

Harnessing Private Capital for Global Public Goods

Issues, Challenges and Solutions



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Table of Contents

List of Abbreviations	5
Abstract	6
1. Introduction	7
2. Adaptation, mitigation, and development	8
3. The financing requirement	9
4. The challenges to attracting private capital	9
4.1 The scaling challenge	10
4.2 Economic returns to infrastructure investment	12
4.3 The macroeconomic costs and consequences	13
4.4 The recurrent debt defaults	14
4.5 The problems with private sector participation	15
4.6 The political economy and state capability challenges	16
5. Addressing the challenges	17
5.1 De-risking through innovative models	17
5.2 Role of developmental finance institutions	17
5.3 Leveraging impact investments	18
5.4 Institutional enablers	19
5.5 Overcoming the political economy and state capability deficiency challenges	21
6. Summary	21
7. Way forward	22
References	24

List of Tables

Table 1. Macroeconomic impact of climate finance mobilisation	14
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List of Figures

Figure 1: Climate finance instruments used by MDBs in 2020	11
Figure 2: Figure 2: Sources of financing infrastructure projects with private participation in EMDEs in 2022	11
Figure 3: The impossible trinity of net zero	13
Figure 4: External debt stock composition of developing countries (excluding China), 2021	14
Figure 5: The resource mobilisation requirement	15

Abbreviations

BITs	Bilateral investment treaties
BNDES	National Bank for Economic and Social Development
CoP	Conference of the Parties
ESG	Environmental, Social, and Governance
EMDCs	Emerging markets and developing countries
FDI	Foreign direct investment
GDP	Gross domestic product
GFANZ	Glasgow Financial Alliance for Net Zero
GIIN	Global Impact Investing Network
IEA	International Energy Agency
IMF	International Monetary Fund
ISDS	Investor–state dispute settlement
MDBs	Multilateral development banks
NAO	National Audit Office
NHAI	National Highways Authority of India
NPV	Net present value
O&M	Operation and maintenance
PFI	Private Finance Initiative
PPPs	Public-private partnerships
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
UN SDGs	United Nations Sustainable Development Goals
VfM	Value for Money

Abstract

The paper makes the case that poverty alleviation, growth, and climate-related transition, which require both public and private funds, need to be pursued in parallel. Given the scale of these challenges, private capital mobilisation is imperative. However, this should not come at the cost of economic vulnerability and risk. The paper identifies a range of challenges that stand in the way of the smooth flow of resources necessary for the adaptive and other transitions associated with climate change. These challenges are examined across three dimensions – public and private, domestic and international, and equity and debt, and require both global and domestic actions. Such actions include separating the construction, operation and maintenance phases of projects, allocating a greater role to the public sector in the former, concessional capital to national development finance institutions to facilitate project pipeline development, using aid to de-risk countries as opposed to projects; leveraging environmental, social, and governance assets for climate finance in developing countries; eliminating flaws and biases working against developing countries in the credit rating process; ensuring fairer arbitration processes and revision of bilateral investment treaties; improving contract resolution processes; reducing informational asymmetries, and fostering greater transparency in climate finance. Finally, the study calls for the allocation of the climate finance burden on the basis of ability to bear, as failing to do so could lead to macroeconomic stress at the national and global levels.

1. Introduction

Arguably, the biggest challenges facing the world are global warming and climate change, both of which are unfortunate externalities of economic growth. Despite contributing to less than a tenth of the global greenhouse gas emissions, the world's poorest countries remain the most vulnerable to the effects of climate change. Thus, climate change is not only an environmental issue, but also a social issue that needs to be addressed on a priority basis, so as not to exacerbate the existing inequalities between developed and developing nations, within countries, between income groups and between generations.

While climate action is necessary, it needs to be undertaken with pragmatic deliberation. For countries in the developing world, addressing their sustainable development goals precedes climate action. They need the freedom and flexibility to determine their unique mix of mitigation, adaptation and distributional policies. The principle of "Common but Differentiated Responsibilities" must be put into practice, since the goal of net zero cannot translate into net zero everywhere by the same deadline. Even when developing nations fulfil their share of responsibilities, the limited fiscal leeway available underscores the need for more resources that can help with climate adaptation. The 2022–23 Economic Survey of the Government of India argued:

That economic growth would enable resource generation will come as no surprise to students of corporate finance. Companies generate profits and internal resources and thus fund their investments. For companies worldwide, the single biggest source of finance for their capital investments is their own resources before they turn to markets. That would work for nations too.

Another reason why it is a realistic proposition to look for domestic growth to generate domestic savings for climate-related investments and other investments is that securing funding from either developed nations or multilateral organisations is rather difficult. Public finances in developed countries are stretched and do not seem to have the intent to mobilise adequate resources for climate action in developing countries. They also do not have the appetite to provide additional capital to multilateral institutions for them to be able to lend more or mobilise greater resources. Further, the willingness and incentives-alignment of the private sector to undertake long-gestation projects are questionable at best or non-existent at worst.

Given the scale of the funding challenges, governments around the world have no choice but to consider all sources of finance, including private capital. Even if such financing comes with unrealistic return expectations and other attached costs, its sheer abundance makes a compelling case for mobilising private capital. Private capital is an unavoidable option. As such, it is imperative to understand the challenges that come with the pursuit of private capital to finance the green transition, so that these can be anticipated, prevented and mitigated. That is the aim of this paper.

Section 2 underscores the importance, for developing countries, of adapting to climate change and its funding requirements, given the need for countries to maintain their levels of economic growth to generate their own sources of finance. It is tempting to argue that the climate challenge is a development challenge, which makes the case for devoting resources to the former. However, for many countries, the development challenge takes priority over the climate challenge.

Section 3 reviews the various financing requirement estimates, and Section 4 identifies and discusses six challenges to mobilising private capital. Section 5 addresses these challenges, and Section 6 concludes. Private capital mobilisation is both inevitable and desirable, given the scale of funding required to address development and global challenges. However, private capital's natural quest for returns should not end up aggravating economic vulnerability in the quest to address climate vulnerability.

2. Adaptation, mitigation, and development

The global response to climate change is neither uniform, nor does it occur in isolation. Rather, there are two different stories at play. Developed economies, thanks to their current stage of economic development, have the comfort of tackling the climate change problem as their primary challenge. A large share of their population has access to necessities, they are on the frontiers of development, and can be expected to bear the additional costs of energy transition.

The situation is different for developing economies whose populations are grappling with the existential realities of poverty and scarcity, and governments with the twin challenges of poverty alleviation and economic growth. Climate change and energy transition are added problems, which prioritise away the resources and efforts required to advance their economic growth. These countries, therefore, need to build the ship even as they are sailing. This needs to be acknowledged as a qualitatively different challenge from that faced by developed economies. In these circumstances, any discussion regarding climate finance for developing countries should distinguish between interventions aimed at adaptation, mitigation, and development.

Adaptation is concerned with making society more resilient to climate change, mitigation involves reducing carbon emissions, and development pertains to meeting the United Nations Sustainable Development Goals (UN SDGs). A UN report elegantly describes the benefits of adaptation as “avoided damage by adjusting to climate change” and that of mitigation as “avoided damage due to less climate change” (Hof et al, 2014). Development relates to addressing poverty and generating the resources to finance adaptation and mitigation strategies.

Adaptation strategies include: infrastructure and other projects (building defences to protect against rising sea levels, afforestation programmes, etc.); market trends (local food consumption, eco-friendly construction, manufacturing techniques, recycling, etc.); behavioural shifts (energy and water conservation); and regulatory changes (automobile fuel efficiency standards, carbon tax, etc.). Mitigation strategies include investments in renewable energy sources, mass transit, carbon sequestration, battery storage, etc.

Emerging trends point to a much faster pace of climate change than was previously expected (IPCC 2023; 2021). This has increased the climate adaptation requirements, apart from hastening the climate mitigation investments. Governments have been forced to bring forward timelines for energy transitions by several years, and even decades. This has compressed the energy transition timelines, thereby increasing the financing requirements. Furthermore, the issue of rehabilitation and reconstruction, as a result of increasingly common and large-scale damage inflicted by natural disasters in many poor countries, also arises.

External financing for both climate adaptation and mitigation is necessary for developing countries. While a significant part of mitigation projects can be financed with private capital,¹ financing non-revenue creating expenditure for adaptation, resilience and preservation with the help of the private sector is challenging. Such expenditure is not readily financed through debt, and concessional finance instruments from multilateral development banks (MDBs) will be required to provide assistance to developing countries (IEG 2023).

The pace of all these investments depends on countries’ economic growth trajectories, thereby making economic growth in developing countries critical to any climate finance strategy. As Thomas Schelling (1995) stated, development and economic growth might be the best defence against the impact of climate change.

¹ The evidence from Zambia we present later suggests that even this is easier said than done for low-income countries.

3. The financing requirement

The report of the Independent High-Level Expert Group on Climate Finance, commissioned by the United Nations and co-chaired by Vera Songwe and Nicholas Stern, estimates that the emerging markets and developing countries (EMDCs) need to make large investments to cap warming at 1.5 degrees Celsius and meet the goals of the Paris Agreement (Songwe et al, 2022). Their estimates to put developing countries on a low-carbon, socially inclusive, and resilient growth trajectory range from US\$ 1 trillion annually by 2025 (4.1% of GDP) to US\$ 2.4 trillion (6.5% of GDP) by 2030 for EMDCs excluding China, of which approximately US\$ 1 trillion will come from foreign sources.

An influential 2021 report by asset manager BlackRock (2021) estimated that emerging markets (excluding China) will need at least US\$ 1 trillion yearly to achieve net-zero emissions by 2050, which is more than six times the current investment of around US\$ 150 billion in 2020. Adding in the adaptation costs, the requirements would be much higher. The report claims that funding of this magnitude is not available to governments, and as such, a large share would need to come from private sources. Incidentally, this amount is also the commitment made by the developed countries by 2020, as part of the 2010 UN Framework Convention on Climate Change (UNFCCC).

Regarding the share of the gross domestic product (GDP), the International Energy Agency (IEA, 2021) and the International Monetary Fund (IMF 2021) estimate that a transition to net zero by 2050 would require an increased investment in energy globally by at least two percentage points of GDP by 2030 (IEA estimate), or between 2030 and 2040 (IMF estimate).

Reflecting on the central role of climate finance, the most eye-catching announcement at the UN Conference of the Parties (CoP) 26 in Glasgow in November 2021 was the unveiling of a climate finance pledge to meet the goals of the Paris climate agreement, by an alliance of more than 450 firms representing US\$ 130 trillion in assets (UN News, 2021). The Glasgow Financial Alliance for Net Zero (GFANZ), led by former central banker Mark Carney claims that the private sector will have to provide an estimated US\$ 100 trillion to ramp up the “adoption of clean energy and other sustainable infrastructure fast enough to avoid the worst impacts of climate change” (Bloomberg & Carney, 2021).

4. The challenges to attracting private capital

The objective of mobilising more than a trillion dollars each year toward climate finance, by crowding in private capital, is daunting. At least six broad challenges to meeting this objective exist.

First, as the BlackRock Institute report indicates, the current supply of domestic and foreign capital, both public and private, needs to be scaled up. Further, a joint report by the MDBs revealed that in 2019, far from leveraging private capital 10 or 20 times as is often claimed, the MDBs mobilised less than a dollar from the private sector for every dollar of MDB climate finance (African Development Bank et al, 2020).

Even if capital does become available, the competing requirements are much greater in magnitude and can crowd out climate change investments. For example, despite all the talk of green investments and building back better, the G20 countries collectively allocated only 6% of the US\$ 14 trillion stimulus to investments towards reducing carbon emissions (Nahm, Miller, & Urpelainen, 2022).

Second, the objective of crowding in private capital assumes that there is a large shelf of potential projects in developing countries that are bankable and can generate the returns demanded by private investors. However, this assumption can be questioned. Third, green transition, especially at the expected expedited pace, runs the risk of engendering several damaging macroeconomic consequences. Fourth, the scale and speed of private capital mobilisation, both domestic and

foreign, should be managed carefully, considering the long and bitter history of recurrent debt crises that many developing countries have suffered from.

Fifth, the private sector is being placed at the centre of the energy transition efforts, to invest in, build, and maintain climate adaptation and mitigation infrastructure. Again, the history of private participation in infrastructure development and the limited depth of the private sector in many developing countries raises several questions. Finally, it is unrealistic to assume that developing countries' political economy and state capability allow for absorbing the increase in capital flows into climate adaptation and mitigation. These six challenges outlined above are examined in this section.

4.1 The scaling challenge

4.1.1 *Expected and available climate finance*

The Songwe et al. (2022) report posits that a climate finance requirement of US\$ 1 trillion per year by 2025 will increase to US\$ 2.4 trillion per year by 2030, with US\$ 1 trillion coming from foreign sources each year. This is in the range of 4%–6.5% of developing countries' GDP. The mainstream discourse, including among multilateral organisations, suggests leveraging massive amounts of domestic and mainly foreign private capital to invest in developing countries' energy transition requirements. It is argued that public finance can de-risk investments and crowd in private capital manifold. To put this in perspective, the annual climate finance available globally today is US\$ 300 billion, which is just a fraction compared to the US\$ 210 trillion total private assets under management (Prasad et al, 2022). This is much lower than the current (reduced) annual spending on coal power generation or oil and gas sectors.

Moreover, a major share of incremental finance must come from public finance, especially in the initial years. Commercial returns, especially in developing countries, may not be readily apparent in many of these investments. Projects may be in the nature of public investments, creating public good rather than private good, and hence, public finance has to play a big part in climate finance. Since developing countries face many competing needs and the tax-to-GDP ratios are too low, they will struggle to squeeze out the incremental public finance required to fund these investments.

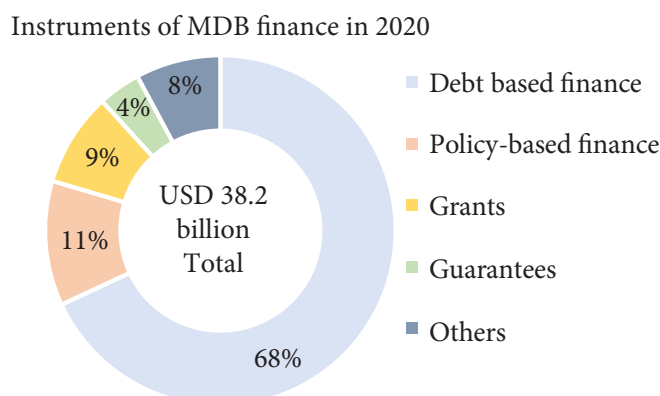
A breakdown of the climate finance commitments by the top eight MDBs reveals that capital demand far outstrips supply for low- and middle-income countries. The MDB commitments made to low- and middle-income countries were US\$ 42 billion and US\$ 38 billion in 2019 and 2020 respectively. These commitments constitute just 57% of the demand for capital (as shown by the mitigation and adaptation finance targets for low- and middle-income countries).

In 2020, five of the major MDBs had allocated US\$ 33 billion towards their climate finance commitments. As illustrated in Figure 1, debt climate finance was the main type of instrument used for MDB financing. Mitigation finance comprised 76% of the total US\$ 35.2 billion, of which solar and wind attracted more than 90% (Prasad et al. 2022).

The 2022 World Bank Report on Private Participation in Infrastructure shows that private sector investment commitments in low- and middle-income countries were US\$ 91.7 billion across 263 projects, equivalent to 0.25% of their GDP (World Bank, 2022). These investments were majorly in transportation and energy. Roads received US\$ 43.6 billion (48%) of total commitments and renewable energy generation projects comprised the majority of energy projects.²

² Electricity captured the largest chunk of energy projects and over 90% of electricity projects were related to generation. Renewables generation formed 94% of all generation projects by number, and 81% in terms of investment value.

Figure 1: Climate finance instruments used by MDBs in 2020



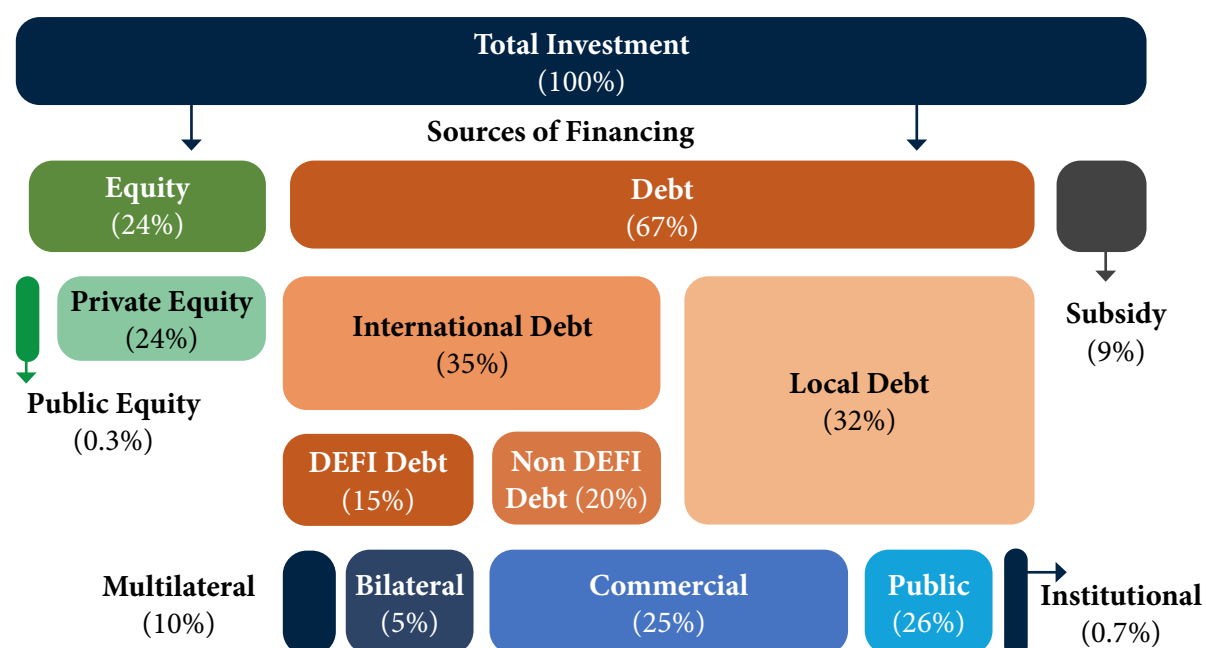
Source: Prasad et al. (2022)

Private capital has mostly flown to traditional infrastructure sectors such as transportation. While private firms do invest in climate adaptation, they only do so if these investments are imperative to their ability to continue profitable operations (Alam et al, 2022). Given the sectors' natural inclination towards servicing the market demand for products and services, the private sector so far has only invested in adaptation with a business motive (Casado-Asensio, Kato, & Shin, 2021). As a result, investments in adaptation and other areas of mitigation, like electricity storage, phasing out thermal plants, carbon capture, infrastructure for electric vehicles, green hydrogen, solid waste management, and mass transit, have been negligible.

4.1.2 Nature and quality of finance

The 2022 World Bank report on “Private Participation in Infrastructure” also finds that debt acts as a major source of investment, making up 67% of total investment (Figure 2). Of the debt, foreign private capital comprises 35%, of which a chunk is in the form of concessional debt from bilateral and multilateral donors.

Figure 2: Sources of financing infrastructure projects with private participation in EMDEs in 2022



*All figures as percentage of total investment
Source: PPI Database, World Bank, as of January 2022.

According to a McKinsey report on global private markets, since 2017, there has been a shrinking of infrastructure-related foreign private capital to developing countries (Averstad et al, 2023). As of 2022, assets under management (equity and debt) for private funds show that investments in infrastructure and natural resources formed just 11% (at US\$ 1.27 trillion). Further, low- and middle-income countries comprised just 19% of investments in infrastructure and natural resources.

In general, the annual fundraising by the global unlisted infrastructure funds has been around US\$ 130–US\$ 140 billion for 2019–21 (Murray, 2023). In 2022, of the US\$ 158 billion raised in infrastructure and natural resources, just US\$ 11 billion went to developing countries.

Therefore, it can be safely concluded that the amount of foreign private capital available for infrastructure, green energy, and development in general (for developing countries) is much smaller than is claimed. Identifying this shortfall in private sector participation, the report of the G20 Independent Expert Group co-convened by NK Singh and Lawrence Summers highlights that “MDBs have a guarantee instrument to mobilise private finance, but it is sparingly used” (IEG 2023). Therefore, domestic capital, international public finance and MDB assistance with a substantive concessional element will have to play a predominant role.

4.2 Economic returns to infrastructure investment

Infrastructure investments are characterised by long gestation, illiquidity, and lower returns, as well as political, construction and other ancillary risks. Since commercially attractive projects are rare, these investments are generally one-off, involving high due diligence and other transaction costs.

Investors thus demand higher returns (Kenny, 2022), with foreign investors requiring coverage of currency and country risks as well. The Preqin Database reveals that the annual shareholder returns on infrastructure projects for 2008–21 was 8.47%, compared to 12.1% for private equity (Brinkman & Sarma, 2022). The annual returns on the EDHECinfra index of unlisted infrastructure securities in the 2010–20 period was 14.6% (Refinitiv, 2021). Over the last decade, unlisted infrastructure generally has a 12%–15% return. However, lower returns on projects in the developing world are, in part, due to the high cost of capital. Governments in developed economies have been able to borrow cheaply, at a cost of capital close to 4%, while developing country governments pay up to 15% (Persaud, 2023a). The risk premium expected by private investors is a significant hurdle to private capital mobilisation.

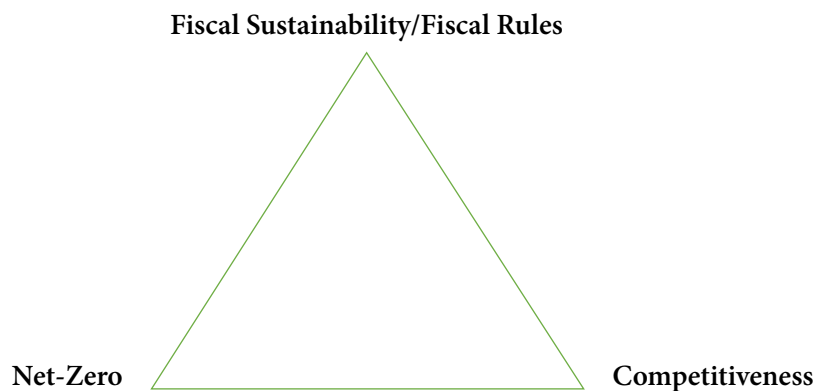
As evidenced in the Singh-Summers G20 report, the returns that private investors seek are significantly impacted by the macroeconomic conditions of a country, over which investors have little control. Of these macroeconomic risks, Avinash Persaud (2023b) finds that perceived currency risks play the biggest role in inflating the risk premiums. His analysis reveals that over the last two decades, investors have overpaid by an average of 4.7% per annum for hedging risks that never materialised. This overpayment trickled down to the developing countries in form of higher borrowing costs and generated approximately 5% lower returns for investors. For a developing country under such circumstances, managing risk perception becomes as important as managing risk, when trying to borrow at lower rates from the market.

For this reason, the assistance and expertise of the IMF and MDBs is necessary to bring down country risks to acceptable levels. Another good principle is to use public finance for construction and private capital for asset operation and maintenance (O&M) (Somanathan & Natarajan, 2013). Of course, the scalability of public finance remains a challenge (as seen in Section 4.1).

4.3 The macroeconomic costs and consequences

In a recent column, Jean-Pisani Ferry (2023) warns European nations that their “Net Zero” ambitions will increasingly strain fiscal sustainability and economic competitiveness. Indeed, his column gives rise to the Impossible Trinity of Net Zero, i.e., between “Net Zero” transition, fiscal sustainability and economic competitiveness, at any given time, countries can only pursue two of the three (Figure 3). Commitment to carbon neutrality will entail a higher cost of energy and will undermine competitiveness. If carbon neutrality and economic competitiveness both have to be preserved, then fiscal sustainability may have to be sacrificed. That is, the weaker sections of the population—households and businesses—may have to be compensated through subsidies and transfers. However, loosening fiscal prudence carries the risk of macroeconomic instability.

Figure 3: The impossible trinity of net zero



Source: Authors' analysis

Further, energy transitions must bear three costs. First is the financial cost of phasing down sunk investments. This includes equity write-downs, debt restructurings, and job losses, which tend to be extremely high, given the size of the legacy energy market. Second, to the extent that fossil fuels remain in use, they may become costlier due to carbon taxes, higher financing costs, and new regulatory restrictions, which increase the cost of production. Third is the higher cost of the new energy sources, especially in the initial stages, replacing legacy sources. This will include R&D, risk premiums on capital, and other costs to commercialise, store, de-risk, and mainstream new technologies. This will manifest in higher prices for consumers and reduced competitiveness for businesses. For example, the Indian automobile industry has lobbied for a delay in introducing stricter emission standards because these would increase prices and lower demand (Saxena, 2021). It raises a legitimate concern for similar countries with low automobile penetration.

Apart from these, macroeconomic consequences of climate finance can be examined across three dimensions— public vs private, domestic vs foreign, and equity vs debt (see Table 1).

Moreover, IMF's (2023) World Economic Outlook discusses the importance of geopolitical alignment or distance in attracting or deterring foreign direct investment (FDI). As the world becomes more fragmented, the quantum of FDI may get affected, to the detriment of developing countries that benefited from it in the past.

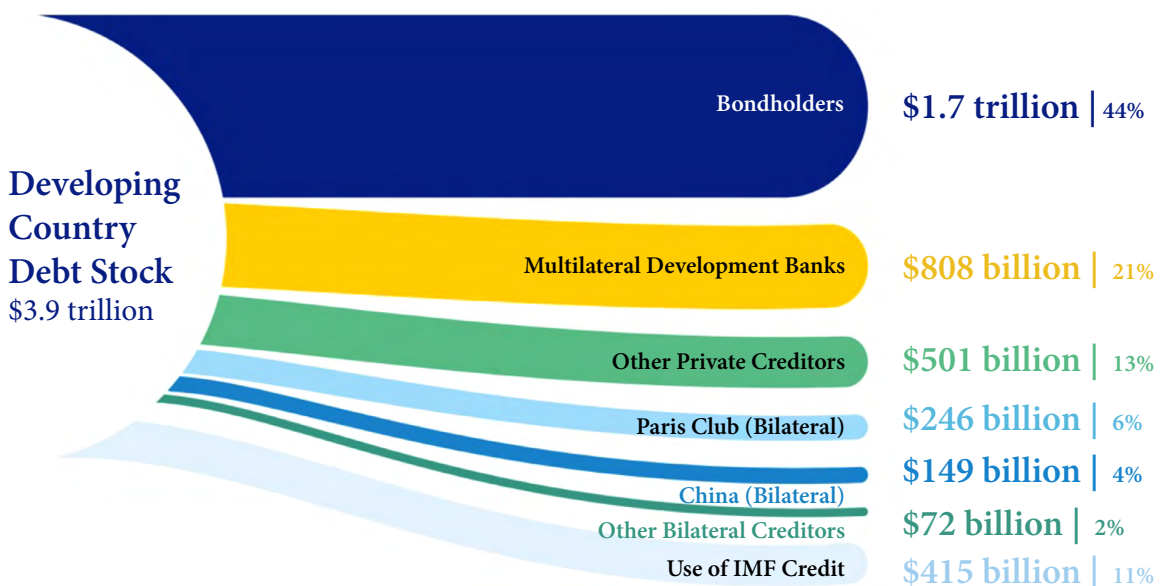
Table 1: Macroeconomic impact of climate finance mobilisation

	Domestic Capital	Foreign Capital
Public Finance	<ol style="list-style-type: none"> 1. Competing demands constrain fiscal space necessary to expand climate infrastructure investments. 2. High public debt limits government borrowing since it can engender serious macroeconomic vulnerabilities. 	<ol style="list-style-type: none"> 1. MDB grants and concessional loans must be significantly increased. 2. In countries with weak macroeconomic fundamentals and governance challenges, foreign currency borrowings have engendered recurrent debt crises and sovereign defaults.
Private Finance	<ol style="list-style-type: none"> 1. The envelope of investible domestic savings (risk capital and debt) available for climate finance is limited. 2. Investments are restricted to a basket of high-return projects due to the high cost of capital. 3. Long-gestation, construction risks and lower returns on climate investment deter private capital. 	<ol style="list-style-type: none"> 1. The shelf of bankable projects is limited due to domestic currency revenues and demand of foreign currency returns. 2. These countries are vulnerable to capital flow volatilities, which make foreign currency borrowings too risky. In good times, resource misallocation is common. 3. Large private inflows can impact currency stability and cause local currency appreciation, affecting economic competitiveness.

4.4 The recurrent debt defaults

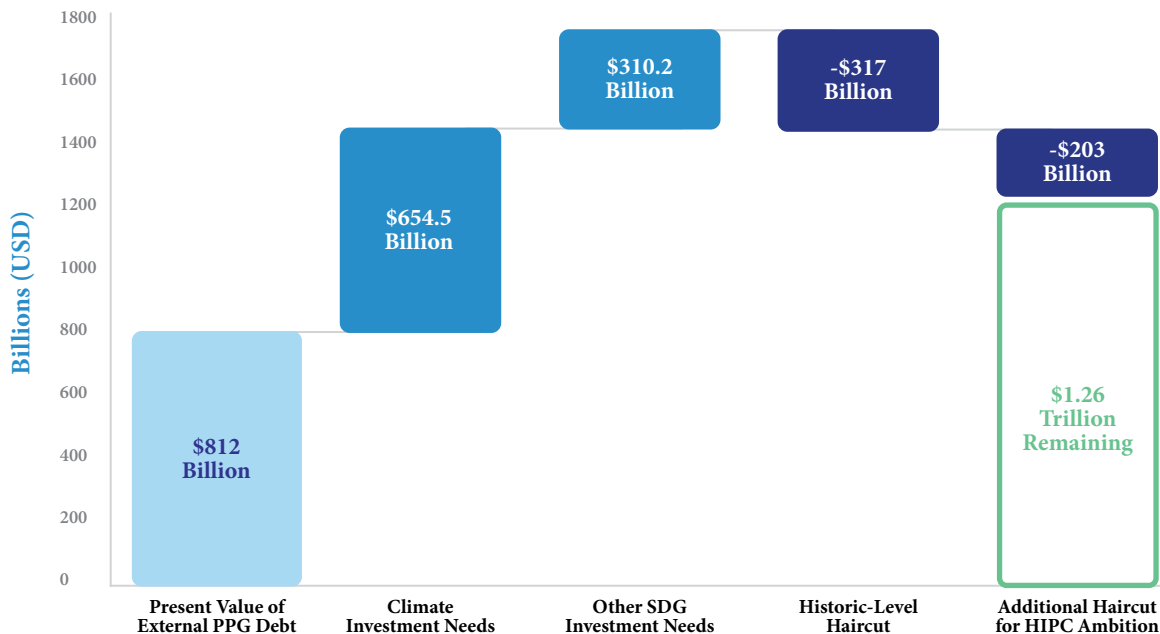
The numerous arguments on the inevitability of attracting private capital to finance the transition to net zero must be seen against the backdrop of the long history of recurrent debt crises that bedevil many developing countries (Gallagher, 2023). In 2021, the debt stock of developing countries was US\$ 3.9 trillion, an increase of 178% since the 2008 global financial crisis (Ramos et al, 2023) (Figure 4). The ongoing debt distress in low- and middle-income countries needs to be addressed on priority before meaningful efforts in climate finance can be initiated.

Figure 4: External debt stock composition of developing countries (excluding China), 2021



Source: Gallagher (2023)

Figure 5: The resource mobilisation requirement
Debt relief and remaining resource mobilisation needs for new common framework countries



Source: World Bank (2022), Songwe et al. (2022) and authors' calculations.

However, the pressure to address this issue is only mounting. More than 61 countries of the New Common Framework (Figure 5) have a net present value (NPV) of US\$ 812 billion in external debt and require immediate debt structuring to regain market access. Taking a historical average, this would require approximately US\$ 317 billion–US\$ 520 billion in haircuts by private and public creditors. However, these countries also require around US\$ 965 billion over the next five years to meet their climate finance and SDGs, which raises the financing gap to US\$ 1.26 trillion.

Given the limited depth of financial markets in these countries, most financing will have to come from outside. Even if the finance is mobilised, the question of whether these countries should accumulate debt at such a scale so quickly also arises. History is replete with recurrent debt binges followed by loss of market access and restructurings. In any case, debt reduction and consequent market access will inevitably require significant fiscal consolidation, which will only squeeze economic growth. This will occur precisely at the time these countries require growth in order to generate domestic savings and tax revenues to finance climate goals. The IMF acknowledges these countries' poor record at stabilising growth while undertaking fiscal consolidation (Peralta-Alva & Mishra, 2023).

4.5 The problems with private sector participation

In developing countries, the private sector is expected to mobilise capital and build projects necessary for climate adaptation and mitigation. Public-private partnerships (PPPs) are proposed as important instruments to blend capital and de-risk projects.

However, a historical assessment of the role of the private sector throws up a different picture. The United Kingdom has been at the forefront of private participation in infrastructure through its Private Finance Initiative (PFI). However, a two-decade assessment of the PFI by the UK's watchdog, the National Audit Office (NAO 2018), is not encouraging. The total costs and benefits assessment in 2018 involved 716 operational projects with a capital value of around £60 billion. The annual public finance charges on these projects were £10.3 billion in 2016–17, and existing projects will

need government payouts of £199 billion until the 2040s. Schools and hospitals built through the PFI are 40% and 60% more expensive than their respective public sector alternatives. Without the government's lower borrowing cost to discount the cost of projects, very few PFI projects would have passed the Value for Money (VfM) test.

The NAO concluded that the UK had “incurred billions of pounds in extra costs for no clear benefit” and as things stand, more than 90% of the country's capital investment was publicly financed. Then there is the issue of asset stripping, poor maintenance, poor service quality and debt loading with PPPs in infrastructure, as evidenced in projects in the UK's water, sewerage, and railway sectors (Somanathan & Natarajan, 2019). In this context, the UK finally wound up the PFI programme in 2018. Things have come a full circle and the UK is now considering nationalising the private utility company Thames Water, given that it is so overburdened with debt that it could become insolvent (*Financial Times*, 2023a).

A recent *Financial Times* article discusses the incentives of private capital, investing in infrastructure assets, to reward their investors rather than invest further in maintaining the assets. It concludes that the right balance between rewarding investors and serving public good has not been found yet, and that finding such a balance is crucial to attract private investment in the net-zero transition (*Financial Times*, 2023b).

Over the last decade and a half, infrastructure funds have become the biggest source of private infrastructure financing. As Brett Christophers (2023) writes: “The story of asset-manager-led infrastructure investment is overwhelmingly a negative one”. Their incentives are aligned with maximising incomes and minimising operating and capital costs.

The question of whether the private sector in developing countries can shoulder the energy transition expectations also arises. Charles Kenny (2022) writes about the strength of the private sector in Africa, where only a few firms have revenues at par with those in developed economies. Internationally competitive firms are even fewer, with just a handful accounting for most of the country's exports in many African nations. This is representative of the problems in many developing countries. The private sector's capability to design, co-finance, execute, and manage large infrastructure projects, and that too at scale, is acutely deficient.

The situation demands prioritisation in spending, increase in foreign development assistance, deployment of innovative financing approaches, leveraging Environmental, Social, and Governance investing (ESG) and impact investment funds, relaxing constraints on the flow of private domestic and foreign capital, and most importantly, increasing economic growth, which can generate resources to finance these investments.

4.6 The political economy and state capability challenges

The political capital needed for the energy transition and climate finance reforms is considerable. For example, even the most basic carbon pricing will immediately raise strong opposition. The tortuous energy subsidy and electricity tariff reform history in developing countries offers sobering examples. Attracting private capital into renewable electricity generation requires significant tariff increases to close the present cost–recovery gap. Would a nation's political economy allow any government to survive an electoral cycle after raising tariffs exorbitantly?

Regulatory reforms for the energy transition will face political economy hurdles. As is already occurring, tighter vehicle emission standards (Saxena, 2021) and climate adaptation requirements in building codes increase costs, lower demand, and invite opposition. For these reasons, implementing tighter standards is generally a case of “two steps forward and one step backwards”.

Then, there is the state's capability to implement climate adaptation and mitigation projects. For example, problems associated with the design and implementation of large projects arise, such as poor quality of reports, site acquisition delays, environmental and other statutory clearances, litigation, and construction delays. Time and cost overruns are also commonplace with engineering projects (Flyvbjerg & Gardner, 2023).

5. Addressing the challenges

5.1 De-risking through innovative models

As stated earlier, the actual and perceived risks in developing countries, along with the present shortage of bankable projects, make it difficult to attract private capital for mitigation and adaptation financing. Thus, de-risking with the help of public funds and MDB assistance is required to scale up these investments.

The revenue-generating and already de-risked sectors (at both country and project levels) like renewable energy should be able to attract private finance given the necessary demand. Renewable energy generation, while commercially viable in Brazil, India, and Indonesia, will need help attracting private investors in low-income countries due to the prohibitive risks these countries face (Emery, 2023).

A recent evaluation of the 100 MW "Scaling Solar" project in Zambia is a case in point (Emery, 2023). The 25-year flat tariff of 6 US cents per kilowatt hour (kWh), discovered in a competitive bid in 2016, was widely advertised to demonstrate the commercial viability of solar projects in low-income countries. However, it overlooked the large hidden subsidies by way of low-interest rate loans, guarantees and insurance. The author notes: "Utility-scale solar is unviable at market interest rates in lower-income countries and is not being built. Projects that are unviable at market interest rates but have a high developmental impact are exactly where DFIs [Development Finance Institutions] should be focused".

In developing countries, spreads between public and private costs are significantly high. Therefore, for projects with large construction and market risks, public funds or concessional borrowings can finance construction, especially considering that governments are best placed to address the risks emerging from site acquisition, utilities shifting, clearances, etc. Since the cost overruns during construction cascade over the project life cycle, it is useful to separate the financing of the construction and the O&M phases of a contract and insulate projects from construction inefficiencies. Setting up a corporatised entity, like the National Highways Authority of India (NHAI), is one way to address such issues.

Subsequent to construction completion, the private sector can be mobilised for asset monetisation or long-term O&M concession once the project is commissioned and demand is discovered (Natarajan, 2020). Alternatively, future revenues of a portfolio of projects can be securitised to raise capital. All these measures can help recycle the scarce public finance while also attracting private capital.

5.2 Role of developmental finance institutions

By helping public finance investments be stretched further, national DFIs play an important role (Natarajan, 2020), like in facilitating project pipeline development by serving as an investment bank for climate finance. Thus, national DFIs additionally de-risk and crowd in private finance for a pipeline of bankable projects, which is a role otherwise traditionally performed by investment banks and private equity managers. However, this would involve considerable effort as well—from exploration of the project landscape to coordinating concessional resource generation from domestic and foreign sources.

Governments should support DFIs by providing them with access to concessional capital while they also raise resources by sponsoring infrastructure funds. Additionally, other forms of public financial support like project development funds, credit enhancement guarantees, and viability gap funds should be channelled through DFIs. Partnerships with MDBs for concessional finance can enhance credibility among foreign investors and de-risk the institution. A continuous pipeline sharing and investment coordination process should exist between the MDBs and national DFIs.

However, one needs to be patient with DFIs. Convincing private investors will be a challenge, given the risks and uncertainty about returns, and thus requires time. Failures in initial investments may also crop up. Hence, DFIs need to be built with patience, risk tolerance, and an appetite for losses.

Brazil's National Bank for Economic and Social Development (BNDES) is the most successful example of a DFI that catalysed private investments. In India, sectoral DFIs like the Power Finance Corporation, Rural Electrification Corporation, Housing and Development Corporation, and National Housing Bank have played important roles in financing infrastructure projects. The successes of these institutions should be emulated in crowding in climate finance.

Finally, Samantha Attridge's (2023) suggestion that "to improve the financial feasibility of investment, emphasis needs to shift from using aid to 'de-risk' projects to using aid to 'de-risk' countries and sectors" is worthy of serious consideration, given that institutional investors are unlikely to risk trillions in sub-investment grade countries. That is why MDBs will continue to matter in helping countries de-risk private capital sufficiently, allowing it to flow to sub-investment grade countries. For this, they require adequate capital themselves.

5.3 Leveraging impact investments

The ESG investor class is an important climate finance source, influential in the global financial markets, working towards channelling private capital transparently and fairly into socially impactful and environmentally sustainable investments, especially in developing countries.

While there is considerable ambiguity about its exact definition, the Global Impact Investing Network (GIIN) estimates its size globally to be US\$ 1.2 trillion as of 2022 (Hand, Ringel & Danel, 2022). The amounts and ranges are much larger with ESG investing, where institutional investors commit a share of their portfolio to projects that have an ESG impact. Given the high value involved with strong institutional mandates to invest in ESG assets, there is a strong case for channelling a small share of this capital toward climate finance in developing countries. The starting point is the redefinition of what constitutes impact.

In the case of impact investment, this can be captured through a two-part test (Natarajan, Yagnaraman, & Nageswaran, 2021):

- Social impact test: The investment directly improves the lives of the poor more than enhancing general economic welfare or beneficial environmental effects.
- Counterfactual test: The investment would not have been made by investors seeking commercial (economic) returns.

Impact investments that receive concessional funding from governments, MDBs, or philanthropies should be subjected to these tests, complemented with practical disclosure requirements of credible, standardised, and measurable outputs. Term sheets for investments should incorporate requirements to commit the investors and entrepreneurs to create social and economic impact meaningfully and reliably. A similar approach could be adopted for ESG investments.

5.4 Institutional enablers

The climate finance imperative presents an excellent opportunity to re-examine certain important features of the global financial market ecosystem. This section examines reforming credit rating agencies, bilateral investment treaties, and contract renegotiation policies. How can these features be changed without creating distortions and perverse incentives?

5.4.1 Credit rating agencies

That developing countries struggle to borrow abroad in domestic currency, as discussed earlier, is impervious to macroeconomic fundamentals and the historical record of the country. These do not act as insurance against volatile capital flows arising from global risk aversion (Eichengreen & Gupta, 2016). It appears that developing and developed countries are separate monolithic asset categories.

An important determinant of this is how rating agencies assess the creditworthiness of countries. As it stands, credit rating agencies grant higher weightage to subjective factors such as political risks and “willingness to pay” when evaluating sovereign credit (UNDESA, 2022). The overtly qualitative nature of the rating assessment adversely affects developing countries in many ways.

It inflates the cost of capital and limits the asset allocation share of developing country assets in institutional financial pools. Fofack (2021) illustrates how developing countries in Africa pay a high “perception premium,” resulting from the overblown risk premiums assigned to the region, which are further reinforced annually by credit rating agencies despite progress in the macroeconomic conditions and the country’s growth prospects. The non-objectivity of the credit ratings and lack of transparency in their evaluation methodology contribute to the perception that rating agencies are biased, which undermines confidence in their quality and accuracy. Ensuring that the ratings are more objective through consultations among the concerned stakeholders and improving transparency around the methodologies and their underlying assumptions is a necessary measure.

Such reforms would lower the cost of capital and expand the pool of foreign capital available for investments. This is a costless intervention to meet developing countries’ climate finance requirements.

As evidenced by the United Nations Development Programme (UNDP, 2023) in a policy brief, if credit rating agencies employed less subjective assessments, the revised ratings could save African countries up to US\$ 74.5 billion in borrowing costs. In turn, this could enable the countries to repay both domestic and foreign debt, as well as free up capital for investment in other critical areas such as human and infrastructure development.

Reform would require standardising macroeconomic data collection, especially on debt and deficits, and sharing the same with credit rating agencies. Data from national budgets and IMF’s Article VII consultations could form the base. Conversely, there should be similar standardisation and transparency in risk weightings and their application to rating agencies’ models in order to eliminate biases, and this would benefit from some form of global public regulation like the Basel norms on capital adequacy ratios for banks.

5.4.2 Investment protection and dispute resolution mechanism

As governments court foreign investments in climate finance infrastructure and essential services like electricity on long-term contracts, given the political economy challenges, investment protection is another area that requires global institutional reform. The existing investor–state dispute settlement (ISDS) and international arbitral mechanisms covered in templated bilateral investment treaties (BITs) suffer from several deficiencies.

Arbitration proceedings in European cities are heavily loaded in favour of Western firms. As Katharina Pistor (2019) has brilliantly articulated, such treaties are draconian insofar as they confer protections on investments and even contracts that equate with property rights, allow foreign firms to invoke its provisions even if only a tenuous contractual connection exists with the host government, provide omnibus protections against actions including those by the host country's courts, impose liabilities on national governments for actions of even local governments, and bind sovereign countries from changing their laws even for right reasons. They effectively override the sovereignty of the host country. Such mechanisms create perverse incentives, open opportunities for abuse, and are certain to invite backlash against foreign investments in general.

Infrastructure contracts are long-term in nature, and corruption in contract allotments is not uncommon. It is important, therefore, to revise BITs and provide a fairer and more equitable sharing of risks and responsibilities among governments, foreign investors and local shareholders. Therefore, any legitimate post-facto scrutiny of a contract for corruption must be protected in any BIT, and domestic court orders made supreme. Permitting BIT arbitration proceedings to override the orders of the country's highest court goes against national sovereignty and principles of fair contracting.

5.4.3 Contract renegotiation mechanisms

Apart from the global structural factors, national-level enablers such as credible contractual dispute settlement mechanisms are required to attract climate finance and will complement the proposed revisions to BITs. Such mechanisms assume significance given the inevitability of long-term contract renegotiations and the likely problems arising from increased asset monetisation. Global experience shows that long-tenured infrastructure contracts necessitate contract renegotiations, as contracts can hardly be comprehensively written for a 20–30-year period (Guasch et al, 2014). As a result, it is important to design contracts that lay down principles for transparent renegotiations without engendering moral hazard (Natarajan, 2020).

This would require limiting renegotiation opportunities and providing clear and transparent guidance if the same becomes inevitable. The former demands rigorous technical scrutiny and prudent commercial feasibility assessments at the project preparation stage, determination of the right discount factor, and prudent risk allocation at the contracting stage. The contract should contain triggers, terms, and processes for renegotiation, including exclusions in cases where the private party consciously assumed the risks.

As asset monetisation gathers steam, it is important to have safeguards to mitigate abuse, such as asset stripping and others that have been a feature of private participation in the UK, US, and other countries. All forms of asset stripping—skimping on investment obligations, loading up on debt, excessive dividend payouts, running down of pensions and other obligations—should be addressed, and the punishments laid out in each case. There should be caps and floors, or thresholds with clear and transparent reporting requirements, in order to prevent such asset stripping.

5.4.4 Transparency, disclosure and information-sharing

Finally, information asymmetry is an important deterrent to building confidence among market participants. Maintaining transparency across the entire life cycle of all infrastructure projects keeps stakeholders aware of the emerging challenges and problems with these projects. As such, regulations for transparency, proactive information disclosure and dissemination standards can be enacted.

In the “Scaling Solar” project in Zambia, the World Bank did not disclose subsidies that made a low bid for power generating cost possible. The framing perpetuated “a myth that with some good advice and a little guarantee, small amounts of DFI capital can catalyse large sums of private

investment. In Zambia, US\$1 of DFI financing catalysed 28 cents of private sector financing. Private investment was useful, but it was not multiplicative... To begin to leverage more significant amounts of private capital through blended finance, DFIs need to transparently disclose explicit and implicit subsidies so that governments and solar developers can have clear price signals to weigh the trade-off between higher capital costs and increased availability of funds” (Emery, 2023).

5.5 Overcoming the political economy and state capability deficiency challenges

The biggest challenge with regard to the energy transition and enforcing climate change reforms is the question of who will bear the associated costs and how these will be shared.

Given that everyone must bear the energy transition cost, it is only appropriate that its allocation is proportional to the ability to bear. This includes developers and operators, their investors, consumers, and governments. It is also clear that poor and low-income consumers will need to be cross-subsidised. However, the targeting and administration of these subsidies pose their own set of problems.

One useful strategy is to phase in or stagger the costs for all sides, with a clear and transparent glide path to introduce regulatory standards. Governments should outline a 10-year strategy that provides predictability and reduces uncertainty for businesses while smoothening out price increases for consumers. This should be complemented with continuous monitoring and industry engagement on the progress of each stakeholder’s adjustment journey.

Countries must also develop their own plans to encourage transformations in specific sectors and identify how resources can be made available from domestic, foreign, concessional and non-concessional sources. The case of green hydrogen is an example of how countries can tailor their approach to carbon transition. To transition to a green hydrogen economy, Europeans and Americans adopted different strategies (Palladino, 2023). The Europeans chose the regulatory approach, mandating a green hydrogen uptake in the industrial energy mix. In contrast, the US offered manufacturers direct financial subsidies through tax credits for ten years. Both strategies have their upsides and downsides; thus, the domestic political capital and consumer subsidy administration requirements should dictate the adopted approach.

Finally, the most important requirement to address the political capital challenge is its recognition by all stakeholders, especially the international development community and private sector participants, in their climate finance solution prescriptions.

6. Summary

Climate change can present a confounding problem to policymakers in the developing world as they allocate resources towards pressing needs such as poverty reduction and economic growth. This paper takes stock of the existing systems to aid climate change and suggests ways in which developing countries can meaningfully progress in their transition agenda.

Estimates on the climate financing requirements for the developing world reveal the need for at least US\$ 1 trillion annually. However, currently, the demand for climate finance far outstrips supply. The climate finance commitments by the top eight multilateral development banks comprise just 57% of the demand for capital by developing countries. Similarly, private sector infrastructure investments in developing countries form a miniscule 0.25% of their GDP.

In addition to the existing dearth of climate finance funding, the means through which such a large sum can be mobilised remains unclear. Moreover, there is a primary incentive mismatch between private capital, which seeks risk-adjusted returns, and the nature of climate investment—involving

long gestation periods, heavy regulations and low returns. Developing countries further run the risk of debt defaults and currency risks. In this context, the paper outlines key strategies for developing economies to raise funding for dealing with climate change and energy transition.

As a first step, a distinction should be made between the funding mechanisms for climate adaptation and climate mitigation projects. For instance, de-risked, revenue-generating sectors like renewable energy should be able to attract private finance if there is demand. However, climate adaptation projects that require large construction and entail market risks could be borne using public funds. Further, for areas of climate change mitigation that the private sector finds unviable at market interest rates, institutional support in the form of DFIs can be availed.

A project's ability to attract foreign capital depends on the institutional enablers in place. These include, but are not limited to, a country's contract negotiation mechanisms, transparency, and information sharing. While the host country must develop these institutional enablers, it also crucially requires the help of international institutional enablers such as credit rating agencies and BITs.

Finally, climate change transition is the result of concerted and committed actions on the part of all stakeholders. As climate change transition comes with costs that need to be borne, it is imperative that governments create ways to lessen the transition burden on the low-income and poor sections of the country. This requires tools such as cross-subsidisation and attempts to reduce overall costs by committing to glide paths for regulatory standards.

7. Way forward

Development and economic growth are the most important ingredients for sustainable climate finance mobilisation. Growth enables domestic resource generation while limiting dependence on external sources. Therefore, countries should be supported and not penalised for prioritising economic growth.

Second, the importance of public investment must be acknowledged and recognised. Globally, there is a reason why transformational projects—post-World War II reconstruction, space exploration, internet development, and the Interstate Highways construction project in the USA—were funded, managed and executed by the public sector. These projects had no obviously visible and transparent private commercial returns because they were in the nature of building blocks, or their benefits were not private in nature. Further, public investment in carbon sequestration, carbon sinks, battery storage technologies, and green hydrogen will obviate problems associated with intellectual property rights and help assert the public nature of solutions.

Third, given the role of public investment, it is important to recognise the importance of public capital mobilisation through sovereign funding, including guarantees and MDBs. Governments must increase their financial assistance, deliver on the pledges made, and share technology and physical (non-financial) resources needed by low- and middle-income countries to deal with climate change. Multilateral development banks have a large role in mobilising climate finance. They should scale up lending through changes such as balance sheet optimisation, enshrining callable capital in national budgets, and capital increase. The “Scaling Solar” project in Zambia is a reminder of the substantive role of concessional public finance in mobilising even a fraction, let alone multiples, of it from private sources.

Finally, given the scale of funding required globally to address climate change, private capital mobilisation is not simply desirable but inevitable. However, private capital, as much as public capital, should rethink its attitude towards financing fossil-fuel projects or seemingly “climate-friendly” projects. In other words, we need to define the problem correctly and consider unintended consequences. Solutions must pass the test of overall environmental impact, rather than narrowly defined carbon emission mitigation. The latter has become the obsessive focus of several advanced nations given that their development path was not obstructed by emission considerations, and that future emissions would increase with the economic rise of emerging and developing economies. Private capital must resist the temptation to pass the sticker test on climate change and energy transition. It must invest sensibly in projects with acceptable trade-offs between economic costs and environmental benefits, including climate.

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