, which target two core stakeholder

groups: i) financial regulators and ii) the governments. For financial regulators—including securities authorities and central banks—the roadmap recommends a set of regulatory and supervisory tools to promote sustainable finance. For EMDE governments, the roadmap outlines broader policy measures and enabling conditions that can create direct and indirect incentives for sustainable investment, aligning national development objectives with long-term climate and sustainability goals.

Report Methodology

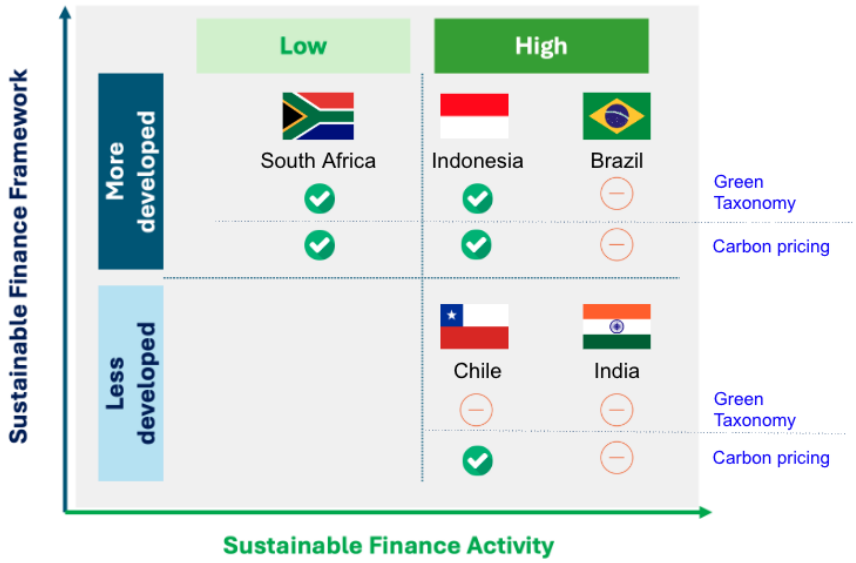
In 2024, the sustainable bond market continued its growth trajectory, with annual issuance reaching US$1.1 trillion—a 5 percent increase compared to 2023. Cumulative issuance now stands at US$6.1 trillion. Regarding EMDEs, the labeled sustainable bond issuance also reached a milestone, with cumulative volumes surpassing US$1 trillion.

Against the backdrop of this expanding market, this project explores potential pathways for enhancing the participation of domestic institutional investors in sustainable finance within EMDEs. Drawing on case studies of Chile, Indonesia, South Africa, India and Brazil, it identifies key levers—including best practices, public policies, and incentive structures—that have played a critical role in fostering sustainable finance ecosystems across countries.

To select the case studies, several EMDEs' regulations and practices on sustainable finance in the past decade were examined, excluding China. The former was analyzed using a relative grade of development of the sustainable finance framework based on the Analysis of the Sustainable Banking and Finance Network (SBFN, 2024). The SBFN's framework is built on a platform that allows members (72 countries – including 59 regulators and 37 energy associations) to report their policy developments in real time, tracking progress based on:

i) ESG integration;
ii) Climate – and Nature-related Risk Management;
iii) Financing Sustainability.

All five selected countries are either in the implementation phase or progressing towards maturity. In contrast, the level of engagement in sustainable finance, assessed by the cumulative volume of green bonds issued from 2012 to 2023, reveals that four out of the five countries rank among the top ten issuers globally.



Source: Authors based on SBFN (2024) and IFC and Amundi (2024).

The selection of countries was influenced by additional considerations such as geographic diversity, population, and market size, as well as varying responses to regulatory actions in sustainable finance. These factors are evident in the scale and nature of their sustainable financial activities.

To enhance our understanding of the current landscape of sustainability finance, we conducted a series of interviews with local investors, asset managers, regulators, consultants, policy analysts, and experts in the field. Their insights proved invaluable in helping us prioritize the chosen drivers and better understand how their examples could be adapted to various emerging market contexts.

While an ideal scenario would have included more detailed data on portfolio allocations and the performance of investors in domestic ESG initiatives, much of the information regarding current concerns and challenges was gathered anonymously. Consequently, this report is based on conclusions drawn from handwritten notes taken during our primary observations.

In conclusion, we have envisioned sector-specific cases for countries that lack established sustainable finance frameworks. Within this context, the proposed roadmap begins by assessing the prerequisite conditions of each country, then progresses to specific tools that foreign entities could employ to encourage domestic institutional investors to engage in sustainable finance.

I. The DII Landscape in Emerging Markets

Domestic institutional investors, including pension funds, insurance companies, and mutual funds, play a central role in financing long-term development and climate transitions in Emerging Markets and Developing Economies. However, despite managing increasingly large asset pools, their participation in sustainable finance remains limited. This gap stems from a combination of market structure constraints, regulatory ambiguity, underdeveloped ESG frameworks, and competition from more established asset classes. Addressing these issues is essential to mobilizing domestic capital for resilient and inclusive growth. The following are some of the barriers that DIIs might face when deciding their portfolio allocation:

i. Product competition

DIIs often allocate to safer, higher-yielding traditional products rather than sustainable finance instruments. According to portfolio theory, investors maximize returns for a given level of risk, making high-yield government bonds or fixed deposits attractive substitutes for green investments. In countries such as Brazil and India, high-yielding government bonds and fixed deposits offer predictable, liquid, and often inflation-protected returns, creating a strong incentive for DIIs to avoid less familiar or riskier green instruments (World Bank, 2017).

In addition, fiduciary responsibility requires institutional investors to act in the best interest of beneficiaries, typically prioritizing stable, risk-adjusted returns. This legal and ethical obligation constrains DIIs from taking risks on less-proven asset classes without compelling evidence of risk-return. Behavioral economic theory provides additional insights, indicating that loss aversion and familiarity bias (Kahneman & Tversky, 1979; Huberman, 2001) often dissuade trustees from exploring sustainable finance unless green investments can demonstrably match conventional assets in terms of expected returns. As a result, the conservative mandates of domestic institutional investors, combined with international arbitrage opportunities and a general risk aversion, further contribute to the underallocation to sustainable finance.

ii. High foreign investor dominance

Sustainable finance markets in emerging markets and developing economies have drawn interest from foreign investors, while DIIs have largely remained on the sidelines. One possible explanation for this trend is that foreign investors dominate the landscape due to their specialized knowledge, diversified portfolios, and greater capacity to tolerate illiquidity. In contrast, EMDE-based DIIs often lack familiarity with or research capabilities regarding innovative green products, leading them to rely on established instruments like sovereign bonds or traditional equities. Meanwhile, global investors, driven by ESG mandates, are becoming early adopters of green bonds and sustainable infrastructure funds.

This foreign dominance can create market distortions and volatility, making the achievement of the SDGs more challenging. Bekaert and Harvey (2000) highlight how capital market liberalization in developing countries often leads to volatility when domestic investor bases are underdeveloped. As such, strengthening DII capacity to co-invest alongside foreign capital is not only a matter of inclusivity but one of systemic stability for EMDE sustainable finance.

iii. Credibility gaps in sustainable finance

The credibility of sustainable investments remains a major barrier. Agency theory and Inderst's (2021) analysis both demonstrate that concerns regarding greenwashing, weak governance, inconsistent reporting, and limited third-party verification erode trust among institutional investors. In many EMDEs, a lack of independent verification and limited climate data make it difficult for DIIs to validate environmental claims, leading to a systemic credibility gap.

While we recognize that sustainable investments extend beyond just green investments, the term "greenwashing" is frequently used to describe superficial actions that lack genuine substance in environmental, social, and governance reporting. In this context, the credibility gaps are broader than those solely related to insufficient climate data, impacting a wider range of issues within sustainable finance ecosystems.

iv. Limited ESG integration

Most DIIs in EMDEs have not yet fully integrated ESG considerations into their core investment processes. A lack of ESG expertise, internal capacity, and alignment with risk management frameworks remains a major bottleneck (World Bank, 2022). Theoretical work in sustainable finance suggests many investors require clear evidence that ESG integration will either improve returns or reduce risk (Heinkel, Kraus, & Zechner, 2001; Friede, Busch, & Bassen, 2015).

This contributes to what might be called an ESG adoption gap – without standardized evidence that ESG pays off, domestic institutions stick to traditional methods. Ultimately, stakeholder theory posits that institutions will reflect the priorities of their stakeholders. If local pension beneficiaries or retail investors have low awareness or demand for ESG, institutional investors are unlikely to prioritize it. As global norms continue to diffuse, one can expect this barrier to diminish. However, currently, the lack of an ingrained ESG culture and clear short-term financial incentives explains why ESG integration by DIIs in EMDEs remains limited.

Box 1.1 ESG Integration Progress of UN PRI Signatories (Firm Level) in Select Markets (2020)

	Sample Size	Does Investmet Policy Cover Responsible Investment Approach?	Does Investment Policy Cover ESG Incorporation Approach?	Does Investment Policy Cover Active Ownership Approach?
Canada	121	6%	36%	32%
United Kingdom	308	6%	42%	36%
United States	374	8%	40%	28%
Germany	82	7%	37%	24%
China	16	0%	44%	38%
Average	**180**	**5%**	**40%**	**32%**
India	2	50%	100%	100%
Brazil	37	3%	35%	19%
Chile	6	0%	33%	33%
Indonesia	2	0%	0%	0%
South Africa	48	6%	31%	29%
Average	**19**	**12%**	**40%**	**36%**
Average (Excl. India)	**23**	**2%**	**25%**	**20%**

Source: PRI dataset (2020).

v. Lack of standardization and data quality

Non-standardized sustainable finance products could be a significant barrier to incentivizing DIIs participation. In markets characterized by information asymmetries and a lack of verifiable quality markers, investors systematically discount or avoid all products, fearing adverse selection. In the context of sustainable finance, this translates into green bonds, ESG funds, or climate equity offerings being shunned by DIIs unless supported by robust external validation, assurance mechanisms, or independent third-party certification.

Higher information risk not only deters investment but also raises the cost of capital. Easley and O'Hara (2004) demonstrate that when investors face greater information uncertainty, they demand higher returns as compensation, thereby discouraging institutional demand for assets perceived as opaque or inconsistent. In many EMDEs, ESG data coverage remains restricted to a small pool of large-cap issuers, leaving vast segments of the economy outside the analytical scope of sustainable investing and further limiting diversification opportunities for DIIs.

Ultimately, without standardized products and data, DIIs operate in a high-friction environment- they spend more resources on due diligence and risk management. Coordination theory suggests that standardized frameworks and reporting norms are public goods essential for market development. Until such standards mature in EMDEs, DIIs will remain cautious toward large-scale sustainable investment.

vi. Regulatory ambiguity or misalignment

Uncertain or inconsistent regulation raises compliance risks and discourages DIIs from investing in sustainable finance. Investment under uncertainty theory predicts that ambiguous environments create an "option value of waiting," leading investors to delay commitment. In EMDEs, unclear fiduciary guidance on ESG, frequent changes to tax or investment laws, and inconsistent application of green finance frameworks create exactly such uncertainty.

Policy uncertainty has empirically been shown to reduce corporate and financial sector investments (Baker, Bloom, & Davis, 2016). A noticeable dynamic emerges when DIIs hesitate to invest in green or infrastructure projects due to fluctuating regulatory signals. Furthermore, inconsistencies between sector-specific regulations, such as prudential rules that restrict illiquid assets, conflict with policy-driven targets for green investment. This situation compels DIIs to choose between maintaining liquidity compliance and pursuing sustainable finance objectives. Climate finance policies and sustainable development strategies increasingly urge DIIs to mobilize capital toward long-term green infrastructure, clean energy, and resilience projects—asset classes that are inherently illiquid by nature. This regulatory tension forces DIIs into a trade-off: complying with liquidity rules limits their ability to meet environmental investment objectives, while exceeding recommended exposures to illiquid assets could breach prudential regulations and fiduciary duties.

In the absence of a predictable legal framework, the cost of navigating regulatory ambiguity deters DIIs from innovating or allocating to sustainable finance. This regulatory risk premium can only be reduced through coordinated reforms that clarify fiduciary duties, harmonize green finance regulations, and provide regulatory incentives (e.g., lower capital charges) for sustainable investments.

II. Key Tools for Financial Regulators in Emerging Markets

Institutional investment is influenced by a variety of financial and economic regulations, and this report further explores ways to enhance that ecosystem. The main regulatory body that Domestic Institutional Investors (DIIs) engage with is the securities regulator, making it essential to emphasize its role. Additionally, central banks establish key standards that impact the flow of capital among major monetary and financial institutions. Below, we highlight several drivers identified in the overall findings that financial regulators can implement.

i. Disclosure Mandates

Disclosure mandates are vital for enhancing transparency in emerging financial markets. These requirements compel financial institutions to disclose risks, particularly those related to climate change and environmental, social, and governance (ESG) factors. By instituting regular, standardized disclosures, regulators aim to bolster market stability and boost investor confidence. This framework aids in identifying systemic risks and aligns financial flows with sustainability objectives. For example, Chile's General Ruling No. 276 mandates that pension funds disclose how they incorporate ESG standards and climate-related risks into their investment portfolios. Likewise, India's Business Responsibility and Sustainability Report (BRSR) and Indonesia's OJK Regulation No. 51/POJK.03/2017 establish stringent disclosure standards for publicly listed companies and financial institutions, promoting transparency and accountability.

Integrating "climate/sustainability"-related risks into conventional disclosure practices—not as an exception but as a standard—will facilitate investors in pricing both the benefits and costs that markets have previously overlooked concerning sustainability and climate change. A pricing signal from investors serves as a robust indicator for companies and market participants to follow suit.

ii. ESG Stewardship Requirements

ESG stewardship requirements represent another critical tool for financial regulators in promoting sustainable finance. These mechanisms impose obligations on domestic institutional investors, such as pension funds and insurance companies, to actively monitor and engage with the companies in which they invest, particularly on ESG matters. This approach encourages long-term value creation by leveraging investors' rights as stakeholders.

In practice, ESG stewardship involves activities such as voting on shareholder resolutions, engaging in dialogue with company management to enhance ESG performance, and participating in the formulation of corporate ESG strategies. For example, India's Securities and Exchange Board (SEBI) has introduced a stewardship code for mutual funds, pension funds, and insurance companies, requiring them to publicly disclose their stewardship policies and regularly report on their engagement activities. In South Africa, the Code for Responsible Investing in SA (CRISA) similarly mandates active ownership and ESG engagement by institutional investors, with the Government Employees Pension Fund (GEPF) requiring asset managers to address critical issues

such as climate risk, diversity, and executive compensation. These frameworks exemplify how emerging markets can drive institutional investors from passive strategies toward active engagement in sustainability, aligning financial performance with long-term societal goals.

iii. Climate/Sustainability Risk Stress Testing

1. Mandates

Regulatory mandates are crucial for ensuring that financial institutions consistently account for climate risks. For instance, the SARB is an active member of the Network for Greening the Financial System (NGFS) and has integrated climate risk assessments into its financial stability framework. Similarly, the Central Bank of Brazil has published climate-related supervisory expectations, while Bank Indonesia is evaluating the incorporation of green criteria in macroprudential tools and reserve requirements. These efforts reflect a broader shift toward integrating climate resilience into financial supervision and regulatory oversight.

2. Technical Capabilities

Climate risk stress tests are essential tools for evaluating the resilience of financial institutions to climate-related shocks. They help regulators assess the potential financial impact of climate risks and guide institutions in managing their exposures. These exercises often involve scenario analysis and stress-testing methodologies to assess the financial system's preparedness for extreme weather events, carbon pricing, and transition risks – often requiring training and data availability.

Central banks play a pivotal role in sustainable finance by acting as market actors, risk managers, and policy influencers. They can manage systemic risks arising, channel funds into sustainable investments, and leverage their expertise to promote behavioral change among financial institutions.

III. Identification of Key Drivers for Sustainable Finance in Emerging Markets

In alignment with the methodology presented, we have conducted an in-depth exploration of the current landscape of Domestic Institutional Investors in the selected countries. This involved not only a thorough literature review but also several interviews to gain insights into what is currently regarded as an effective tool for guiding local institutional investors toward sustainable finance.

The context of policies and proposals can vary significantly among emerging markets. Therefore, our selection of countries allows us to offer a generalized understanding of the key drivers, provide a classification based on our examples, and ultimately analyze their specific relevance for emerging markets and developing economies.

We have identified several key drivers that directly influence DII behavior, including disclosure mandates, investment mandates & ESG stewardship, fiscal incentives for sustainable investment, and blended finance de-risking tools. Additionally, we categorize the ecosystemic and shaping reforms that indirectly promote DII investments in sustainable finance by enhancing the overall environment for sustainable-related investments. In this context, we have noted the existence of green taxonomies, green central banking & prudential regulation, the improvement of project pipelines and public-private partnership programs, and pricing externalities, like carbon markets, as indirect drivers.

i. Direct Drivers

Investor facing tools, designed to influence DII behavior.

1. Disclosure Mandates: Standarize ESG reporting and transparency

A fundamental discourse surrounding sustainable finance has been closely tied to the transparency mechanisms employed by financial institutions and institutional investors to disclose their sustainable risks and opportunities, as well as their incorporation of sustainability into investment processes. The drive for enhanced disclosure is based on the implicit belief that if risks are thoroughly disclosed, financial entities will respond rationally and, in a manner, consistent with the public interest (Ameli et al., 2019).

While the integration of ESG components has proven to be a valuable tool globally, the lack of standardization in concepts and tracking mechanisms has raised concerns. In the context of emerging markets, increased disclosure standards would enhance market transparency and accountability, facilitating comparability among financial actors and encouraging domestic institutional investors to establish their own ESG strategies.

In emerging markets and developing economies, ESG information is particularly crucial, as noted by Boston Common Asset Management (2021). In these regions, market inefficiencies and

information asymmetry are prevalent, rendering high-quality ESG data an "informational edge" for active investors looking to identify long-term growth opportunities. Many EMDEs also display weaker corporate governance compared to developed markets, marked by less board independence, lower transparency, and a higher concentration of state-owned enterprises. While ESG metrics have seen significant improvements and data providers like MSCI, Sustainalytics, and Bloomberg have standardized and quantified ESG factors, enabling investors to reallocate capital, more accurately assess long-term risks, and evaluate sustainability performance, there is still a lack of widely adopted standards. Furthermore, the disclosure of ESG standards may be subject to a variety of criteria.

In this context, the International Financial Reporting Standards (IFRS) and the International Sustainability Standards Board (ISSB) aim to facilitate global digital reporting of sustainability-related financial disclosures. These frameworks present a promising mechanism for many entities, supported by their guidelines and the recently released Sustainable Disclosure Taxonomy (April 2024), along with IFRS S1 on “General Requirements for Disclosure of Sustainability-related Financial Information” and S2 on “Climate-related Disclosures.” Specifically, the adoption of these standards would greatly benefit DIIs by providing a more global and context-specific measurement tool for their sustainable investments.

Examples of initiatives undertaken by developing countries to enhance ESG reporting include the "Green Agreement" led by Chile’s Ministry of Finance, resulting in General Ruling Nº276, which mandates pension funds to disclose the incorporation of ESG standards and climate-related risks into their portfolios. In India, the Securities and Exchange Board of India (SEBI) has implemented the Business Responsibility and Sustainability Report (BRSR) for the top 1,000 listed firms, standardizing ESG reporting across sectors. Additionally, Indonesia’s OJK Regulation No. 51/POJK.03/2017 requires sustainability reporting by financial institutions and listed companies.

2. Investment Mandates & ESG Stewardship Requirements

A significant driving force behind sustainable finance is the implementation of direct investment mandates and the requisite ESG stewardship obligations that can be imposed on domestic institutional investors, such as pension funds and insurance companies. This mechanism pertains to the responsibilities surrounding the monitoring, engagement, and potential influence these investors exert on the companies in which they invest, particularly concerning ESG matters.

Practically, ESG stewardship encompasses activities such as voting at shareholder meetings on resolutions related to ESG issues, engaging in dialogue with company management to enhance ESG performance, and being involved in the formulation of the company’s ESG strategy and monitoring mechanisms. The overarching aim of this framework is to promote the integration of ESG practices, thereby fostering long-term value creation by leveraging investors' rights and their influence as stakeholders.

An illustrative example of mandated ESG stewardship can be observed in India, where the Securities and Exchange Board of India (SEBI) introduced a stewardship code applicable to all mutual funds, Category I and II investment funds (AIISFs), as well as insurance companies and pension funds governed by PFRDA or IRDAI. This code mandates that institutional investors actively monitor and engage with the companies in which they invest on various governance and ESG issues, addressing matters such as strategic direction, performance, remuneration policies, capital structure, and both social and environmental considerations, along with the rights of shareholders.

Moreover, the Indian stewardship framework requires these investors to publicly disclose their stewardship policies and to periodically report on their engagement activities. They are expected to identify and rectify any ESG concerns that arise and to collaborate with fellow investors when appropriate to strengthen their strategies. For instance, HDFC Mutual Fund has disclosed its proactive engagement with firms in the energy and cement sectors regarding climate-related disclosures and has voted on ESG-related shareholder resolutions.

In a similar context, South Africa's Code for Responsible Investing in SA (CRISA), first introduced in 2011 and revised in 2022, aligns its initiatives with the Indian stewardship model. The Government Employees Pension Fund (GEPF), which is the largest pension fund in Africa, requires its asset managers to engage with companies on critical issues such as climate risk, diversity, and executive compensation, while also releasing an annual report detailing ESG-linked shareholder engagements and resolutions.

These examples exemplify how emerging markets and developing economies (EMDEs) can establish regulations that encourage domestic institutional investors to transition from passive investment strategies to active engagement in sustainability standards.

3. Fiscal Incentives for Sustainable Investments

Lastly, the third direct driver we identified is the array of fiscal incentives and tax benefits available. While not all economies are in a robust fiscal position to support extensive benefits aimed at incentivizing investments, there are examples among Emerging Markets and Developing Economies that have implemented measures such as accelerated depreciation or tax breaks for investors in renewable energy to stimulate domestic investments.

Tax deductions, exemptions, or special treatments should be proposed and analyzed with care prior to implementation. If effectively executed, these mechanisms can help mitigate illiquidity concerns or perceived risks associated with sustainable investments. Additionally, they may lower entry barriers for Domestic Institutional Investors (DIIs) exploring new green asset classes, thus fostering the development of sustainable infrastructure projects. It is noteworthy that while many examples cited in the study pertain to infrastructure and green asset classes, fiscal incentives could be more broadly applied across various sustainable finance initiatives.

In India, for instance, tax exemptions and reductions have been introduced for infrastructure bonds (Jena et al., 2018). Chile has also provided tax breaks for solar and wind infrastructure, alongside favorable tax treatments under its green bond framework (Reymond et al., 2020). Furthermore, Indonesia has offered Sharia-compliant tax exemptions for green sukuk bonds, enhancing their appeal to ESG investors (Ministry of Finance, 2018). However, the uptake among local investors remains variable, highlighting the necessity of pairing tax relief with investment-grade returns and ensuring regulatory alignment.

In South Africa, section 12B of the Income Tax Act allows for accelerated depreciation on renewable energy investments, which has helped spark early private sector interest in solar and wind projects under the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP). This, in turn, has indirectly benefited institutional investors who later entered the market through yieldcos or infrastructure funds (Eberhard et al., 2014).

In Brazil, a significant new opportunity has emerged through the enactment of Law No. 14,801/2024. The law creates a new class of Infrastructure Bonds with tax benefits ("Debêntures de Infraestrutura"), designed to mobilize long-term capital—both domestic and international—for infrastructure and innovation projects deemed a priority by the Federal Executive Branch. Issued through public offerings, these debt securities must originate from special purpose entities (SPEs), concessionaires, permit holders, authorizers, or lessees organized as joint-stock companies or their controlling entities. The proceeds must be allocated to qualifying infrastructure or R&D-intensive economic production projects. A distinguishing feature of these bonds is the tax benefit granted to the issuer rather than to the investor: in addition to the standard deduction of interest expenses, the issuer may exclude 30% of the interest paid on these bonds from its Corporate Income Tax (IRPJ) and Social Contribution on Net Profit (CSLL) bases. This benefit applies for five years, subject to annual budget review under the Budget Guidelines Law (LDO). The goal is to improve issuers' after-tax returns and thereby enable them to offer more attractive interest rates, enhancing the bonds' risk-adjusted yield and drawing in larger institutional investors such as pension funds, which are underrepresented in Brazil's infrastructure financing landscape.

It is important to emphasize that the new bonds do not replace the existing Tax-Free Bonds (Debêntures Incentivadas) established under Law No. 12,431/2011, which remain effective and continue to provide individual investors with a zero-income tax rate. A significant innovation is the law's flexibility regarding foreign currency: issuers can link bonds to exchange rates or create mirror bonds overseas, facilitating fundraising in hard currencies and enhancing appeal to global investors. Additionally, the law streamlines the allocation of proceeds by permitting the reimbursement of project expenses incurred up to 60 months prior to the offering date—this process will be gradually phased in through 2027—affording issuers greater flexibility in capital deployment.

Furthermore, Decree No. 10.387/2020 outlines the criteria for classifying infrastructure projects as priorities for financing through incentivized debentures. Notably, it includes socio-environmental projects across various sectors, such as urban mobility, energy, basic sanitation, and isolated or

informal urban areas, thereby promoting investment in green infrastructure. This decree establishes the regulatory framework necessary to align infrastructure financing with environmental and social development objectives.

4. De-Risking: Blended Finance & Responsible Guarantees

Blended finance and responsible guarantees serve as de-risking tools that strategically utilize concessional capital, public guarantees, and first-loss mechanisms to enhance the risk-return profile of sustainable investments, thereby attracting private capital to sectors that might otherwise be deemed too risky. Typically employed by development banks, donor agencies, or sovereign investment platforms, these instruments mitigate credit, liquidity, and policy risks, allowing commercial and institutional investors to engage in sustainability-linked infrastructure and innovation.

These strategies are particularly essential in emerging markets and developing economies (EMDEs), where early-stage or frontier sectors—such as climate adaptation, nature-based solutions, sustainable agriculture, and the circular economy—often lack a well-established financial ecosystem. They play a crucial role in addressing first-mover risks in new or undercapitalized areas, encourage domestic institutional investors to venture beyond traditional asset classes like sovereign bonds or blue-chip infrastructure, and enhance the financial viability and bankability of green projects by lessening risk exposure for senior capital while improving access to long-term, affordable financing.

Efforts in this field include for example, the CORFO funding, where Chile, through its national development agency, provides concessional loans, guarantees, and co-financing schemes to stimulate green investment, particularly in clean energy and green hydrogen. CORFO also partners with international climate finance institutions to deploy risk-sharing mechanisms for private investors. Additionally, initiatives like the *Green Climate Fund's junior equity position* in projects such as *Espejo de Tarapacá* have enabled private sector participation by covering higher-risk tranches.

In the case of Brazil, the Brazilian Development Bank (*BNDES*) plays a central role in blended finance by offering green credit lines and co-investment structures for climate-aligned projects. Initiatives such as the *Guarantee Fund for Biogas (GFB)* provide short-term, publicly backed guarantees to help small and medium-sized developers meet collateral requirements. These structures mobilize private debt and equity while absorbing part of the downside risk through public or donor capital.

Other examples are, for instance, India's *National Investment and Infrastructure Fund (NIIF)* and its *Partial Credit Guarantee Fund,* which use public capital to anchor blended vehicles and support infrastructure bonds by enhancing their credit ratings. These efforts have made green assets eligible under domestic institutional investment rules, especially for insurance and pension funds with strict

investment/portfolio allocation mandates. In the case of Indonesia, the *SDG Indonesia One* platform, managed by PT SMI, integrates donor, government, and private capital into coordinated funds, most notably a *De-risking Facility* that offers guarantees, subordinated debt, and concessional loans. This mechanism has already supported a portfolio of projects across mini-hydro, waste-to-energy, and water infrastructure.

Finally, the *Climate Finance Facility (CFF)*, hosted by the Development Bank of Southern Africa, provides subordinated loans and mezzanine finance to climate-aligned infrastructure projects. By occupying the riskiest tranche, the public sector improves project bankability and encourages participation from commercial banks and institutional investors. In parallel, government-backed Power Purchase Agreements (PPAs) under Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) offer long-term revenue certainty, further de-risking investments.

ii. Indirect Drivers

Ecosystem shaping form enabling a sustainable finance investment environment.

1. Green Taxonomies

The findings from recent research underscore the importance of clear and transparent information regarding sustainable investments, particularly in emerging markets. Such clarity is essential for enhancing the traceability of sustainable investments and mitigating the risks of greenwashing. Additionally, transparency serves to strengthen the systemic initiatives undertaken by nations to promote sustainable finance.

Green Taxonomies are pivotal frameworks that establish national or regional classification systems, such as that of the European Union, which delineate which economic activities qualify as sustainable or are on a path toward sustainability. The standardization and harmonization of definitions and categorizations, inherent in these taxonomies facilitates the alignment of sustainable finance practices, diminishes the incidence of greenwashing, boosts investor confidence, and potentially aligns domestic investments with internationally accepted norms, thereby attracting both local and foreign capital.

While several countries have successfully implemented their own taxonomies, others remain in various stages of development. Nevertheless, there is a consensus among experts, asset managers, investment funds, and banking institutions regarding the significant advantages afforded by the establishment of a clear framework within their respective countries. Prominently, some international banks operating in developing regions, such as Banco Santander in Chile, adhere to the European Union Green Taxonomy and subsequently create specific standards that foster a consistent international investment milieu.

Additionally, a 2017 report by the United Nations on sustainable development within Chile's banking system revealed that 72% of banks identified the lack of clear signals from the nation's financial, environmental, and economic regulators as a principal barrier to the adoption of sustainable development practices. In response to this challenge, the Chilean Ministry of Finance is set to publish the national green taxonomy, termed "TMAS." This voluntary framework is predicated upon six environmental guidelines and social safeguards. For entities to be categorized under the TMAS taxonomy, they must make significant contributions to one environmental objective, avoid detrimental impacts on other environmental objectives, and adhere to minimum social safeguards.

Similarly, the TKBI – Indonesian Green Taxonomy serves as a guiding framework that classifies economic activities as green, transitional, or non-sustainable, thereby directing investment priorities. Furthermore, it is noteworthy that the Brazilian Taxonomy Plan is integral to the government's broader climate and financial reform agenda, highlighting the increasing recognition of the necessity for structured approaches to sustainable finance across emerging markets.

Finally, in January 2025, Brazil initiated the public consultation of the Brazilian Sustainable Taxonomy (TSB). The TSB aims to provide both domestic and international investors with a clear framework for identifying which products or operations qualify as sustainable in the context of investing in the country. It is also designed to support investors in recognizing sustainable practices for disclosure purposes and in accessing targeted financing mechanisms, such as credit lines or bond issuance. Additionally, the TSB offers guidance on best practices in key sectors like energy and land management. In addition, the TSB will play a strategic role in advancing Brazil's Ecological Transformation Plan (PTE) by channeling financial flows into economic sectors that support the achievement of the Sustainable Development Goals (SDGs) (Bezerra, et al, 2024). The Brazilian Federation of Banks (Febraban) launched a Green Taxonomy in 2015, classifying economic activities by their sustainability impact and environmental risk exposure, using Brazil's official economic activity classification (CNAE). In 2019, the taxonomy was updated to include data from the Central Bank's Credit Information System, enabling system-wide analysis of credit to legal entities. Febraban's current framework categorizes financial activities into three areas: green economy, climate change exposure, and environmental risk exposure (Governo Federal Brasil, 2023).

2. Green Central Banking and Prudential Regulation

The role of the banking sector is fundamental in the global context, and for the goal of this report, especially for the emerging markets' sustainable finance ecosystem. The integration of climate-related risks and sustainability objectives into central bank mandates, monetary policy frameworks, and supervisory practices could drive more domestic institutional investments. According to the European Parliament Think Tank, central banks have three main reasons to be featured as an important actor when discussing drivers for sustainable finance: "*First, they can manage risks to the financial system and the economy as a whole that arise because of climate change. Second, central banks have themselves become market actors and can help to channel funds into sustainable investments in order to finance the green transformation. Third, they share their expertise to encourage behavioural changes*."

The incorporation of climate risk stress testing, green macroprudential tools, and preferential refinancing or liquidity schemes would significantly enhance the ability of financial actors to invest in more sustainable frameworks. While the European Union has proposed creating transition plans based on net-zero emission scenarios, it is important to note that these plans may not always be specific or contextually relevant. They may also be based on aggregated data, which can lead to misestimating the alignment of the plans. Nevertheless, this experience should inform the implementation and guidance of climate risk stress testing and scenarios for integrating prudential regulation within the central banks of emerging markets.

Current examples include Brazil, where the Central Bank has integrated climate-related risks into its financial stability framework and has published climate-related supervisory expectations. Additionally, the South African Reserve Bank (SARB) has initiated climate stress testing for financial

institutions and is an active member of the Network for Greening the Financial System (NGFS). Finally, Bank Indonesia is evaluating the incorporation of green criteria in macroprudential instruments and reserve requirements.

3. Project Pipelines and PPP Programs

Public sector initiatives that identify, structure, and promote investment-ready projects are essential drivers of sustainable finance, especially in emerging markets and developing economies. These initiatives involve government-led efforts to establish standardized, transparent pipelines for infrastructure projects that align with national sustainability objectives, such as renewable energy, clean transportation, water management, and resilient urban infrastructure. By mitigating early-stage development risks and providing clear contractual frameworks, these initiatives make green and sustainable projects more bankable and attractive to a broader range of investors, including DIIS.

In EMDEs, such initiatives are particularly significant as they directly address two persistent challenges: the limited availability of investable, sustainability-aligned assets and the high transaction costs and risks typically associated with early-stage infrastructure projects. By enhancing the volume and quality of bankable projects, public initiatives help bridge the gap between available capital and project readiness. Furthermore, they empower domestic pension funds, insurance companies, and sovereign funds to invest locally, thereby supporting national economic development rather than redirecting savings to foreign markets. Although renewable energy remains a primary focus, similar public-private structuring approaches are increasingly being applied to sustainable transportation, waste-to-energy projects, water and sanitation, and nature-based solutions, reflecting the broader sustainability needs of EMDEs.

In addition to structuring public-private partnerships (PPPs), governments often implement price incentives, such as feed-in tariffs (FiTs), to stabilize revenue expectations for renewable energy projects during their early development stages. FiTs ensure fixed prices for renewable energy production over extended periods, thereby reducing revenue volatility and facilitating easier financing for developers. These price guarantees have played a crucial role in emerging markets by scaling initial renewable capacity and establishing a track record for further investments.

Some examples of our emerging markets analysis are relevant to understanding the scalability and impact of this driver, such as the *Renewable Energy Independent Power Producer Procurement Programme (REIPPPP)*, where, through competitive auctions offering standardized long-term Power Purchase Agreements (PPAs) backed by the government, South Africa created a credible, transparent pipeline for private investment in renewable energy. This structure attracted local pension funds and banks to finance solar and wind projects, particularly through secondary investment vehicles such as Revego Africa Energy.

Indonesia, through platforms such as the *Indonesia Investment Authority (INA)* and the *Indonesia Infrastructure Guarantee Fund (IIGF)*, sought to crowd in private capital for sustainable infrastructure, including renewable energy, urban transport, and water management. While initial project development was supported by fixed-price feed-in tariffs for sectors such as geothermal energy, more recent efforts rely on partial credit guarantees and blended finance instruments to enhance project bankability and attract institutional investment.

Another illustrative example is India's development of the *Infrastructure Investment Trusts (InvITs)* and the role of the *National Investment and Infrastructure Fund (NIIF)*. This is a strong approach to structuring investment-ready assets. Early adoption of feed-in tariffs for solar and wind projects, combined with viability gap funding for infrastructure, allowed India to create a robust portfolio of projects later bundled into investment vehicles. Today, the model is expanding into sectors such as water treatment and waste management.

Finally, Chile's public support for renewable energy auctions and its issuance of sovereign green bonds have helped to create standardized green project pipelines. Although challenges remain in scaling volume, the establishment of a *National Green Finance Strategy* and the promotion of structured finance vehicles are gradually enhancing opportunities across renewable energy, water, and urban resilience projects. Chile initially supported early renewable energy projects through price stabilization mechanisms before transitioning to competitive auctions, which continue to attract international and domestic investors.

4. Pricing Externalities

On a global scale, pricing systems significantly influence the revenues and costs associated with specific projects. It is well-established that externalities—representing the effects that the consumption, production, and investment choices of individuals, households, and firms have on those not directly involved in the transactions—can be considerable and problematic/harming. In the field of sustainable finance, if externalities are not included in the pricing system, the rate of return for any given project only reflects the private net benefits it generates, without accounting for the potential positive or negative impacts on society. As a result, if investors evaluate projects solely based on their returns, undesirable outcomes may arise due to the neglect of these externalities. While standards, commitments, and sustainability strategies are essential for considering impacts beyond the core business, it's important to note that returns remain the strongest incentive for influencing capital allocation decisions.

When the SDGs are analyzed in detail, we observe many associated externalities that the current world pricing system does not consider. For instance, the lack of proper sanitation and waste management systems leads to several negative externalities, including environmental contamination, health risks, and economic losses. Similarly, inadequate access to clean energy perpetuates air pollution and carbon emissions, while insufficient investment in education and healthcare results in lower productivity, higher inequality, and long-term social instability—costs

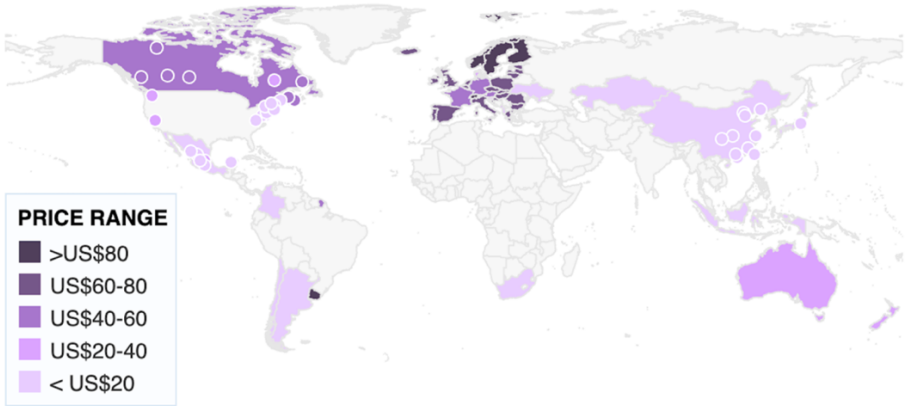
that are not reflected in market prices. These externalities represent hidden societal burdens that distort investment decisions and disincentivize long-term sustainable planning. Internalizing such externalities through mechanisms like carbon pricing or regulatory mandates can realign financial incentives with public welfare and support a more accurate valuation of projects aligned with the SDGs.

Given that the fifty percent of current investment gap to achieve SDGs is in the energy sector, this report focuses on carbon pricing policies that are key to internalize the externalities of greenhouse gas emissions, incentivize efficiency gains, reduce the reliance on fossil fuels, and spur innovation in less\ emission-intense technologies (World Bank 2024). The relatively low carbon pricing levels in EMDEs hinder their ability to act as a catalyst for sustainable finance - In the countries analyzed in this report Chile, South Africa have carbon pricing mechanisms and their carbon prices are among the lowest worldwide.

Climate policies are a prerequisite for enabling private finance. The relatively low carbon pricing levels in EMDEs hinder their ability to act as a catalyst for sustainable finance - In the countries analyzed in this report Chile, South Africa have carbon pricing mechanisms and their carbon prices are among the lowest worldwide.

Carbon pricing can play a crucial role in sustainable finance, since it combines economic incentives with climate goals by putting a cost on emissions through mechanisms such as carbon taxes and emissions trading systems. However, Carbon prices currently vary significantly on a country-to-country basis as there is no global carbon price. Additionally, the carbon pricing, carbon tax or emissions trading system (ETS), covered 24% of the world CO2e emissions - 19% ETS mechanisms. This is important to mention since businesses use internal carbon pricing to assess climate-related risks and uncover strategic opportunities, and long-term investors rely on it to evaluate policy impacts and shift capital toward low-carbon, climate-resilient assets.

Figure 1. Price of carbon around the world (US$/tCOe), 2024



Note: The Level of the main price is set by emissions trading systems or carbon taxes in each jurisdiction.
Source: World Bank Group - Carbon Pricing Dashboard

Voluntary carbon markets and offsetting mechanisms in major jurisdictions present opportunities to mobilize sustainable finance in EMDEs. However, realizing this potential requires addressing key challenges related to transparency, additionality, credit integrity, and regulatory harmonization. Brazil is an example in which, despite their potential to mobilize sustainable finance, mainly in relation with the protection of the Amazon forest, the sector still faces credibility concerns due to weak transparency, inclusion in decision-making related to local communities, inconsistent standards, and difficulties proving the additionality of carbon credits. Moreover, efforts to harmonize standards and create a unified market framework are necessary to facilitate scalability and interoperability within Brazil's and other carbon markets. Initiatives like the Brazilian Initiative for a Voluntary Carbon Market aim to promote high-integrity carbon credits and align domestic practices with international standards.

Advancing regulated carbon pricing—either by increasing carbon prices or expanding emissions coverage—can be a critical lever for mobilizing sustainable finance. However, competitiveness concerns and political economy constraints, including carbon lock-in, continue to pose significant obstacles to implementation.

Experts from Brazil and Chile, agree on the complementary role of carbon pricing in advancing sustainable finance. In December 2024, Brazil enacted Law 15.042, establishing the Greenhouse Gas Emissions Trading System (SBCE), with full implementation expected by 2026. The system's effectiveness in mobilizing sustainable finance will largely depend on the rules for allowance allocation and the gradual tightening of emissions caps to generate meaningful reductions. However, political resistance from sectors expected to bear the highest mitigation burden remains a key obstacle. In Brazil, agriculture and land-use change—including deforestation—account for approximately 74% of CO_2e emissions, making mitigation efforts in these sectors both essential and politically sensitive. In Chile, increasing the carbon tax has sparked debate—even within the environmental sector—due to concerns over economic competitiveness and potential trade impacts. These tensions are further amplified in an increasingly fragmented and uncertain global trade landscape.

IV. Country Case Studies

i. Chile

1. Country and Market Context for Sustainable Finance

Indicator	Value (2024)
GDP (nominal)	USD 336 billion
Market Capitalization	289.9% of GDP
Pension Fund Assets	~60% of GDP (post-COVID)
Sustainable Bond Issuance (Cumulative)	USD 33 billion (as of 2023)
ESG Mandatory Disclosure Start	2021 (General Ruling No. 276)
Green Taxonomy Launch	T-MAS (expected 2025)

Chile boasts one of the deepest and most sophisticated financial markets in Latin America, with total financial assets nearing 290% of GDP (IMF, 2023). Pension funds, despite experiencing asset shrinkage after pandemic-driven withdrawals, still hold around 60% of GDP in assets (OECD, 2022). Chile's role as a pioneer in sovereign sustainable finance is notable. Cumulative sustainable bond issuance, led by sovereign green bonds and sustainability-linked bonds (SLBs), surpassed USD 33 billion by 2023 (OECD, 2023). However, private sector participation in sustainable finance remains limited, largely constrained by a lack of investable projects and risk-averse investment behavior among institutional investors. The sustainable finance market remains heavily government-driven, with green bond issuance largely limited to sovereign issuers.

2. Key Policies and Instruments for Sustainable Finance

Chile's policy architecture for sustainable finance rests on a combination of climate legislation, financial sector coordination, and fiscal innovation. The Green Tax Reform introduced in

2017 and updated in 2022 applied carbon pricing across power, transport, and industrial sectors (OECD, 2023). The Framework Law on Climate Change (2022) sets binding targets for carbon neutrality by 2050 and sectoral carbon budgets (Gobierno de Chile, 2022).

The Green Agreement, a voluntary initiative led by Chile's Ministry of Finance, among regulators (CMF, BCCh), pension funds, banks, and insurers, seeks to align financial flows with sustainable development goals (CMF, 2021). With this agreement, all of the represented sectors have committed to elevating the standards toward sustainable finance and disclosure measures. It is worth highlighting that, in the case of Pension Funds as the main investors in Chile's capital market, they will "deepen" the risk and opportunities analysis of climate change and ESG-related investments, working towards a more standardized metric. Since 2021, they have already been mandated by General Ruling Nº 276 (SP, 2020) to disclose the amount of investments that fall under the category of ESG and climate change.

The Climate Financial Strategy (EFCC) aims to systematically integrate climate risk into financial sector supervision (Ministry of Finance Chile, 2022). Chile's Infrastructure Fund Law allowed pension funds to invest in structured vehicles with risk-sharing arrangements. Chile has also offered tax breaks to private developers and funds investing in solar and wind infrastructure, and its green bond framework provides clear tax treatment for investors in climate-aligned assets (Reymond et al., 2020). Furthermore, The T-MAS Taxonomy, expected 2025, will create a standardized green investment classification system (Ministry of Finance Chile, 2023). Chile was also the first country in the Americas to issue a sovereign green bond in 2019 (OECD, 2023), linking issuance to NDC commitments and ESG transparency best practices.

3. Domestic Institutional Investor Perception

Chile's institutional investors, especially the AFP pension funds, have gradually integrated ESG principles into their governance structures. Under General Ruling No. 276 (issued by the CMF), pension funds are required to disclose ESG-aligned investment considerations (CMF, 2021). AFPs have also voluntarily signed onto the Green Agreement, although ESG investment penetration in actual portfolio allocations remains low (OECD, 2022).

In this sense, whereas there have been efforts on disclosure mechanisms related to climate change investments, according to the publicly available reports, the amounts remain low in comparison to their investment capacities, and have experienced a low but consistent rise in the field. For instance, AFP Cuprum has gone from 0.4% in 2019 to 1.12% in 2023, whereas AFP Habitat has increased the sustainable finance allocations from 0.42% in 2019 to 1.00% in 2023.

Banks and insurers show improving disclosure efforts, mainly in line with TCFD principles promoted by CMF, but have been slow to build material green lending or investment portfolios (CMF, 2021). In this sense, as informed by our interviewers, strong signals are needed from the regulator. The implementation of the green taxonomies on a national level is awaited by everyone, but there

are realistic concerns on how this mechanism will effectively lower the cost of capital with the national uncertainties surrounding the investment sector.

Despite these advances, the bulk of sustainable finance activity remains concentrated in sovereign bonds, and asset managers as well as pension funds continue to prefer low-risk, high-liquidity assets. Concerns regarding risk and return in less mature sectors, such as adaptation and biodiversity, are seen as constraints. However, these areas also present significant opportunities for major investments. In this context, public-private partnerships could emerge as a crucial driver to encourage local sustainable investments.

4. Progress and Lessons

Independent evaluations from organizations like the OECD, IDB, and UNEP FI consistently commend Chile for its policy coherence, innovation, and regulatory leadership. Nonetheless, challenges persist in strengthening private sector involvement, integrating ESG considerations across all financial markets, and improving the availability of climate data. There is a need for ongoing development of transition finance tools, capacity-building initiatives, and regional collaboration to maintain momentum. Private sector sustainable finance remains shallow, with minimal green corporate issuance. The project pipeline is skewed heavily toward energy, with very limited green projects in adaptation, water, or agriculture sectors (OECD, 2023). The EFCC lacks a dedicated monitoring mechanism, risking uneven implementation (Ministry of Finance Chile, 2022).

Progress on the T-MAS green taxonomy has also been delayed, slowing the development of standardized benchmarks. Chile, despite its strong policy frameworks, has faced constraints due to a limited project pipeline and risk concentration among institutional investors. Without consistent large-scale infrastructure opportunities, the demonstration effect of earlier successes weakened.

These experiences underscore that even well-intentioned policy reforms can fall short if not paired with strong institutional capacity, depoliticized implementation, and active investor engagement. Policymakers should avoid overreliance on legal reforms without building technical expertise within institutional investors and ensuring predictable, transparent project pipelines. The presence of enabling investment vehicles must be complemented by measures to build confidence, such as risk mitigation tools, credit enhancements, and clear fiduciary standards for ESG investing (Saner et al., 2021).

Chile’s case shows how public sector leadership can position a country as a regional pioneer in sustainable finance, but long-term success will depend on building private sector investment channels, diversified project pipelines, and market-wide adoption of credible ESG standards.

ii. Indonesia

1. Country and Market Context for Sustainable Finance

Indicator	Value (2024)
GDP (nominal)	USD 1.4 trillion
Market Capitalization (IDX)	USD 680 billion (~48% of GDP)
Green Bond Issuance (Sovereign Sukuk)	USD 5 billion (since 2018)
Share of Institutional Assets in Finance	Insurance (12.6%), Pension (2.5%), Funds (3.5%)
Green Bonds in Total Market	~2% of outstanding bond market
Carbon Market Platform	IDXCarbon (launched 2023)

Indonesia is Southeast Asia's largest economy with a growing, though still shallow, capital market. The Indonesia Stock Exchange (IDX) supports over 900 listed companies, yet sustainable finance remains modest in scale and limited to state-led initiatives. Sovereign green sukuk issuance totaling USD 5 billion since 2018 demonstrates strong government leadership but has not translated into broader private sector replication.

Institutional investors are a minor part of the financial landscape—pension funds, insurance firms, and mutual funds hold a small share of assets relative to the economy. Pension assets, for example, equal just 7% of GDP, far below regional peers like Malaysia (60%). Regulatory mandates severely constrain flexibility: insurance firms must allocate 50% to government bonds, and overseas investments are capped.

ESG Investing in this sector is still in its nascent stages. ESG funds are experiencing growth, spearheaded by firms such as Mandiri Investasi and Bahana TCW, with the SRI-KEHATI index indicating early momentum. However, participation remains limited due to regulatory uncertainties, gaps in taxonomy, and a lack of sufficient project pipelines. The recently launched IDXCarbon platform and SDG Indonesia One demonstrate an intention to expand the market through carbon pricing and blended finance, although the adoption of these initiatives is still in development.

2. Key Policies and Instruments for Sustainable Finance

Indonesia has implemented a phased approach to sustainable finance regulation. In 2014, the Otoritas Jasa Keuangan (OJK, Indonesia Financial Service Authority) launched the Phase I of the Roadmap for Sustainable Finance in Indonesia for 2015–2019, with the launch of Phase II in 2021, stretching between 2021–2025 focusing on the banking sector's development with the aim of strengthening the sustainable finance ecosystem. According to the Sustainable Banking Finance Network (SBFN) and the International Finance Corporation (IFC), the Roadmap that has been developed through OJK emphasizes the vulnerability of Indonesia to climate-related physical and transition risks "in the context of the role of overall ESG risk management and sustainable finance activities by financial institutions" (Green Bond and Sukuk Framework / Sustainalytics, 2024).

The OJK Roadmap (Phases I & II) laid a comprehensive foundation from 2015 to 2025. Key milestones include the Green Bond Framework (POJK No. 60/2017), mandatory ESG disclosure rules (POJK No. 51/2017), and the launch of a national green taxonomy in 2022 .

Indonesia has issued multiple green sukuk domestically and internationally under the regulatory framework, and created dedicated blended finance platforms like SDG Indonesia One (managed by PT SMI), which integrates donor, public, and private capital. IDXCarbon, launched in 2023, marks the start of a national carbon trading system. Initially covering the power sector, it's expected to expand under Indonesia's NDC implementation.

Yet, key instruments such as risk mitigation facilities and performance-based tax incentives are either nascent or not widely used. The pipeline of bankable projects, especially outside sovereign green bonds, remains thin, deterring local institutional engagement.

3. Domestic Institutional Investor Perception

Indonesia's domestic institutional investors remain cautious toward sustainable assets. Insurance companies prioritize yield and asset-liability matching under strict OJK mandates. Pension funds are risk-averse and largely limited to sovereign securities. ESG integration in these sectors is still in its infancy and driven more by compliance than strategy. Banks are slightly more progressive, particularly in green lending and disclosures due to external investor pressure and OJK mandates. However, many ESG-labeled instruments are treated like regular financial products, with little distinction in risk appetite or expected returns.

Barriers to deeper engagement include lack of clear and consistent taxonomy, regulatory inflexibility (e.g., sovereign allocation requirements), absence of long-tenor, investment-grade green projects, and weak incentives for going beyond compliance. Government-led vehicles like SDG Indonesia One and Indonesia Investment Authority (INA) aim to crowd in institutional capital through blended finance and co-investment strategies, but their impact is still limited by execution delays and risk perceptions.

4. Progress and Lessons

Despite strong regulatory frameworks, institutional transformation remains top-down, compliance-driven, and limited in market impact. Private replication of green sukuk remains minimal due to tax and regulatory uncertainty. The taxonomy's inclusion of fossil fuels undermines its credibility and complicates investor engagement. It has faced criticism for allowing fossil fuel activities, including coal, within its "green" classifications. This reflects Indonesia's coal dependency and the relatively young age of its power plants. While taxonomies in Malaysia and China exclude fossil fuels, Indonesia's is seen as a pragmatic—if controversial—step.

Indonesia's ESG indices are gradually gaining momentum, with state-owned and private asset managers like Mandiri Investasi, Bahana TCW, and Schroders Indonesia launching ESG-themed mutual funds. The Indonesia Stock Exchange (IDX) introduced the SRI-KEHATI Index in 2009 to highlight sustainable and responsible investments, though domestic ESG fund participation remains relatively small compared to regional peers. A recent study highlighted that some of these ESG indices do not necessarily incorporate better price performance and ROE but they do provide better protection against ESG-related risks (Rohman et al, 2024). Limited fiscal incentives and fragmented definitions prevent alignment across ministries and financial actors. Risk-sharing tools like IIGF guarantees are underused due to slow PPP disbursement and bureaucratic hurdles. Indonesia demonstrates that central government leadership and innovation in green finance instruments (sukuk, carbon markets, blended vehicles) can set the stage, but institutional investor uptake requires deeper regulatory clarity, incentive alignment, and credible de-risking platforms. Market creation, not just compliance, is the next frontier.

iii. South Africa

1. Country and Market Context for Sustainable Finance

Indicator	Value (2024)
GDP (nominal)	USD 403 billion
Market Capitalization (JSE)	USD 1.07 trillion (≈ 266% of GDP)
Green Bond Issuance (Total Outstanding)	ZAR 44 billion (<1.5% of debt market)
Climate Finance Investment (Annual Avg.)	ZAR 131 billion (2019–2021)
Share of Sustainable Finance from DIIs	98% of private sustainable investment
Institutional Participation in REIPPPP	80% of REIPPPP funding from local capital

South Africa's financial system is mature, diverse, and well-positioned to support a sustainable finance agenda. The Johannesburg Stock Exchange (JSE) is Africa's largest and most liquid, with a capitalization exceeding three times the country's GDP . Despite this, sustainable finance remains a small niche. Climate finance flows averaged ZAR 131 billion (~$6 billion) annually between 2019 and 2021, well below the ZAR 334–535 billion (~$16-26 billion) estimated requirement to meet climate goals (Statistics South Africa, n.d).

Institutional investors, especially pension funds, have played a significant role, notably in renewable energy financing through participation in the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP), where about 80% of project financing has been sourced domestically (Eberhard et al., 2014).

Nonetheless, green bond issuance remains modest, accounting for less than 1.5% of the bond market. Structural issues such as weak project pipelines outside renewables and persistent macro-fiscal instability continue to constrain growth in sustainable finance markets. Recent initiatives like the establishment of the SA Transmission Company and the Climate Finance Facility (CFF) aim to address market gaps by mobilizing blended capital and providing first-loss guarantees (DBSA, 2019).

2. Key Policies and Instruments for Sustainable Finance

South Africa has built a multi-layered sustainable finance policy framework. In 2017, the government introduced national greenhouse gas emission regulations to create a structured approach for monitoring and reducing firms' carbon emissions. This was followed in 2019 by the enactment of the Carbon Tax Act, which imposed an initial tax rate of R120 per ton of CO_2 equivalent, with planned annual increases tied to inflation. To support emissions reduction, the government introduced allowances and the Carbon Offset Administration System (COAS). The REIPPPP, launched in 2011, pioneered competitive renewable energy procurement with long-term PPAs backed by Treasury guarantees. As of December 2024, the program has successfully installed over 9,000 megawatts of renewable energy capacity, generating ZAR 192.6 billion (approximately USD 20.5 billion) of private sector investments.

The National Green Finance Taxonomy finalized in 2022, based on international best practices, aims to harmonize definitions for sustainable economic activities . In parallel, the government is developing mandatory ESG disclosure regulations, expected by 2026. South Africa's participation in the Just Energy Transition Partnership (JETP), securing an $8.5 billion pledge, further reflects the ambition to decommission coal assets and support clean infrastructure .

3. Domestic Institutional Investor Perception

South African domestic institutional investors are among Africa's most engaged in sustainable finance. Pension funds have taken direct equity stakes in REIPPPP projects, facilitated through local equity mandates and vehicles like Revego Africa Energy. Banks have begun integrating ESG risks into credit assessments, spurred by the King IV Code. The JSE now requires listed companies to align ESG disclosures with global standards like TCFD.

Shareholder activism and client level nudges have been an important driver in pushing ESG/sustainability considerations amongst investors and banks. Participants have also observed a shift in perspective in support of sustainability parameters amongst executive teams of major institutions –an important cultural indicator.

However, broader asset allocation toward sustainable sectors beyond energy remains limited. Constraints include the shortage of bankable green projects, governance risks linked to Eskom, and limited municipal project viability. The government has been slow to allow private sector involvement in important sectors which can unlock sustainable finance from institutional investors –many of them naturally falling under the public utility sector.

It is important to note that, although socio-political will has emerged in South Africa to promote sustainable finance, including in DIIs, systemic issues related risk adjusted return have kept dynamism of capital allocation in this asset class consistently constrained. Fundamentally, without macroeconomic intervention the DIIs are focused on assets with long term stable returns with

minimum risk. South Africa like most EMDE countries cannot digest a EU Green Deal level of economic overhauling in a fiscally-healthy or pro-growth manner, therefore, they require supplementary systemic (which include overall market standards and regulation) improvements to promote a relatively new class of (sustainable) assets which would suffer more from ingrained economy-wide risks such as construction risk, credit risk, and revenue risk.

4. Progress and Lessons

REIPPPP created a pipeline of de-risked energy infrastructure projects, attracting both foreign and domestic capital. Local pension funds became equity partners in projects via mandated local shareholding rules. REIPPPP operates through reverse auctions but ensures pre-defined tariffs with long-term PPA contracts, guaranteeing stable revenues. This price clarity has been pivotal in bringing institutional investors into secondary markets once projects become operational. The creation of the yieldco Revego Africa Energy, backed by the Eskom Pension and Provident Fund, provided a listed platform for institutions to invest in operating renewables, thus enhancing liquidity and scalability (Eberhard et al., 2014). The initial success of REIPPPP was undermined by procurement delays and political interference—especially between 2016 and 2019—when Eskom refused to sign power purchase agreements or initiated renegotiations. This disrupted market confidence and stalled further investment. Outside renewables, few green projects reached financial close, revealing the shallow infrastructure pipeline.

The Development Bank of Southern Africa's Climate Finance Facility (CFF) subordinated loans and longer tenors for climate-aligned projects, explicitly targeting the crowd-in of commercial banks has helped improve project bankability without requiring direct state guarantees (DBSA, 2019). For example, by taking a mezzanine position in solar or electric transport infrastructure.

Supporting the unbundling of Eskom, a public utility, with the creation of SA Transmission Company has advanced resources toward new investments which will support sustainable projects. A large proportion of examples come from infrastructure and renewable energy assets due to their predominance as a stable and established sustainable asset class in the EMDE environment. Initial success and failures are therefore dominated by the same.

Furthermore, South Africa's carbon tax impact remains modest, and the delayed scaling of voluntary carbon markets limits carbon finance mobilization. On the regulatory side, inadequate risk-pricing for fiscal guarantees to state-owned enterprises like ESKOM and SOE debt has created systemic risks. This harms economically competitive projects and future fiscal capacity. In recent discourse and upcoming regulation, many of these challenges are being addressed e.g. unbundling of Eskom, first-loss guarantees in sustainable debt, generator licensing updates. Although this does not directly address domestic institutional investors, systemic obstacles directly affect investor risk and return perception for certain types of asset and industries.

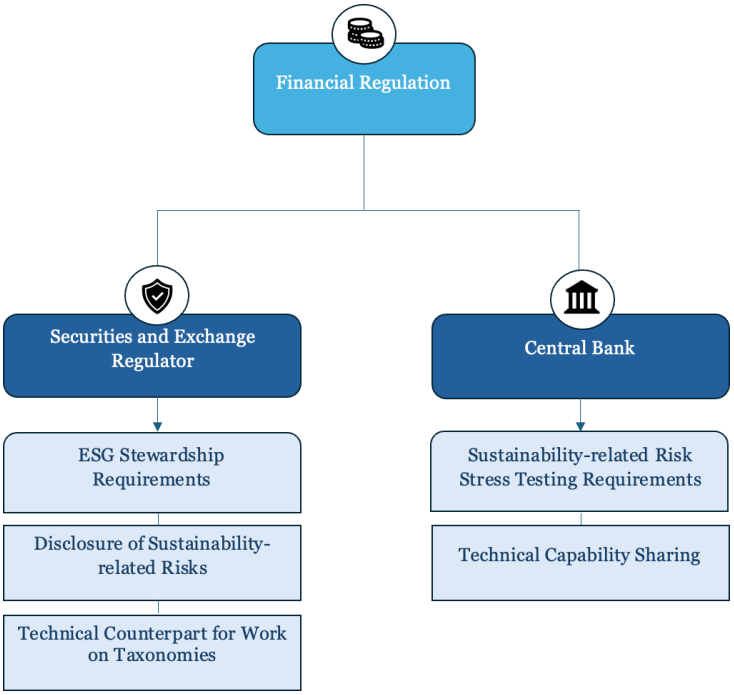
V. Policy Roadmaps

This report presents a practical policy roadmap for emerging markets that have either launched or are considering strategies to scale up sustainable finance, with a particular focus on mobilizing domestic institutional investors (DIIs). To support this objective, it outlines two complementary roadmaps tailored to key decision-making bodies: financial regulators and governments of emerging markets and developing economies (EMDEs). The roadmap for EMDE governments emphasizes their central role in coordinating, enabling, and overseeing cross-sector efforts - ensuring that appropriate policies, incentives, and governance frameworks are in place to drive the transition toward sustainable and climate-resilient investment ecosystems.

Financial regulators

This roadmap recommends a set of regulatory and supervisory tools to promote the participation of DIIs in sustainable finance, summarizing the tools for financial regulators identified in section II. This roadmap highlights the distinct yet complementary roles of each institution in shaping a more resilient and transparent financial ecosystem. Securities regulators are encouraged to implement ESG stewardship requirements, mandate the disclosure of sustainability-related risks, and serve as technical counterparts in the development of sustainable finance taxonomies. These steps aim to enhance investor accountability and improve market transparency. Meanwhile, central banks are advised to incorporate sustainability-related risk stress testing requirements into their supervisory frameworks and lead efforts in technical capability sharing. Together, these measures provide a structured approach for regulators to align financial systems with long-term climate and sustainability goals.

FINANCIAL REGULATORS POLICY ROADMAP



Governments

Based on a conceptualized scenario involving a country without an established sustainable finance framework, we seek to identify various alternatives for the local market that can reduce the cost of capital for sustainable investments, thereby encouraging greater investment within these nations.

The **policy roadmap is designed to be both general and specific**, addressing multiple scenarios and contexts while offering targeted policies and examples drawn from our case studies. In this regard, we highlight key drivers that emerged from our analysis, while also underscoring the essential prerequisite of conducting a market diagnosis and a comprehensive analysis of the country's economic landscape.

Market Diagnosis

The recommendation for every emerging market is to initiate their analysis by conducting a comprehensive and accurate assessment of their markets. This will enable them to understand the behavior of Domestic Institutional Investors (DIIs) and identify local opportunities within sustainable finance investment projects, which is also a precursor to the framework of envisioning drivers as systemic or DII-focused. This phase should facilitate the development of a strategic action plan focused on sustainable finance and aligned with the nationally committed sustainable development goals.

Public Policy Implementation

As observed in our case studies, the **types of policies can vary significantly across different contexts**. A thorough understanding of fiscal capacity and local opportunities is essential for developing tailored policies that effectively promote local sustainable finance investment.

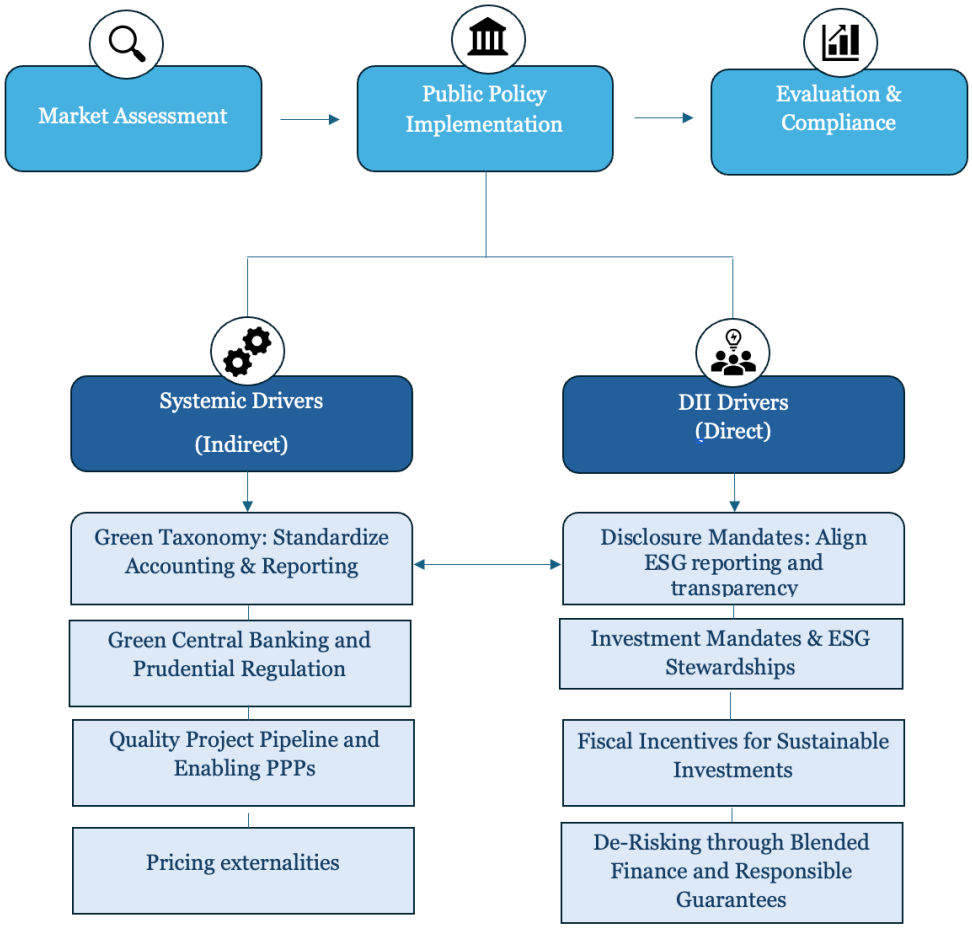
To that end, we have categorized the drivers based on their direct influence on investor behavior, which includes disclosure mandates, investment mandates, ESG stewardship, and government-proposed blended finance or de-risking tools. Additionally, we suggest policies aimed at targeting the sustainable finance ecosystem that can indirectly impact the behavior of Development Finance Institutions (DFIs). These include the implementation of green taxonomies, green central banking, the establishment of project pipelines, Public-Private Partnership (PPP) programs, and mechanisms for pricing externalities, such as a carbon tax.

Evaluation & Compliance

Measuring progress and evaluation in sustainable finance implementation requires a multi-tiered approach that integrates public policy assessments, regulatory oversight, and corporate-level reporting. Evaluations aim to assess the effectiveness and impact of sustainability regulations and incentives using metrics such as investment mobilization and progress toward the Sustainable

Development Goals (SDGs), thereby informing strategic adjustments. Additionally, governments should collaborate with each other and with relevant institutions to share evaluation insights that support the refinement of domestic policies. Regulatory and supervisory entities play a key role by monitoring compliance, conducting systemic risk assessments, and issuing periodic updates to enhance market alignment and resilience. At the corporate level, continuous ESG reporting—supported by consistent time-series data—promotes transparency, strengthens investor confidence, and drives ongoing internal improvements. Together, these interconnected layers underpin a dynamic, accountable, and evidence-based development of sustainable finance.

POLICY ROADMAP: DRIVING DII INVESTMENT IN SUSTAINABLE FINANCE



VI. Conclusion

Emerging markets face a widening sustainable investment gap, driven by underdeveloped financial ecosystems, regulatory uncertainty, and structural imbalances between financing needs and available capital. Despite global progress in sustainable finance, capital flows remain concentrated in advanced economies, and emerging market and developing economies (EMDEs) continue to struggle to attract long-term investment aligned with their development goals. Domestic Institutional Investors (DIIs)—including pension funds, insurers, and sovereign wealth funds—hold significant potential to bridge this gap. Yet, their participation remains limited due to unfavorable risk-return, insufficient ESG integration, regulatory fragmentation, and a lack of investable, credible green assets.

Case studies from Chile, Indonesia, and South Africa underscore these constraints. In Chile, despite strong sovereign issuance and regulatory leadership, private sector engagement remains shallow and in need of a more credible long-term strategy. Indonesia has pioneered green sukuk and blended finance tools but still faces weak project pipelines and not fully aligned taxonomies. South Africa has mobilized local capital through its renewable energy program but remains constrained by political and infrastructure risks. In all three countries, DIIs remain cautious, constrained by regulatory mandates, shallow markets, and inconsistent ESG standards.

To address systemic barriers limiting the participation of DIIs in sustainable finance across emerging markets, this report proposes a government policy roadmap built around three key phases: market diagnosis, public policy implementation, and evaluation and compliance. The roadmap combines indirect ecosystem-building measures—such as the development of green taxonomies, sustainable banking regulations, and investable project pipelines—with direct incentives, including fiscal benefits, de-risking instruments like blended finance and guarantees, carbon pricing mechanisms, and strengthened ESG mandates. In parallel, the report presents a targeted financial regulator roadmap, outlining more focused measures designed to influence the allocation of capital within the financial system and ensure a stronger flow of resources toward sustainable, real-economy outcomes.

Through coordinated action on both fronts, EMDEs can create investable environments that align with DIIs' mandates and risk appetites. By reducing market frictions and embedding sustainability into the financial system, countries can unlock domestic capital to meet urgent climate and development objectives.

VII. Appendix

Appendix 1: UN PRI Data Exploration

Table 1. ESG Integration Progress of UN PRI Signatories (Firm-Level) in Select Markets (2020)

	Sample Size	Does Investmet Policy Cover Responsible Investment Approach?	Does Investment Policy Cover ESG Incorporation Approach?	Does Investment Policy Cover Active Ownership Approach?
Canada	121	6%	36%	32%
United Kingdom	308	6%	42%	36%
United States	374	8%	40%	28%
Germany	82	7%	37%	24%
China	16	0%	44%	38%
Average	**180**	**5%**	**40%**	**32%**
India	2	50%	100%	100%
Brazil	37	3%	35%	19%
Chile	6	0%	33%	33%
Indonesia	2	0%	0%	0%
South Africa	48	6%	31%	29%
Average	**19**	**12%**	**40%**	**36%**
Average (Excl. India)	**23**	**2%**	**25%**	**20%**

Source: UN PRI Dataset (2020)

The table highlights the extent to which UN PRI signatories in various countries embed ESG principles into their formal investment policies. Although the data only reflects the behavior of signatories, meaning it does not capture the entire DII behavior, it still provides insight into firm-level ESG incorporation levels across countries.

Among the five countries, which are outside of our sample as comparison (Canada, United Kingdom, United States, Germany, and China), there is relatively consistent ESG incorporation, ranging from 36% to 44%, with China at the top despite a small sample size. However, the inclusion of responsible investment approaches remains marginal, mostly below 10%, suggesting that ESG integration tends to emphasize technical compliance rather than holistic responsible investment philosophies. Active ownership practices are also moderately present, ranging between 24% (Germany) and 38% (China).

In contrast, the five emerging markets show a more uneven and polarized pattern. South Africa, with the largest sample size of 48, shows moderate engagement, with 31% of signatories reporting ESG incorporation and 29% including active ownership strategies. However, only 6% mention a responsible investment approach, suggesting that while ESG concepts are gaining traction, responsible investing remains a less formalized practice in the region.

India presents a different picture. Despite having only two signatories in the sample, both report full alignment across all three ESG dimensions of responsible investment, ESG incorporation, and active ownership. This suggests that while the overall representation is small, Indian signatories tend to be more deliberate and structured in how they adopt ESG principles. Their comprehensive

approach could reflect stronger institutional mandates, international partnerships, or regulatory encouragement within certain sectors.

Brazil and Chile fall somewhere in between. Brazil, with 37 signatories, shows limited engagement—only 3% cover responsible investment and fewer than 20% incorporate active ownership. Chile, with a small sample, has a higher proportion of ESG incorporation and active ownership (33% each), but none of its signatories report responsible investment coverage.

Indonesia remains noticeably behind in all categories. With two signatories, none report any coverage of ESG or responsible investment policies. While the small sample limits broader generalization, this still underscores the need for greater awareness, capacity building, and regulatory support in emerging ESG markets.

Overall, while most of the developed countries demonstrate more consistent ESG incorporation across their signatories, emerging markets exhibit greater variation. Some, like India and Chile, show promising efforts despite limited representation, while others such as Indonesia reveal major gaps. This suggests that while PRI membership indicates an initial commitment to ESG, the depth and nature of policy integration remain highly uneven.

Appendix 2: Brazil Country Case Study

1. Country and Market Context for Sustainable Finance

Brazil is Latin America's largest economy and a key global exporter. It continues to play a vital role in the international trade and investment landscape. With a projected GDP growth of 1.5% in 2024 and 2.0% in 2025, the country's $2.1 trillion economy remains resilient, with a strong global demand for commodities and renewed investor confidence (IMF, 2023). Brazil is responsible for supplying approximately 20% of the world's soybeans and 10% of its iron ore, while also advancing clean energy initiatives such as biofuels and hydropower (World Bank, 2023). Despite challenges like inflationary pressures and fiscal constraints, Brazil's structural reforms and openness to foreign investment continue to strengthen its long-term outlook.

The Brazilian capital market is central to this development. Anchored by B3 S.A., the country's integrated stock exchange for equities, derivatives, and fixed income securities, Brazil has seen dynamic market growth and increasing investor participation. In 2023, B3 reported a 15% year-on-year rise in ESG-related investments, driven by demand for sustainable financial products. Launched in 2010, Brazil's Carbon Efficient Index (ICO2) tries to encourage companies to monitor and reduce their greenhouse gas emissions by incorporating carbon efficiency into investment strategies. It includes companies that are part of the B3's IBrX-100 index but have demonstrated greater transparency regarding their emissions practices. This focus on carbon disclosure and reduction incentives reflects broader market trends toward integrating environmental risks into asset allocation (Toller, 2025). Also, the Corporate Sustainability Index (ISE B3) is a prominent benchmark for sustainable companies in Brazil. In 2025, companies participated in the selection process for ISE B3, totaling R$2.3 trillion in market value (B3 Sustainability Report, 2024). These trends reflect Brazil's deepening capital market and its evolving orientation toward sustainability-focused investment.

2. Key Policies and Instruments for Sustainable Finance

Brazil has conducted a series of strategic policy interventions to embed sustainability within its financial system, which can be systematically divided into public finance interventions, which involve the direct mobilization of funds toward sustainable projects, and Financial Regulation and Supervision, which indirectly steer private financial flows toward sustainability through rules, disclosure mandates, and risk management frameworks. Also, global cooperation also results in funding mechanisms and collaborative investments toward sustainable development.

2.1 Public Finance Interventions

On the public finance side, Brazil has actively deployed sovereign instruments to channel funding toward sustainability. The Federal Government launched the Sovereign Sustainable Bond Framework in September 2023 to strengthen its commitment to sustainable development. This framework provides a structured approach for issuing green, social, and sustainability bonds, enabling Brazil to finance budgetary programs that deliver positive environmental and social outcomes. Shortly after, in November 2023, Brazil issued its first $2 billion sovereign sustainable bond (World Bank, 2024). This issuance aimed not only to secure financing for environmental and social projects (like reforestation and social housing) but also to serve as a benchmark for the private sector, encouraging corporate issuers to follow suit.

Also, the Brazilian Development Bank (BNDES) has played a pivotal role. As of 2022, BNDES issued over R$6 billion (~$1.1 billion USD) in green bonds and created dedicated credit lines for renewable energy and sustainable agriculture (BNDES Annual Report 2022). It has also offered blended finance instruments, combining concessional funds with private capital to de-risk sustainable projects.

Brazil also offers tax incentives to incentivize sustainable finance development. For example, as part of the Capital Market Initiative (IMK), the Ministry of Economy, with support from LAB, updated Decree No. 8,874 to revise the list of infrastructure projects eligible for tax benefits through infrastructure debentures. The new Decree No. 10,387, issued in June 2020, streamlines the process for issuing infrastructure debentures that deliver environmental or social benefits by simplifying requirements and accelerating approvals (GIZ, 2020). Also, Brazil has achieved a major milestone in tax reform, aimed at simplifying its complex system and promoting economic growth. On December 20, 2023, Congress passed legislation to consolidate federal, state, and municipal taxes into a unified structure. This reform can have a positive impact on domestic sustainable investment by lowering administrative barriers and increasing predictability for investors.

In 2024, the government launched the Brazil Climate and Ecological Transformation Investment Platform (BIP) to attract global capital toward green projects in energy, industry, and nature-based solutions. Managed by the Ministry of Finance and BNDES, BIP aims to mobilize $10.8 billion and represents a significant step in leveraging private investment for ecological transformation (Gov.br, 2024).

2.2 Financial Regulation and Supervision

Brazil has conducted a series of strategic financial regulation policies and supervision to integrate sustainability into its financial system.

One of the most significant efforts was the launch of the Green Protocol in 1995. It is a public sector initiative by the Central Bank of Brazil and state-owned banks such as BNDES and Banco do Brasil, and it is created to introduce environmental and social criteria in lending practices. Private

banks joined the initiative in 2009 via FEBRABAN, signaling broader industry commitment (GIZ, 2020).

To combine capital flows with sustainability goals, Brazil introduced the Sustainable Taxonomy Action Plan (gov.br, 2023). Led by the Ministry of Finance, the taxonomy is designed to classify economic activities based on their environmental and social contributions, with implementation targeted for 2026. It covers sectors such as agriculture, energy, transportation, and social services, and focuses on climate mitigation, biodiversity conservation, and social equity. However, the absence of a unified national taxonomy still limits full cross-sector consistency.

2.3 Global Cooperation

Brazil has strengthened its global cooperation on sustainability through active participation in major international initiatives. For instance, it joined the United Nations Sustainable Development Cooperation Framework (2023–2027), aligning national efforts with global sustainable development goals (UNODC, 2023). Also, the German government pledged €200 million to support socio-environmental initiatives in Brazil, including contributions to the Amazon Fund, forest conservation projects, an energy efficiency fund, and credit for reforesting agricultural land (gov.br, 2024). Brazil also signed in the Global Clean Power Alliance, which is a coalition of countries formed to collaborate and exchange expertise in order to achieve the COP28 goals of tripling renewable energy capacity and doubling energy efficiency, which also strengthened its commitment to sustainable development goals in the long run (World Resources Institute, 2024).

3. Domestic Institutional Investor Response

After conducting interviews, it can be seen that investor reactions to Brazil's sustainable finance policy signals have been cautious and selective. Although initiatives such as the Sustainable Bond Framework and international cooperation efforts have created momentum, many companies' engagements with sustainable finance remain opportunistic rather than deeply strategic. Issuances are often concentrated in sectors with clear eligibility, like sanitation, renewable energy, and infrastructure, rather than stemming from comprehensive corporate sustainability commitments. The sustainable finance market remains emerging and underdeveloped, with limited demand and supply. Traditional financial considerations, rather than environmental or social criteria, still dominate investment decision-making. The absence of strong financial incentives, tax benefits, or a clear regulatory taxonomy continues to constrain market expansion.

Meanwhile, Brazil's planned national carbon market, expected by 2026, offers a potential new avenue for investors, particularly in conservation and restoration projects in the Amazon. However, in the short term, market fragmentation, regulatory uncertainty, and high transaction costs pose significant barriers to scaling carbon credit monetization. Overall, the outlook for 2025 suggests moderate growth, as companies cautiously review sustainability strategies while awaiting more definitive regulatory frameworks to reduce uncertainty and better align financial returns with sustainable objectives.

4. Progress and Lessons

Brazil's performance in the sustainable finance space has grown rapidly. The country's green bond market is among the fastest-growing in the emerging world, bolstered by its strength in renewable energy. Brazil's green bond market has been led predominantly by companies in the real economy. It has amounted to USD 788 billion from 2010 to 2019, corresponding to 77% of the green market. Brazil's financial market offers a range of instruments that may be categorized or labeled as green, depending on their specific features, including debentures, Agribusiness Receivables Certificates (CRA), and Real Estate Receivables Certificates (CRI). However, although there is diversity, green bond issuance amounts in Brazil still account for only a small portion of Global Volume according to data from Climate Bonds Initiative from 2018 to 2022. Brazil's green bond issuance consistently represents less than 1% of the global total, which is relatively small compared to Brazil's economic size in the world. This gap highlights a substantial opportunity for growth in using sustainable finance to better match the country's economic and environmental potential.

Early efforts also promoted the progress of sustainable development in Brazil. In 2004, Itaú Unibanco launched Brazil's first social and environmental fund (FIES), followed by Santander's Ethical Equity Fund in 2005. More recently, products like Itaú Unibanco's It NOW ISE ETF, which tracks companies with high sustainability standards, have helped deepen ESG integration in the retail investment space (GIZ, 2020). Looking ahead, new policy initiatives further demonstrate momentum. The anticipated launch of Brazil's Emissions Trading System (ETS) signals further momentum in using market mechanisms to reduce carbon emissions (Mayer Brown, 2024).

Therefore, Brazil has made important progress in sustainable finance, supported by sectoral strengths and recent policy initiatives. However, investor engagement remains cautious, constrained by regulatory gaps and limited incentives. The case of Brazil highlights key lessons. For example, a lack of strong incentives (e.g., tax breaks) and regulatory clarity (e.g., no unified taxonomy) hinders broader adoption. It must strengthen its regulatory framework, including initiating and implementing the systematic sustainable taxonomy, improving ESG disclosure standards, and supporting the integrity of green labels to bolster investor confidence. Also, it's important to expand the absolute volume of green bonds and sustainable loans. Diversification must be paired with strategies to expand volume, especially tapping into larger institutional investors and government-backed issuers. With continued reform, such as stronger incentives, clearer regulations, and market-building measures, are needed to shift sustainable finance from opportunistic to strategic investment behavior.

Enhancing sectoral opportunities and premiums for sustainable finance

In Brazil, sectoral opportunities in sustainable infrastructure have expanded through coordinated government action and financial innovation. The establishment of the Brazilian Development Bank (BNDES) as a cornerstone financier for wind and solar energy projects catalyzed private sector participation by providing long-term, concessional financing (IRENA, 2024). This consistent pipeline of financed projects has enabled institutional investors to engage in climate infrastructure with lower risk exposure. Additionally, the introduction of the country's Green

Debentures framework in 2017 enabled infrastructure developers to issue tax-incentivized debt to fund renewable energy and low-carbon transport (Climate Bonds Initiative, 2019). These initiatives helped mobilize domestic institutional capital into sustainability-linked instruments, especially in energy transmission and climate-resilient infrastructure sectors.

Tax Incentives

Brazil has utilized tax incentives to mobilize private and institutional capital into sustainable infrastructure. In 2024, Brazil enacted Law No. 14,990, establishing the Low-Carbon Hydrogen Development Program (PHBC). This program offers substantial tax credits to companies producing or consuming low-carbon hydrogen, incentivizing investment in green hydrogen technologies (UNCTAD, 2024). Since 2011, incentivized infrastructure debentures under Law 12.431 have boosted Brazil's sustainable investment by attracting retail investors through income tax exemptions. This influx of capital lowered financing costs for renewable energy and clean infrastructure projects, deepened green capital markets, and helped mainstream sustainable finance in Brazil (Inter-American Development Bank, 2019). The simplified tax structure also creates a more transparent and streamlined tax environment. This simplification reduces tax compliance burdens for infrastructure and renewable energy developers, encouraging long-term institutional investment in sustainable projects (Rezende, 2025).

Appendix 3: India Country Case Study

1. Country and Market Context for Sustainable Finance

Indicator	Value (2024)
GDP (nominal)	USD 4.2 trillion
Market Capitalization	USD 2 trillion (≈ 48% of GDP)
Green Bond Issuance (Total Outstanding)	USD 21 billion (Feb 2023)
ESG AUM Growth (2021–2023)	6% CAGR, reaching USD 28 billion
Sustainable Investment by Domestic Investors	84% of total green bond issuance

India is the world's fourth-largest economy by nominal GDP and one of the fastest-growing major economies. Its economic foundation is characterized by a diverse and dynamic structure. The Indian capital market is among the most active in emerging economies, with over 5,000 listed companies and a market capitalization of approximately USD 2 trillion, representing about 48% of GDP. However, the penetration of sustainable finance remains limited, particularly among domestic investors, despite a robust financial sector.

The Sustainably Responsible Investment (SRI) market in India has shown modest growth, expanding by 6% over a two-year period to reach USD 28 billion, significantly lagging the global SRI market's 16% CAGR over the same period. However, the country's rapid industrial growth, urbanization, and digital transformation provide a strong foundation for future sustainable finance expansion.

2. Key Policies and Instruments for Sustainable Finance

India has implemented several key policies to advance its sustainable finance agenda. The first major step was the issuance of sovereign green bonds in 2023, with two tranches worth approximately INR 80 billion each (~USD 980 million). These bonds are earmarked for projects in renewable energy, sustainable transportation, energy efficiency, and pollution control, explicitly

excluding fossil fuel-based ventures. This marked a significant milestone in India's climate finance strategy.

Additionally, the Union Budget for 2024–25 highlighted the development of a comprehensive climate finance taxonomy, aimed at standardizing green and sustainable financial activities, enhancing transparency, and attracting green capital. In parallel, the Carbon Credit Trading Scheme (CCTS) was introduced in June 2023, consolidating the Perform, Achieve, and Trade (PAT) scheme and Renewable Energy Certificates (REC) program to establish a unified national carbon market for reducing greenhouse gas emissions.

Corporate transparency has also been a priority. The Securities and Exchange Board of India (SEBI) launched the Business Responsibility and Sustainability Report (BRSR) in 2021, which mandates the top 1,000 listed companies to disclose ESG-related performance in line with international standards like the GRI and TCFD. This move aims to improve corporate transparency and investor confidence, aligning India's financial markets with global best practices.

The Pension Fund Regulatory and Development Authority (PFRDA) introduced the Common Stewardship Code in 2018, encouraging institutional investors to integrate ESG considerations into their investment strategies. This code aims to align pension and insurance funds with broader sustainability goals, fostering long-term value creation.

3. Domestic Institutional Investor Perception

India's domestic institutional investors are increasingly engaging with sustainable finance, but significant challenges remain. The mutual fund industry, with assets under management (AUM) exceeding INR 50 trillion (~USD 600 billion) as of 2023, has begun integrating ESG criteria, though traditional funds still dominate. Life Insurance Corporation (LIC), India's largest institutional investor, holds significant equity and debt across public and private sectors, while other major players like ICICI Prudential Life and HDFC Life have also started integrating ESG principles. Pension funds, particularly those regulated by the PFRDA, are increasingly aligning with ESG standards, supported by the 2018 Common Stewardship Code. Additionally, public and private sector banks, including SIDBI and NABARD, play critical roles in infrastructure financing, often aligning their portfolios with sustainability goals.

4. Progress and Lessons

India's sustainable finance ecosystem is gaining momentum, but key challenges remain. The country leads Asian emerging markets (excluding China) with USD 21 billion in green bond issuances as of February 2023, with private sector issuers like Greenko Group playing a dominant role. However, these bonds still account for a small fraction of the total bond market, indicating significant room for growth. The newly introduced CCTS aims to create a unified national carbon credit system, building on the successful PAT scheme that has already reduced emissions by over 105 million tons.

Despite strong returns from funds like SBI Magnum Equity ESG (19.28% in 2022), domestic participation in ESG funds remains low compared to global markets. Mechanisms like the National Investment and Infrastructure Fund (NIIF) and Infrastructure Investment Trusts (InvITs) have created new pathways for institutional investment in green projects, but liquidity concerns and risk perception still limit broader participation.

In summary, India's sustainable finance landscape is expanding, driven by policy innovation, institutional growth, and market demand, but significant challenges remain in scaling up green finance and integrating ESG considerations across all sectors.

Appendix 4: Interview Interactions

Country	Role	Organization
Chile	Lawyer	Consultancy
Chile	Economist	Academia
Chile	Engineer	Mining sector
Chile	Economist	Regulator
Chile	Economist	Think Tank
Chile	Portfolio manager	Asset Manager
Chile	Wealth Advisor	Investment Fund
Chile	Executive	Bank
Chile	Sustainability Director	Bank
Indonesia	Executive	Regulator
Indonesia	Economist	Academia
Indonesia	Portfolio Manager	Investment Fund
Indonesia	Employee	Insurance Company
General	Investment Analyst	Multilateral Organization
Brazil	Senior Director	Asset Manager
Brazil	-	Central Bank
India	Portfolio manager	Asset manager
India	Portfolio manager	Investment Fund
South Africa	Expert	Academia
South Africa	Executive	NGO/Consultancy
General	Advisor/Executive	International Bank

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