Mobilizing Domestic Private Capital for Nature-Based Solutions in Emerging Economies

Case Studies from Colombia, Indonesia and Nigeria

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Executive Summary

Achieving the Net Zero commitments set by nations requires adequate financing from multiple sources. In developing countries, finance for climate and nature, thus far, has primarily been mobilized from the domestic public sector and international financial institutions. In contrast, contributions from the domestic private sector have been minimal. While equity has been at the core of the argument for mobilizing climate finance primarily from developed countries, the failure to muster a paltry USD 100 billion proves that alternative options must be explored. The domestic private market in many developing countries has the potential to support climate and nature investment, but their potential remains largely untapped. With the bulk of low-cost Nature Based Solutions (NbS) potential in the global south, investment in NbS provides the rare opportunity to directly impact the lives of low-income communities disproportionately affected by climate change. Mobilizing investment for NbS within the domestic economy has the potential to provide a predictable source of capital for NbS projects, deepen the domestic capital and carbon market, and, more importantly, reduce the country’s reliance on international support anchored on conditionalities.

The question central to this report’s research is as follows.

How do we mobilize domestic capital for Nature-Based Solutions in Emerging Economies?
Box:

**What is Nature Based Solution?**
Nature-based Solutions are actions to protect, sustainably manage and restore natural and modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits. (IUCN)

**What is Natural Climate Solution?**
Natural climate solutions” are actions to protect, sustainably manage, and restore natural and modified ecosystems in ways that mitigate climate change while also addressing other societal challenges. (Climate Advisers)

NCS refers to leveraging healthy ecosystems’ properties to address climate change mitigation and adaptation while enhancing biodiversity. NCS is a subset of Nature-Based Solutions. (IUCN)

Given the definition above and the focus of this research on leveraging NbS for climate change, biodiversity loss, and land degradation, the term NbS and NCS may be used interchangeably.

Mobilizing domestic private capital is hinged on four pillars: Achieving Net zero goals, Equity and Inclusion, Job creation, and Economic Growth
<table>
<thead>
<tr>
<th>Pillars</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achieving Net Zero Goals</td>
<td>• Natural Climate Solutions (NCS) are cost-effective mitigation opportunities to reduce up to 37 percent of the global emissions needed by 2030.[1]</td>
</tr>
<tr>
<td></td>
<td>• Three of the five most effective strategies for reducing emissions are nature-based. The options with the largest potential for CDR are afforestation/reforestation (0.5–10.1 CO2-eq yr⁻¹) (medium confidence), soil carbon sequestration in croplands and grasslands (0.4–8.6 CO2-eq yr⁻¹) (high confidence) and Bioenergy with Carbon Capture and Storage (BECCS) (0.4–11.3 CO2-eq yr⁻¹) (medium confidence).[2]</td>
</tr>
<tr>
<td>Equity and Inclusion</td>
<td>• NBS has strong co-benefits with other goals such as poverty, gender equality, and food security, helping countries achieve their net zero and developmental goals.[3]</td>
</tr>
<tr>
<td></td>
<td>• NCS could create more resilient rural development models in forest frontier regions and the Global South.[4]</td>
</tr>
<tr>
<td>Job Creation</td>
<td>• Nature-positive policies could attract 10 trillion in new annual business and create 395 million jobs by 2030.[5]</td>
</tr>
<tr>
<td>Economic Growth</td>
<td>• NBS has the potential to abate food and energy crises, thereby reducing inflationary trends in many emerging economies.[6]</td>
</tr>
<tr>
<td></td>
<td>• As the bulk of low-cost NCS potential is in the Global South, NCS projects can generate private capital flows to these countries[7]. This is dependent on the incentive mechanism available to the private sector.</td>
</tr>
<tr>
<td></td>
<td>• In 2021, higher carbon prices, revenue from new instruments, and increased auctioning in emissions trading systems have resulted in a record USD 84 billion global carbon pricing revenue, around 60% higher than in 2020.[8] Demand for carbon credits could increase by a factor of 15 or more by 2030 and up to 100 by 2050.[9]</td>
</tr>
</tbody>
</table>
While achieving these four pillars is desirable, some impediments must be addressed to ensure the participation of domestic finance actors. This report provides policy proposals for consideration by Donor Agencies, DFIs, and the US State Department. These proposals are based on an extensive literature review and engagement with key stakeholders in Indonesia, Colombia, and Nigeria. The policy proposals are summarized below.

1. **Development of a locally led Green Taxonomy Framework**: The development of a framework that identifies investments and activities that are environmentally aligned will help investors make informed investment decisions and channel investment toward sustainable or green economic activities and assets.

2. **Capacity building to change investors’ perception of the riskiness of NbS**: While there has been an increasing adoption of NbS in emerging economies, local actors generally perceive NbS as riskier than conventional assets, given that it is a new asset class. This is attributable to the lack of information and technical knowledge about the risk-return profile and impact of NbS.

3. **Developing risk-sharing mechanisms that suit the specific needs of emerging economies**: DFIs and Philanthropic organizations should be equipped to provide long-term catalytic capital and blended finance that the private market cannot provide due to the risk profile of NbS investment.

4. **Identification and preparation of investible NbS projects by DFIs**: With the exception of early-stage founders (VCs and Angel Investments), the private sector tends to invest in projects with a defined risk profile, clearer proof of concept, and predictable returns, which many NbS projects may not possess currently. The status of NbS projects requires DFIs to support new business models and local developers to bring the project to market rather than compete for already-defined products.
5. **Standardization of the domestic carbon market to ensure clarity and uniformity.** The Compliance Carbon Market and the Voluntary Carbon Markets offer many developing countries the opportunity to achieve sustainable economic development and their carbon reduction target. Developing countries require a comprehensive regulatory framework and globally acceptable standards and methodologies for valuing and certifying credits to exploit this potential fully.

6. **Enforcement of compliance guidelines and policies.** The ability to enforce compliance gives providers of capital confidence about the market. To protect investors and deepen the financial markets, regulators must be equipped to reward and punish market players who follow and flout the rules.

7. **Institutionalization of the local carbon pricing framework:** While carbon pricing is not the panacea for climate change problem as it is currently being espoused, it serves the triple purpose of reducing greenhouse emissions, providing a source of revenue to the government, and acting as an income redistributive policy instrument. To fully harness the potential of NbS, every country must develop a framework that allows it to price its nature-based asset correctly.

NbS has been identified as a promising asset class to achieve the triple goal of mitigating climate change, halting biodiversity loss, and reducing land degradation, however given the limiting current investments, policy action is needed to understand NbS, redefine the role of DFIs, and facilitate the development of the domestic capital and carbon market.
Climate Change is one of the defining issues of our time, and we are at a defining moment. From shifting weather patterns that threaten food production to rising sea levels that increase the risk of catastrophic flooding, the impacts of climate change are global in scope and unprecedented in scale.[10]

However, vulnerability to climate change varies worldwide, with developing and small island nations being the least responsible for the crisis but positioned to bear the highest consequences. The 2021 Global Climate Risk Index, which analyses the impact of weather-related loss events, reported that Mozambique, Zimbabwe, and the Bahamas were the most affected in 2019, primarily due to climate change.[11] Also, low-lying atoll nations in the Pacific, like Kiribati and the Marshall Islands, which are only about six feet above sea level, are facing an existential threat due to continued sea level rise.[12]

Mitigating the effect of climate change is now a topical issue for policymakers worldwide. One viable solution that has been identified is the use of Nature-based solutions. Nature-based Solutions (NbS) are solutions or actions to protect, sustainably manage and restore natural or modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits.[13]
According to Griscom (2017) et al., Natural Climate Solutions (NCS) are cost-effective mitigation opportunities that can reduce up to 37 percent of the global emissions needed by 2030. A report commissioned by WWF found that 105 out of 114 enhanced Nationally Determined Contributions (NDCs) included nature-based solutions.[14]

Besides its climate change benefits, NbS has been identified as the most cost-effective way to reduce biodiversity loss and land and water degradation.[15] According to UNEP (2022), if we rapidly increase finance to NbS, we can halt biodiversity loss (increase Biodiversity Intactness Index to 0.78 as against the 0.73 in the BAU scenario), reduce emissions (5 GtCO/ year in 2025, further rising to 15 GtCO/year in 2050) and restore close to 1 billion ha of degraded land.

The triple benefit of NbS makes it an attractive and feasible option given the scarcity of resources for climate and biodiversity. Investment in NbS becomes more compelling upon the realization that over half the world’s total GDP – USD 44 trillion of economic value generation - is moderately or highly dependent on nature and its services.[16]

**Figure 1: Trajectory of annual NbS investment needs to achieve the triple benefit of NbS (USD 2022)**

The current level of spending for NbS is low compared to the projected need. As shown in Figure 1, if the world is to limit climate change to below 1.5C, then the current finance flow to NbS, which is USD 154 billion per year, must double by 2025 and triple by 2030.[17]
The current investment in NbS is skewed toward developed countries, with the public sector having an outsized influence on NbS spending. Of the USD 154 billion invested in NbS in 2022, USD 120 billion was spent within G-20 Economies.[18] Also, public spending accounts for almost 82 percent (USD 126 billion) of the total NbS spending, with USD 105 billion spent within G-20 alone.[19] This shows that public governments in developed countries primarily dominate NbS. The inability to internalize the social cost and externalities of NbS, which is often categorized as a public good, is a primary reason why the public sector dominates NbS spending. The unrewarded provision of public goods and services (for example, carbon sequestration by forests and carbon storage of peatlands); over-exploitation of common access resources (such as fisheries); regulation of water; and externalities (for example, water pollution) as well as indigenous peoples’ rights, and the pure enjoyment of nature deter private sector investment in NbS.[20]

Figure 2: G20 vs Non-G20 NbS Spending

Figure 3: Private NbS Spending vs. Public NbS Spending

Source: UNEP

Figure 3 shows that the private sector contributes less than 15 percent of the current NbS Investment.[21] The low level of private investment in NbS reflects the lack of know-how, perception of risk and lack of investible projects in NbS. Even in G20 countries where the private sector dominates the climate finance landscape, the private sector has only provided 10 percent of the total current financial flows to NbS.[22]
Projected Investment Need

As stated earlier, investment in NbS must double by 2025 and triple by 2030 to meet the climate goal of 1.5°C.[23] However, given that the focus of this research is emerging economies, we will be talking about NbS investment needs in developing countries. As shown in Figure 4 below, the current investment flow in Non-G20 countries is less than USD 40 billion.[24] To achieve the climate goal in non-G20 countries, the investment must increase by 7.6x compared to 1.2x in G20 nations.[25]

**Figure 4: Future NbS investment needs**

Source: UNEP, Author’s Computation

To meet the Rio Convention objectives, investment in NbS for non-G20 countries should be between USD 235 billion and USD 269 billion.[26] Sub-Saharan Africa requires an estimated increase of USD 54 billion in annual investment. At the same time, USD 45 billion will be needed in Latin America, with reforestation, agroforestry, protected areas, and restoration of peatlands and seagrass representing the largest share of NbS investment needs.[27] Given that most of the global NbS projects are in the global south[28], there is a potential to galvanize the private sector if financial returns are predictable. According to Abubakar Jimoh, the CEO of Trust Banc Nigeria, “While there is potential for NbS in Nigeria, there is a weak evidence base regarding financial returns to support the viability of green investments leading to the reluctance of investors to finance NbS.”[29]
Drivers of Green House Gas Emissions in Nigeria, Colombia, and Indonesia

As of 2017, more than 65 percent of GHG emissions arise from Non-Annexe 1 countries compared to 45 percent in 1990. Even though just six countries (China, India, Russia, Brazil, Indonesia, and Iran) are responsible for more than 40 percent of these emissions, over the next 20 years, the contribution from countries such as Nigeria, Congo, Pakistan, Vietnam, Mexico and ten other Non-BRICs emerging economies will dwarf the current 25 percent contribution from China. Examining the sectoral drivers of GHG shows that fuel combustion activities and AFOLU will be the most significant driver of GHG in many developing (non-Annexe 1) countries. Colombia, Indonesia, and Nigeria are the three countries being considered in this research due to their megadiverse nature and their relevance in their respective regions.

Colombia

Colombia is the world’s 35th largest emitter, with a 0.54 percent share of global emissions. Land Use Change and Forestry (30 percent) and Agriculture (24 percent) are the most significant sectors, contributing more than 70 percent of the country’s greenhouse gas emissions. The outsized influence of agriculture and land use change on the nation’s GHG emissions means that land-based actions and nature-based solutions are essential to decreasing GHG emissions by 51 percent by 2030. According to David et al. (2022), the carbon market through NbS, such as avoided deforestation, afforestation/reforestation, agriculture, the conservation and restoration of wetlands, and improved forest management, has the mitigation potential of 219 MtC02, which is 79 percent of the country’s current total GHG. However, financial and non-financial mechanisms must be combined to achieve Colombia’s NDC objective.
SISCLIMA, the financial management committee for Colombia’s climate governance, released a report showing that the total investment needed to achieve Colombia’s goal for GHG emission reduction is around USD 12 billion, equivalent to USD 0.67 billion annually. However, the current financial resources available for climate change mitigation and adaptation projects are only USD 0.17 billion annually. This means that Colombia’s investment gap is USD 0.50 billion annually. With an estimated USD 675 billion (215% of GDP), the Colombia financial market is rightly placed to eliminate the investment gap if adequately catalyzed. On the other hand, an effective policy environment that removes political, social, cultural, and legal barriers is essential to unlocking NbS potential in Colombia. Spatial restrictions in the form of locked-in land use, which outline areas not accessible for carbon markets and lack of quality local data, are a few barriers that must be removed to catalyze private sector involvement in Colombia’s climate finance market.

According to Climate Bond Initiative, Colombia is leading the path in Green Finance in Latin America based on the number of corporate green bonds, sovereign green bonds, and the launch of a national Green Taxonomy. However, a review of the loan portfolio of the four biggest banks in Colombia shows little or no investment in the green sector. As shown in Table 1, Agriculture, Cattle, Forestry, and fish farming receive 3% of the Bancolombia and Banco De Bogota loan book, while Davivienda and BBVA allocate 2% to this sector. There is no assurance that these loans are not directed at nature-negative agricultural practices, which would not count as green.
<table>
<thead>
<tr>
<th>Sectors</th>
<th>Bancolombia</th>
<th>Banco De Bogota</th>
<th>Daviendia</th>
<th>BBVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employees (Natural Person)</td>
<td>0%</td>
<td>0%</td>
<td>56%</td>
<td>62%</td>
</tr>
<tr>
<td>Wholesale and retail trade, repair of motor vehicles and motorcycles</td>
<td>0%</td>
<td>0%</td>
<td>7%</td>
<td>6%</td>
</tr>
<tr>
<td>Manufacturing industry</td>
<td>6%</td>
<td>4%</td>
<td>7%</td>
<td>8%</td>
</tr>
<tr>
<td>Construction</td>
<td>11%</td>
<td>7%</td>
<td>6%</td>
<td>1%</td>
</tr>
<tr>
<td>Supply of electricity, gas, steam and air conditioning</td>
<td>0%</td>
<td>0%</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>Financial and insurance activities</td>
<td>0%</td>
<td>0%</td>
<td>3%</td>
<td>2%</td>
</tr>
<tr>
<td>Professional, scientific and technical activities</td>
<td>0%</td>
<td>0%</td>
<td>3%</td>
<td>0%</td>
</tr>
<tr>
<td>Real estate activities</td>
<td>0%</td>
<td>0%</td>
<td>2%</td>
<td>0%</td>
</tr>
<tr>
<td>Transport and communications</td>
<td>4%</td>
<td>3%</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>Agriculture, cattle farming, forestry and fishing</td>
<td>3%</td>
<td>3%</td>
<td>2%</td>
<td>1%</td>
</tr>
<tr>
<td>Administrative and customer service activities</td>
<td>0%</td>
<td>0%</td>
<td>2%</td>
<td>0%</td>
</tr>
<tr>
<td>Mines and quarries</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Food Beverage and Tobacco</td>
<td>4%</td>
<td>6%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Chemical</td>
<td>2%</td>
<td>2%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Commerce and Tourism</td>
<td>13%</td>
<td>1%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Public Services</td>
<td>4%</td>
<td>3%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Consumer Services</td>
<td>37%</td>
<td>46%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Commercial Services</td>
<td>15%</td>
<td>22%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Government Agencies</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>8%</td>
</tr>
<tr>
<td>Non-Financial Corporations</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>27%</td>
</tr>
</tbody>
</table>
Indonesia

Indonesia is the world’s 5th largest emitter, with 1,959 million tonnes of CO₂ equivalent in 2019.[41] Land use change and forestry (49 percent), electricity and heat (9 percent), and agriculture (13 percent) are the sectors responsible for the most significant shares of GHG emissions in Indonesia.[42] The slash-and-burn approach used in clearing the nation’s forest for oil palm cultivation has played a significant role in driving polluting mega-fires and releasing carbon stored in the peat. Also, reliance on coal for energy generation and foreign earnings has made the decarbonization effort in Indonesia very complex. Indonesia is the world’s fifth largest coal producer, with 80 percent of its coal being exported.[43] It also generates 58 percent of its energy from coal, ranking 5th in the number of operational coal power plants worldwide.[44]

CPI conducted an analysis to assess major banks readiness in disclosing climate related matters in Indonesia and it was shown that less than 10% of the loan portfolios of sampled commercial banks which represent 60% of the market share goes to green projects.[45] Further analysis of the loan portfolio of the top 4 banks in Indonesia as presented in Table 2 below shows that most of the banks gives out loans to the manufacturing sector and the trading, hotels and restaurant sector. While the country has also launched a Green Taxonomy framework and there is an increasing trend in green portfolios, there has not been specific target or commitment related to Net Zero portfolios. [46]
### Table 2: Loan Portfolio of the 4 biggest banks in Indonesia

<table>
<thead>
<tr>
<th>Sectors</th>
<th>BRI</th>
<th>Bank Mandari</th>
<th>Bank Central Asia(BCA)</th>
<th>Bank Negara</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trading, hotels and restaurants</td>
<td>34%</td>
<td>13%</td>
<td>22%</td>
<td>11%</td>
</tr>
<tr>
<td>Agriculture</td>
<td>14%</td>
<td>11%</td>
<td>5%</td>
<td>12%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>9%</td>
<td>14%</td>
<td>22%</td>
<td>29%</td>
</tr>
<tr>
<td>Business Services</td>
<td>5%</td>
<td>9%</td>
<td>13%</td>
<td>9%</td>
</tr>
<tr>
<td>Construction</td>
<td>3%</td>
<td>7%</td>
<td>5%</td>
<td>15%</td>
</tr>
<tr>
<td>Transportation, warehousing, and communications</td>
<td>2%</td>
<td>6%</td>
<td>7%</td>
<td>11%</td>
</tr>
<tr>
<td>Social services</td>
<td>1%</td>
<td>4%</td>
<td>2%</td>
<td>3%</td>
</tr>
<tr>
<td>Electricity, gas and water</td>
<td>3%</td>
<td>4%</td>
<td>2%</td>
<td>6%</td>
</tr>
<tr>
<td>Mining</td>
<td>1%</td>
<td>6%</td>
<td>0%</td>
<td>4%</td>
</tr>
<tr>
<td>Others</td>
<td>27%</td>
<td>26%</td>
<td>22%</td>
<td>1%</td>
</tr>
</tbody>
</table>
The NCS potential in Indonesia is 1,471 MtCO, almost 3/4th of the country’s current emission.[47] NCS mitigation potential in Indonesia comes from three primary classifications, which includes peatlands (69 percent), dryland (29 percent), and mangrove (2 percent).[48]

**Figure 7: Mitigation Potential of Nine NCS in Indonesia**

As shown in Figure 7, if nine NCS pathways in Indonesia are maximally implemented, mitigation potential from NCS can provide a substantial portion of the emission reduction targets proposed in Indonesia’s NDCs.[49] Indonesia updated its NDC in September 2022, improving its unconditional target from 29 percent to 32 percent below its business-as-usual scenario (BAU) and its conditional target from 41 percent to 43 percent below its BAU; however, this reduction is still rated as critically insufficient by Climate Action Tracker.[50] MDBs and other climate investment funds have been driving the energy transition in Indonesia. Climate Investment Funds recently announced the allocation of USD 1 billion to help South Africa and Indonesia move from coal to clean power. An initial $20 billion in public and private financing over a three-to-five-year period would be mobilized through the JETP platform.[51],[52] Through their research, CPI found that total private sector climate finance reached USD 13.2 billion between 2015-2018, just 2.3 percent of the commercial FI’s total credit issuance (USD 378 billion).[53]

For Indonesia to achieve the USD 247 billion[54] needed to meet its NDC target, it requires the active participation of the private markets.
Nigeria

Agriculture, Forestry, and Land Use contribute 38 percent of Nigeria’s GHG emissions.[55] Between 1990 and 2019, emissions from agriculture increased from 40Mt to 82Mt, making it the second fastest sector with the highest percentage increase after Transport.[56] Land use practices such as bush burning, deforestation, and tree felling drive the GHG emissions for Land Use Change. Other sources of emissions include Fugitive emissions (15 percent), Transport (16 percent), Buildings (11 percent), and Electricity (7 percent).[57] The reliance on fossil fuels for foreign exchange earnings is a key barrier to reducing the country’s GHG. In 2019, the oil and gas sector accounted for about 5.8 percent of Nigeria’s real GDP and was responsible for 95 percent of Nigeria’s foreign exchange earnings and 80 percent of its budget revenues.[58] Through NCS, such as agroforestry, improved forest management, and forest restoration, the country has an estimated mitigation potential of 115—Mt (45 percent of the country’s current GHG emission). [59]

Deposit Money Banks provided a credit of USD 57 billion to the private sector in 2020, with almost 20% allocated to the oil and gas sector.[60] Within the same period, CPI reported that domestic private investors provided just USD 171 million for climate investment.[61] As shown in Table 3, a detailed analysis of the loan portfolio of the four biggest commercial banks in the country shows that oil and gas, manufacturing, and government are the biggest sectors lent to by the banks. If the 5 biggest banks in Nigeria decide to allocate 20% of their USD 42 billion loan book to climate-related projects, they will provide close to 50% of the country’s USD 17.7 billion annual climate finance need. [62]
Table 3: Loan Portfolio of the 4 biggest banks in Nigeria

<table>
<thead>
<tr>
<th>Sector</th>
<th>Zenith</th>
<th>Access</th>
<th>GT Bank</th>
<th>First Bank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>7%</td>
<td>1%</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>Oil and gas</td>
<td>22%</td>
<td>24%</td>
<td>13%</td>
<td>30%</td>
</tr>
<tr>
<td>Consumer Credit</td>
<td>5%</td>
<td>11%</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>25%</td>
<td>12%</td>
<td>5%</td>
<td>19%</td>
</tr>
<tr>
<td>Real estate and construction</td>
<td>3%</td>
<td>7%</td>
<td>1%</td>
<td>8%</td>
</tr>
<tr>
<td>Finance and insurance</td>
<td>0%</td>
<td>3%</td>
<td>14%</td>
<td>1%</td>
</tr>
<tr>
<td>Government</td>
<td>15%</td>
<td>8%</td>
<td>50%</td>
<td>9%</td>
</tr>
<tr>
<td>Power</td>
<td>2%</td>
<td>1%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Transportation</td>
<td>5%</td>
<td>4%</td>
<td>3%</td>
<td>1%</td>
</tr>
<tr>
<td>Communication</td>
<td>1%</td>
<td>5%</td>
<td>0%</td>
<td>4%</td>
</tr>
<tr>
<td>Education</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
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Methodology

The findings in this report are based on a systematic review of policy papers and interviews with key experts within the climate finance community. A total of 50 policy papers were reviewed, and with the inclusion criteria set[1], 25 papers were eventually approved. The review was conducted before the interview to inform our position on the barriers and opportunities to mobilizing climate finance for Nature Based Solutions in developing countries. In total, 10 interviews were conducted in February – March 2023 with stakeholders in Indonesia, Nigeria, and Colombia representing the following groups.

- Mainstream financial institutions, including commercial banks, asset managers, and insurance companies.
- Impact investment funds, including specialized venture capital firms, boutique investment advisors, and blended finance or impact investors.
- NbS-focused accelerators, incubators, and financiers, including accelerators, technical assistance facilities, and development agencies.

Breaking the interviewees further by sector in the individual country, we have the following classification.

- Nigeria: 5 interviewees (2 commercial banks, 2 development finance institutions, and 1 investor)
- Indonesia: 3 interviewees (1 Fintech, 1 Consultant, 1 regulator)
- Colombia: 2 interviewees (1 commercial bank, 1 development finance institutions)

A thematic analysis of the interviews was then conducted to validate the findings identified during the systematic review. Before the interviews, each interviewee was asked to consent to record the conversations. Explicit permission was obtained from any interviewees quoted by name in this report, while interview subjects who did not wish to have their name or institution attributed to viewpoints were anonymized in their quotes.

Theory of Change

The current funding structure for Nature Based Solution is from public institutions, which has limited the potential of NbS. Below is a theory of change that shows how funding could be structured differently and who would be prioritized under that structure. To achieve the overarching goal of improving human welfare, there must be a concerted effort toward limiting land degradation, biodiversity loss, and climate change. NbS for adaptation plus mitigation is one approach to achieving this triple benefit, and investments in projects such as mangrove restoration, avoided deforestation, peatland restoration, carbon credit, and biodiversity are a few options for such NbS. However, due to the lack of proof of concept or investible adaptation projects, NbS for adaptation has gained less traction than NbS for mitigation. DFIs, Donor organizations, and other MDBs currently funding NbS should redesign and repurpose their funding structure as a catalytic tool to mobilize the private sector. Technical Assistance and capacity building are two essential instruments Donor partners and DFIs could use to mobilize the private sector. Given that some NbS measures, such as protected areas and forest plantations, can negatively impact indigenous or local populations and thereby harm adaptative capacity through displacement, livelihood restrictions, and ensuing cultural impacts[1], the participation of indigenous people along with the local capital owners who understand the market dynamics is critical to its design, planning, and execution.

Given that adaptation benefits could be private compared to mitigation which is inherently a public good, then it may be better suited to the private sector, whose underlying principle is based on self-interest. The prioritization of investment in NbS for adaptation, such as coastal management and development of living shorelines, will help countries achieve their net zero goals and simultaneously provide investment opportunities for the private domestic market.
NbS for Mitigation
Avoided Deforestation and Reforestation
Carbon credit and Biodiversity Offset

NbS for Adaptation
Mangrove, Peatland, and Coral Restoration
Coastal and Watershed Management
Agro-Forestry

OUTCOME
• Climate Change Achieving Net Zero
• Biodiversity Protection
• 30 by 30
• Land Restoration

CROSS BORDER INVESTORS
JP Morgan, Credit Suisse,

DOMESTIC INVESTORS
Bancolombia, BBVA, Bank Mandiri, Bank Rakyat, Access Bank, Stanbic Bank

TECHNICAL ASSISTANCE + STRATEGIC INVESTMENTS + CAPACITY BUILDING
Donor Funding, Grants, Blended Finance, Technical Experts
MDBs, DFIs, Govts, Philanthropy

• Knowledge Spillover
• Technical Transfer
• Cheaper Financing Sources
• Capacity Development
• Local Leadership
• Accessing User at the Base of the Pyramid
• Cost Effectiveness
• Risk Management
• Speed and Delivery
• Achieving SDG Goal
• Credit Adequacy Capabilities

IMPACT
Improved Welfare for Human
Mobilizing Domestic Capital for Nature Based Solutions

Barriers to NbS Investment

Upon completing the systematic reviews and interviews with stakeholders in Colombia, Indonesia, and Nigeria, the following barriers, as shown in Figure 5, were highlighted. The barriers, classified into six significant buckets, ranged from lack of awareness and knowledge about NbS to poor regulatory and carbon market frameworks. Other barriers highlighted are the current structure of DFIs lacking the capacity to catalyze private capital and the riskiness of NbS. Further stratifying the interviewees based on the industry shows that the respondents from the commercial banks/ Fintech believe that pricing, returns/bankability, and size are the biggest barriers to NbS. This is consistent with the fact that banks are in the business of making a profit. To address these barriers, the next section is devoted to recommendations and policy proposals.
Recommendations and Policy Proposals

It has been established that there is a gap in financing for NbS, and the hope is that private finance can fill the gaps; however, to achieve this, a set of policy frameworks must be implemented to understand NbS, redefine the role of DFIs, and facilitate the development of the domestic capital and carbon market.

1. Clear definition of Nature Based Solution

As simple as this may sound, one of the fundamental problems identified while conducting this research is understanding what counts as NbS. A clear understanding of what differentiates nature-positive projects (NbS) from nature-negative projects helps investors and owners of capital to make proper investment decisions. An example is agriculture which can be loosely categorized as nature-based solutions. Exploring the different agricultural practices gives an appropriate understanding of why some practices may even be causing harm to the environment. Excessive draining of the aquifer, excessive land grazing, fertilizer runoff, and other harmful agricultural practices constitute land degradation, biodiversity loss, and climate change.

Policy Proposal

i. Development of a locally led Green Taxonomy Framework:

A green taxonomy is a framework for defining what can be called environmentally sustainable investments.[64] A green taxonomy is generally used to prevent greenwashing, help investors make informed investment decisions, and help channel investment toward sustainable or green economic activities and assets. While Indonesia and Colombia are one of the countries that have recently adopted a green taxonomy framework, my engagement with stakeholders within the country shows that only some people are aware of what is green taxonomy. According to the Sustainability and ESG Lead of a leading fintech in Southeast Asia, despite a limited number of financially viable NbS projects with generally longer payback periods, the lack of knowledge about the sector is the biggest barrier to finance. Many stakeholders do not know what NbS is and how it affects them; therefore, local stakeholders need to learn more about such solutions and understand what projects count as NbS.
Also, for countries with an operational green taxonomy, it does not reflect the peculiarities of the domestic market, as a lot of this framework adopts the EU Green Taxonomy Framework with little cognizance of the local context. [65] For countries like Nigeria planning on designing their taxonomy, these lessons should be incorporated to ensure a bottom-up and locally-led green taxonomy framework. The head of climate finance at IDB Invest argued that the first step to mobilizing domestic investment is the development of a taxonomy that classifies projects based on mitigation, adaptation, and biodiversity loss.

ii. Capacity Building to change investors’ perception of the riskiness of NbS.

Local actors generally perceive Nature-Based solutions as riskier and yield lesser returns than conventional projects. The perception of the risk and return profile differs among international investors who have a better understanding of the operations and financing of NbS projects. One critical solution mentioned by all the speakers across the countries is expanding the capacity building of regulators and operators. Chinua Azubike, the CEO of Infracredit, said that one of the most critical parts of his job at Infracredit is to build the capacity of domestic institutional investors to invest in infrastructure debt. In his interview with CD Insights, Chinua referred to a North-South Power project guaranteed by Infracredit. After the successful launch of the first fifteen-year green bond in 2019 with a guarantee from Infracredit, North-South Power approached the market again in 2020 to raise a 10-year green bond, but this time they did not have to rely on a guarantee from Infracredit.[66] This shows the importance of capacity building in catalyzing the domestic market. Andres Fernando of BBVA argued that local developers and financiers have a poor perception of the risk and return of nature-based projects compared to their international counterparts due to a lack of technical capability. Given that BBVA is an international bank in Colombia, he has access to resources from other BBVA offices worldwide puts him in a better position regarding knowledge and capacity than other domestic banks. Developing the knowledge capacity of the domestic market is the first step to unlocking domestic capital. Dr. Somorin believes that the ability to see climate change as a risk and an opportunity will change investors’ perception of NbS as a risky project.
2. Redefining the role of Development Financial Institutions, Philanthropies, and Donor Countries

DFIs and Donor agencies occupy a strategic position as the last mile lenders and capital providers with the capacity to shoulder the risk that private capital owners are not designed to take. The nature of climate projects and NbS requires catalytic capital, which is within the purview of DFIs. However, DFIs are also reported to shun risk in emerging economies. Lately, the prime minister of Barbados has led the call to overhaul the World Bank Group and the IMF’s unfair and outdated lending system that does not cater to the needs of climate-stricken countries.

**Policy Proposal**

i. Developing a risk-sharing tools that suit the specific needs of emerging economies.

NbS, compared to other clean projects such as renewable energy, need a clear proof of concept and guaranteed returns. The lack of such evidence drives the reluctance seen among investors. According to Abubakar Jimoh, the CEO of Trust Banc Nigeria, while there is potential for NbS in Nigeria, there is a weak evidence base regarding financial returns to support the viability of green investments leading to the reluctance of investors to finance NbS[67]. Through carbon and biodiversity credit, NbS could provide competitive market returns. However, the lack of identifiable projects has made investing difficult for private investors. While capacity building is being carried out to reduce the perceived risk associated with NbS, DFIs, and Donor agencies should provide suitable blended finance tools against the real risk of investing in NbS. When asked about the suitability of current risk-sharing instruments for climate finance projects, Chinua Azubike replied: “We must find creative ways to crowd in philanthropic money such as innovative blended finance solutions as the Climate Finance Blending Facility seeded by the UK FCDO; the current development aid structure needs to be redesigned to catalyze private capital development, especially domestic resources and drive the path to self-reliance in emerging economies.” Also, DFI’s role should be to reduce the risk of the private sector by offering a first loss position and guarantee or taking an equity position in a transaction rather than competing and crowding out the private sector in the climate finance space.
According to a report by Convergence, DFIs typically insist on standard commercial terms in more than 75 percent of the blended finance deals in which they participate. [68] Secondly, funding support from donor countries is poorly timed, allocated to governments rather than projects, driven by geopolitics and conditionalities, and conveyed with the wrong instrument. [69] A good example is the USD 100 billion climate fund from developed countries. Almost 70 percent of the fund is loan-based, and donor countries have prioritized mitigation projects in middle-income countries, neglecting emerging countries with dire climate needs. [70]

**ii. Identification and preparation of investible NbS projects by DFIs**

NbS represent a new type of asset class, and development finance plays a vital role in demonstrating that market-based financing mechanisms can work for the sector [71] The status of NbS projects requires DFIs to support new business models and local developers to bring the project to market. Olufunso Somorin, a regional officer at AFDB, believes that DFIs must show best practices and results to convince private investors to invest in NbS. He cited the launch of TDB’s Class C Green+ Shares by AFDB as an example of leadership with which DFIs should be involved. The African Development Bank and the Eastern and Southern African Trade and Development Bank (TDB) launched the TDB’s Class C Green+ Shares as an equity financing instrument to catalyze financing for sustainable development on the continent. This is the first equity instrument to provide a pathway for institutional investors to support climate action with risk capital, with each dollar invested being leveraged four times into qualifying projects and transactions. [72] An equity product is a welcome development in a period where debt instrument has inundated the climate finance space.

Policy Proposal

i. Standardization of the domestic carbon market to ensure clarity and uniformity.

The Compliance Carbon Market and the Voluntary Carbon Markets offer many developing countries the opportunity to achieve sustainable economic development and their carbon reduction target. To fully exploit this potential requires a comprehensive regulatory framework and globally acceptable standards and methodologies for valuing and certifying credits which many developing countries need more. In 2016, the Colombian government launched the Colombian Voluntary Carbon Market Platform to meet the country’s climate targets, growing the carbon credits more than fourfold within three years to become a USD 20 million market.[1] According to Dr. Somorin, the benefits of Nature-based Solutions include carbon credits and biodiversity credits, and to accrue these benefits, nations must actively develop their metrics and standards. The success of Colombia VCM was rooted in the extensive coordination efforts between the presidency and several agencies in the country, including the Colombia Stock Exchange.[2] A standardized carbon market will give investors the confidence to invest.

ii. Incentivisation and enforcement of guidelines

Many stakeholders expressed that guidelines enforcement is critical to the growth of Nature-Based Solutions. Andres Fernandes said that while banks and financial institutions strive to comply with regulations, the demand side and users of funds need to abide by the guidelines. He advised that the law must offer commensurate rewards and punishments to actors violating existing policies. Conversely, Tomilola Adekiigbe, a finance manager at All On, believes incentivizing the private sector to invest in NbS and climate finance is a better approach. She referenced a Central Bank of Nigeria policy that compels banks to have a minimum Loan to Deposit Ratio (LDR) of 65 percent. The policy aims to ensure that 65 percent of banks’ deposits are given out as loans to the productive sectors rather than investing in government instruments which is the norm in the Nigerian banking system. The recently passed Inflation Reduction Act in the United States is a typical example of an incentive system to encourage private sector investment in renewable energy.
ii. Institutionalization of the local carbon pricing framework

Carbon taxes are levies imposed on users for a unit of greenhouse gas emitted by individuals or corporations. It embodies the principle that the correct price for fossil fuels must include the “externality costs” of burning that their combustion imposes on society. Carbon pricing serves the triple purpose of reducing greenhouse emissions, providing a source of revenue to the government and an income redistributive policy instrument. Colombia introduced its first carbon pricing in 2021, and Indonesia began a phased implementation in April 2022, while Nigeria does not currently have a carbon pricing framework. With an increased trajectory of GHG emissions in many developing countries like Nigeria, Colombia, and Indonesia, as evidenced in research by the Energy Access Project at Duke,[75] having an effective carbon pricing framework will be critical to reducing GHG emissions.
Rebalancing the Focus of International Institutions

International institutions must support countries looking to develop a Green Taxonomy Framework. To effectively mobilize domestic capital, DFIs, Donor countries, and other international institutional frameworks must increase their engagement to support countries in formulating effective development and climate strategies and plans. The lack of clarity about which activities and assets to be defined as green posed a barrier to scaling up green finance in the international and domestic markets. Developing a Green Taxonomy requires a depth of expertise and knowledge that might be lacking in the domestic market. Fortunately, the World Bank has published a guideline outlining the processes that financial regulators can use to develop a Green Taxonomy. While this is the first step in developing this framework, it provides solid fundamentals on what a Green Taxonomy looks like. However, the process must be locally led to ensure that the Taxonomy considers each country’s peculiarities and dynamics. One of the individuals interviewed said that much Green Taxonomy that is being developed is simply a domestication of the EU framework, which rarely accounts for the dynamics of the domestic financial market. They also said that most frameworks aim primarily to fulfill funding criteria set by international donors. While these approaches are necessary to drive compliance, there must be an understanding that without internal motivation from the country to develop this framework, it may end up being box-ticking.

International Institutions must expand support to countries for the development of institutional capacity. Developing the knowledge capacity of the regulators and operators in the domestic market is essential for the execution, funding, and enforcement of the framework and other guidelines that may be put in place. Regulators are generally reactive and constantly playing catch up to innovations and ideas. Given that NbS are new asset classes, the existing regulatory framework in many emerging economies is insufficient to drive compliance. International Institutions must provide training, capacity buildings, and technical assistance to local regulators. With an understanding of how the instrument works, regulators can issue a guidance note on the specific asset, redesign their disclosure framework, and repurpose the risk management framework to ensure that investors, buyers, and users of NbS are protected. The market is all about perception, a market where the regulators show a good understanding of all the products creates a positive feedback loop that further strengthens the market.
DFI and Multilateral organizations should be restructured to be risk underwriters, enablers, and guarantors, providing private domestic lenders the confidence to mobilize resources. As estimated by UNEP (2021), annual investment need for NbS by 2030 will more than triple the current USD 154 billion. With the public sector contributing more than 80 percent of NbS spending[76], DFIs must redefine their roles as catalysts, underwriters, and enablers, to usher in private-sector investment. It has been reported that DFIs meant to provide catalytic capital mostly use senior debt, subordinated debt, and common equity at near-market rates as their investment instruments.[77] Convergence wrote that first loss debt and equity is less than 5 percent of DFIs’ investment strategies.[78] To bring in more private capital for Nature-Based Solutions and climate, DFIs must be willing to take on more risk.

**International Financial Institutions must strengthen their relationship with regional and national development banks.** Regional and National development banks have the dual role of complementing and catalyzing private sector players. Their unique knowledge and long-standing relationships with the local private sector put them in a privileged position to access local financial markets and understand local barriers to investment. [79] Regional and National Development banks provide the perfect bridge between international financial institutions and the local private market. While they may have a limited size and scope of capital available to international financial institutions, their knowledge of the domestic market, risk-taking capacity, and relationship with local private capital holders make them a necessary partner. To build an institution or framework that supports the mobilization of the domestic private market, IFI must strengthen regional and national development banks must be fully integrated.
The domestic market in Nigeria, Colombia, Indonesia, and many other emerging economies have the willingness and the potential to invest in NbS. However, the lack of awareness and technical capacity to structure NbS projects, the perception of the riskiness of NbS, and the poor regulatory framework are a few barriers limiting them from investing in this new asset class. Several interviewees expressed the readiness of the market to invest in NbS if it can be proven to generate near-market returns and if DFIs and MDBs can lead the transaction. Multilateral Development Banks have the capacity to mitigate these risks given the size of their capital; however, the current business model where loans originated are held to maturity ties down valuable capital. The market has the potential and the capacity, but the risk must be shared. The current philanthropic and donor money structure could be more intently designed to catalyze private sector development and drive the path to self-reliance. Financial instruments must be prepared for impact, and the economic value of NbS must be outlined to attract investment. On the other hand, MDBs and DFIs would have to scale up and increase accessibility to concessional finance. The nature and scope of NbS require blended finance instruments, which MDBs and DFIs could only provide. Also, the general feedback from the interviews is that pricing is a key barrier domestic financial actors face. Given the nascent nature of the sector, the cost of funding is high because lenders require a higher return for the increased risk exposure. The availability of credit guarantees and loss-sharing products would motivate lenders and investors to avail the market of the needed resources at an affordable rate.

Developing countries must strengthen existing guidelines and provide clear and uniform standards. The safety and soundness of the financial market are critical to the effective performance of a new asset class such as NbS. A green taxonomy helps investors make informed investment decisions and channels investment toward sustainable or green economic activities and assets. Also, standardization of the domestic carbon market is vital to the success of NbS. The benefits of Nature-based Solutions include carbon credits and biodiversity credits; to accrue these benefits, nations must actively develop their metrics and standards. Finally, the local carbon pricing framework must be institutionalized to ensure its users internalize the externalities associated with fossil fuel. A good carbon pricing framework will help to make the market price of fossil fuels more accurately reflect their actual cost to society and incentivize the use of cleaner, more sustainable alternatives.

Conclusion

The domestic market in Nigeria, Colombia, Indonesia, and many other emerging economies have the willingness and the potential to invest in NbS. However, the lack of awareness and technical capacity to structure NbS projects, the perception of the riskiness of NbS, and the poor regulatory framework are a few barriers limiting them from investing in this new asset class. Several interviewees expressed the readiness of the market to invest in NbS if it can be proven to generate near-market returns and if DFIs and MDBs can lead the transaction. Multilateral Development Banks have the capacity to mitigate these risks given the size of their capital; however, the current business model where loans originated are held to maturity ties down valuable capital. The market has the potential and the capacity, but the risk must be shared. The current philanthropic and donor money structure could be more intently designed to catalyze private sector development and drive the path to self-reliance. Financial instruments must be prepared for impact, and the economic value of NbS must be outlined to attract investment. On the other hand, MDBs and DFIs would have to scale up and increase accessibility to concessional finance. The nature and scope of NbS require blended finance instruments, which MDBs and DFIs could only provide. Also, the general feedback from the interviews is that pricing is a key barrier domestic financial actors face. Given the nascent nature of the sector, the cost of funding is high because lenders require a higher return for the increased risk exposure. The availability of credit guarantees and loss-sharing products would motivate lenders and investors to avail the market of the needed resources at an affordable rate.

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Key Terms

**Biodiversity Intactness Index**: The Biodiversity Intactness Index (BII) summarises ecological community changes in response to human pressures. The BII is an estimated percentage of the original number of species that remain and their abundance in any given area, despite human impacts.

**Blended Finance**: The strategic use of development finance to mobilize additional finance toward sustainable development in developing countries.

**Catalytic capital**: Catalytic capital is investment capital that is patient, risk-tolerant, concessionary, and flexible in ways that differ from conventional investment. It is an essential tool to bridge capital gaps and achieve breadth and depth of impact while complementing traditional investing.

**Climate Finance**: A local, national, or transnational financing—drawn from public, private, and alternative sources of financing—that seeks to support mitigation and adaptation actions that will address climate change.

**Climate-aligned Finance**: aligning financing and investment decisions fully with the decarbonization trajectories implied by well-below 2°C temperature targets.

**Compliance Carbon Markets**: Compliance carbon markets are marketplaces through which a certain number of carbon credits are issued per company and year. These are non-voluntary, and companies must fulfill them.

**Contribution Rate**: change in carbon emission caused by a variable/ change in total carbon emission (variables include economic growth, population, etc.)

**Green Taxonomy Framework**: A green taxonomy is a framework for defining what can be called environmentally sustainable investments. In addition to tackling “greenwashing,” such a taxonomy will help companies and investors make more informed green choices.

**Kunming-Montreal Agreement**: Global diversity framework adopted in Montreal, Canada, in 2022 to reduce the threats to biodiversity.

**Low-carbon Pathways**: Consuming less energy and using energy more efficiently.

**Non-Annexe 1 countries**: Non-Annex I countries are developing countries under the Kyoto Protocol. Non-Annex I countries do not have legally binding emissions reduction targets.
**Key Terms**

**Paris Agreement:** The Paris Agreement is a legally binding international treaty on climate change. It was adopted by 196 Parties at the UN Climate Change Conference (COP21) in Paris, France, on 12 December 2015. It entered into force on 4 November 2016.

**Rio Convention Objectives:** Its objectives are to stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous human interference with the climate system within a time frame sufficient to allow ecosystems to adapt naturally to climate change.

**Voluntary Carbon Markets:** Voluntary carbon markets allow carbon emitters to offset their emissions by purchasing carbon credits emitted by projects targeted at removing or reducing greenhouse gas from the atmosphere.
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<th>Abbreviation</th>
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<td>BAU</td>
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<td>James E. Energy Access Project</td>
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<td>G-20</td>
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<td>GtCO</td>
<td>Gigatonne of Carbon</td>
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### Appendix: List of Interviewees

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<th>Sector</th>
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<td>Abubakar Jimoh</td>
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District: Nigeria

Sector: Investment Banking, Commercial Bank, Development Finance, Consulting, Corporate and Investment Banking, Fintech, Development Finance, Bank Development Supervision, Trust Banc, Sterling Bank, Infracredit, IDB Invest, Pollination, All-On Shell, BBVA, Modalku, AFDB, OJK, Head, Energy Group, Head, Climate Finance, Head of Finance, Managing Director, Head of Sustainability.
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