Towards a multi-sovereign guarantee mechanism for low carbon investments and climate resilience in developing countries

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The latest 2023 IPCC Report on Climate Change states that climate finance for both mitigation and adaptation must increase in this decade, by a factor of three to four compared with its current levels (IPCC SYR, C.7), This gap is biggest in developing countries, especially those that are already struggling with debt, poor credit ratings and burdens of the recent macroeconomic shocks in the world economy.[1] There is sufficient global capital, public and private, to close this gap if we succeed in reducing the regional and sectoral mismatches between where the global pool of savings is currently directed and where it should be directed. It thus urges to reduce the barriers to this redirection both within and outside the global financial system.

There exists a diversity of national policy instruments to reduce these barriers. However, in the context of narrowing fiscal space for governments to finance directly climate action, there is an increasing recognition that these should be combined with an ***'increased use of public guarantees to reduce risks and leverage private flows at lower cost***' (IPCC, SYR C.7.3) especially in mitigation. However, public guarantees are not a miracle solution, as their public cost and leverage effect depend entirely on their design, their core objective and the context in which they are applied.

We argue that ***a multi-sovereign guarantee architecture (MSGA) is urgently needed to unlock the wider use of guarantees and maximize their cost-effectiveness in de-risking low-carbon initiatives, mobilizing private finance, and scaling up cross-border capital transfers*** in support of nationally determined contributions (NDCs) to the Paris-Agreement. We set out some basic principles and suggest an institutional learning process to facilitate its fast emergence.

We also examine how a MSGA could overcome the drawbacks of too strict a disconnect between rising adaptation and loss and damage financing needs and the scaling-up of mitigation investments. It can do so (not automatically) by the higher public resource availability for adaptation and losses&damages resulting from the crowding-in of private investment for mitigation[2].

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[1] Despite the precautions that need to be taken when using this type of numerical evaluation, it is worth noting that recent ones give a multiplication need for mitigation investments by seven to fourteen times in South Asia, five to twelve times in Africa, six to twelve times in South-East Asia and Pacific, fourteen to twenty-eight times in Middle East and six to eight times in Latin America.

[2] Within a constrained public budget Z to be divided between adaptation and loss and damages (X) and direct mitigation investments (Y) to avoid future higher damages, the lower the call on direct public investments for mitigation (Y) within a fixed public budget constraint, the more resources are potentially released for investing in adaptation and losses and damages (X). If a well-designed public guarantee instrument has the power to unleash up to fifteen times greater volumes of total investment flowing towards mitigation, by 'crowding in'

In addition it could be extended at short notice to ***projects delivering joint benefits in terms of adaptation*** and thereby become a prototype for mobilizing more private funding for adaptation as well.[3]

In addition to contributing to poverty alleviation and enabling countries to meet their Sustainable Development Goals, ***the MSGA by closing the infrastructure gap in all countries with low-carbon options would yield critical 'gains of cooperation' advantage***. Public spending and policies on climate are increasingly veering towards national jobs and strategic search for accelerating climate mitigation within country borders, and restricting the use of public guarantees to within these borders. This has the 'downside' of rising protectionist frictions, perceived as 'arbitrary' and 'punitive' (COP 28 art 154 and 175), and of a widening circle of distrust. A MSGA will counterbalance this by the gains from international financial and industrial cooperation in terms of jobs, strengthening of global value-chains and contribution to the reform of the multilateral financial architecture called for by COP 28 (art 95).

Why are Public Guarantees required to tackle the root causes of the climate investment gap?

The climate investment deficit is a symptom of the 'microeconomic infrastructure paradox' of unfunded projects despite high real returns of 4% to 8% during the recent period of low interest rates.[4] Amongts the roots of this paradox lies the time profile of risk of most energy transitiuon and climate resilience projects: with higher upfront capital expenditure (CAPEX) and long pay-back periods. This problem is coumpounded in the case of climate infrastructures by the presence of less mature technical options, less well-established organisational networks and uncertainty about the political acceptability of climate policies, leading risk-adverse investors often prefer established high-carbon options.

Practioners know that most project risks are the highest in the bidding and development phases when project initiators commit equity financing: uncertainties about the permitting process, difficulties in raising pre-funding from credible partners, and threats of long-drawn contract renegotiation. The risks remain high in the construction period for many low-carbon options with potential surprises on equipment costs and performance that place developers under threat of large losses. Such 'up-front risks' deter project initiatives and let small projects underfinanced in unfamiliar geographies, uncertain governance landscapes, and limited project preparation expertise (GCF 2021) . Critical for rural regions and small islands these essential infrastructure opportunities often fly under the radar of large fund managers, and are penalized by the fragmentation of existing publicly supported financing windows.

private investment and risk-capital, this instrument releases higher public resources (Z-Y/15) for meeting adaptation and losses and damage financing than by direct public financing (Z-Y).

[3] Without a perspective of the power of guarantees being used to release public-to-public direct financing resources for grant requirements for mitigation as well as adaptation and losses&damages in low-income countries, a global agreement at climate negotiations for scaled-up guarantees would face high political hurdles.

[4] See early warnings by Abiad et al. ; 2014 and Bhattacharya et al., 2015.

These upfront project risks add to market uncertainty and macro-financial parameters (low country ratings and creditworthiness, debt distress, currency risks, and narrow fiscal space for government support) ***to make capital costs much higher, sometimes close to usurious levels, in most developing countries***. This makes it further impossible to mobilize private finance at scale. Developing economies typically rely on 70% of their infrastructure funding from government budgets, 20% from private investors, and 10% from multilateral development banks (MDBs). The equivalent numbers for industrialized economies are very different, 40%, 55%, and 5% rerspectively.

Carbon prices enhance the discounted value of low-carbon options in a world without uncertainty, but fail to hedge sufficiently against this up-front risk pricing 'waterfall' and to address the macrofinancial constraints. Further, their indirect support through a 'penalty' for high-carbon options occurs too late in the project cycle for project developers and financial intermediaries. Carbon pricing is rather a tool for creating a favourable economic environment for climate policies by a well-designed recycling of its revenues to reduce the inflationary effects of the inter-sectoral spread of energy prices and deal with its adverse competitiveness, employment and distributional impacts. To do so carbon prices must be embeeded into reforms of national fiscal systems, which are outside of the scope of climate negotiations, and into policy packages that directly catalyzse climate investments.

There is a wide array of such policy packages. They all include financial tools, in addition to information, regulatory, and institutional ones. These last three address risks in a systemic manner but have long lags in establishing sufficient momentum. In contrast, financial instruments tackle project directly risks by transferring them partially to public actors. However finding the right combination of grants, concessional debt, guarantees and insurances to blend public and private resources is complex. It depends on the nature of the perceived risk and of the objective (for example encouraging market-creating projects to establish 'proofs of concept' or commercial track record). As the market matures these financial instruments can be gradually phased out. But their initial high level of concessionality[5], and the resistance of vested interests to their phasing out, pose a problem for managers of public accounts faced with increasing competition for scarce public resources.

Public guarantees are essential tool to maximize the efficacy of climate policy packages because, as a risk-sharing mechanism covering a broader range of risks (see Table 1), ***they tackle directly the up-front risks and, if properly designed, maximize the efficacy of public funds and minimize the risks of defaults, hence the call on funds.[6]***

[5] The degree of concessionality is the degree to which a concessionary instrument reduces the interest rate of the loans in comparison with their rate in financial markets

[6]. Public guarantees are only being paid out in case of default. They appear in guarantors' books as contingent liabilities at less than 100% their face values, based on default probabilities. Even assuming a very high 25% expected default rate, the leverage effect of one unit of public cost on a portfolio of enabled low-carbon investments could exceed 8. High-risk projects in small and medium enterprises guarantee portfolios in Africa have exhibited a low 2.4% default rate over the period 1999-2017 (USAID, 2017). Most default rates over long periods are in the 2%-7% range, which in turn yield very high leverage, typically of 15-20 times the public guarantee costs, as in the EU. In addition, guarantee providers recover part of their costs in the event of default because they take over the residual value of the asset of the projects (including land and partly built sites and construction); most of the losses accrue more often to the equity and debt holders.

They can be designed for dealing effectively with very different clusters of risks in various contexts. This is why, historically, they have been one of the main forms of backing for projects that serve the public interest, but are perceived as too risky because of their long duration and high upfront capital costs— e.g., rail transport, the Suez Canal, electrification, nuclear power, mobile telephony licensing, and the development of vaccines against COVID-19[7]. They are also, often present in high-risk fossil fuel extractive sectors and unsurprinsigly, they have attracted growing attention in discussions about climate finance.

However, although guarantees leveraged 26% of all mobilized private finance between 2018-2020 (OECD 2022) they have played so far a very limited role in cross-border financing to developing countries other than China (IMF, 2021). "Blended finance" operations remain a very small share of bilateral finance and sovereign guarantees at scale have been largely restricted to national or economically integrated regional settings (the EU). Quantification of the under-utilisation of credit risk guarantees is an almost impossible task but the gap is around one to eight[8].

Table 1: How Guarantees and Financial Instruments Reduce Different Types of Risk

De-risking Capacity of Guarantees	Institutional Instruments

		Risk									
		Macro		Credit/Commercial			Technical		Finance	Infra Specific	
		Political/ country risk	Currency risk	Credit risk	Liquidity risk	Demand risk	Construction risk	Operation risk	Access to capital	Lack of pipeline	Off-take risk
Instrument	1. Guarantees	■		■	■		■	■	■		■
	2. Insurance	■			■		■	■	■		
	3. Hedging		■			■					
	4. Junior/subordinated cap			■	■		■	■	■	■	
	5. Securitisation			■	■						
	6. Contractual mechanisms					■					■
	7. Results-based incentives							■			
	8. Grants								■	■	

Source: Carolien van Marwijk Kooij (2023); Better Guarantees, Better Finance, Blended Finance Task Force

One major reason for this gap is that ***guarantees can be very expensive*** because of their origination costs, their paid-in capital requirements, and the costs of provisioning for expected indemnities in case of default. For example their very prudent use (4.4% of their total financing till recently) by multilateral development banks, including MIGA, and climate funds such as GCF comes from their charters which impose to set aside 100% of the face value of guaranteed amounts on their capital, and further require counter-indemnities by host governments, to maintain their AAA credit ratings in institutional markets.

[7] USD 800 billion in the USA (Cares Act); EUR 1.5 trillion in the EU) (Falagiarda et al., 2020) (Bloom et al., 2021)
[8] According to the BFTF public providers issued 30 billion of guarantees per year for climate investment in developing countries to be compared with the USD 500 billion of needed external private sources (out of USD 2.4 trillion) estimated by Songwe et al (2022) which would demand around USD 250 billion of public guarantees

The challenge then is to ***reduce the cost of guarantees for the borrowers and for public treasuries, increase their leverage, and raise the number of institutions that can as specific project guarantors***. The cost of public guarantees depends upon three parameters: their origination cost, the expected default rate, and the amount of funded (paid-in) and unfunded (callable) capital. Origination and default risk-levels can be expected to be lower thanks to specialized guarantee facilities. The cost of reserves is a function of a callable capital (unpaid on signing the contract) such as in the SIDA guarantee facility). The cost of paid-in capital is a function of interest rates on capital markets, and creditworthiness of funders, and hence dependent on the credibility of the system, its impact on the return of projects, and the subscribing countries' creditworthiness. This set of parameters, which ensures the cost-effectiveness of public guarantees for climate action, is easy to define on paper. Implementing them at the global scale in the real world is more complex, an area that we now turn to.

How can multilateral sovereign guaranties scale-up climate action?

Breaking the barriers to the wider use of public guarantees then requires pre-agreed objectives, clear conventions on this set of parameters, and rules for revising these conventions as greater experience is gained. The credibility of these conventions for global capital markets is likely to be more secured if they are backed by multilateral arrangements on sovereign guarantees, instead of being spread out among many smaller national public entities or existing multilateral financial institutions with potentially conflicting objectives and inhouse experience or organizational incentives more turned towards direct lending.

We thus propose a Multilateral Sovereign Guarantee Mechanism (MSGA) because ***a strong platform is needed to solve a huge coordination problem while keeping intact a very decentralized approach***. Contrary to historical precedents of systemic technological change involving a few major technological breakthrough, or the phasing out of a product with no systemic implications like CFCs, the low-carbon transition involves a wide range of technical options with very different levels of sophistication (from the most advanced to the most commonplace), in sectors with different business models and places in the value chain, and in contrasting geographies.

There is nothing ilke a universal instrument a MSGA can help solve this coordination problem by ***attracting multiple private funds to support the combination of instruments best suited to respond to specific problems in specific contexts***. It can do so, thanks to a ***superior credibility*** for the entire chain of players involved, from operators on the ground to financial intermediaries and local and national public authorities ***of its front-line buffer to the risk of payment defaults***. An adequate capitalization of contingency reserves, capitalized independently of annual public budgets, further avoids the complex need to negotiate capital requirements on a project-by-project basis and allows for prompt remedial actions in case of unforeseen rise in default rates and calls on guarantees. Multi-year commitments within a MSGA also avoids the political uncertainty of annual budgetary commitments of national governments that face difficulties with tax-payers fiscal conservatism.

The challenge is then to design a MSGA as a fulcrum for decentralized actions ***in full respect of the refusal of ad hoc conditionalities and the respect of national circumstances repeatedly called for at COP 28 (REF)*** in order to enhance trust in international cooperation and clear up accumulated North-South misunderstandings. Capital markets and treasury managers can be expected to react positively to the political benefit of such an architecture, which would increase dramatically the cost-efficiency of public guarantees and deliver a set of deeply intertwined outcomes:

a. ***Expanding developing countries' access to global capital markets at lower cost and longer maturities*** with the backing of highly credit-worthy — AAA-AA — guarantors. This access represents a financial support far higher than the 100 USD billion of the Paris-Agreement in both equity inflows and cash grant equivalents from the reduction of loan interest rates.[9]

b. ***Ensuring investment projects' environmental and development integrity*** through credible project selection procedures at low transaction costs and improving the transformative power and efficiency of the NDCs conducted by host developing countries,

c. ***Accelerating the emergence of low-carbon assets***, liquid enough to attract savers. This would respond to the call from institutional fund managers on creating long-term, durable returns to investing in climate in developing countries with sovereign guarantees (Schatzker, 2021) and to the request of non-debt instruments by COP 28 (art 69) that are of the outmost importance for developing countries, especially those in debt distress

d. ***Securing the fiscal and employment benefits of cooperation on climate policies for developed country providers of guarantees.*** These benefits come primarily from the 'export' opportunities generated by the projectsand are very sensitive to the conventions adopted for the working of the system. This is critical for the sensitivity of public treasuries of these contributing countries to the so-called 'tax-payer fatigue' and to their fear of a loss of creditworthiness

e. ***Reducing fragmentation of climate and development finance***: this implies both a) to help MDBs, the GCF, and other UNFCCC institutions to work synergistically and to allow National Development Banks (NDBs) to finance smaller-scale projects; and b) to encourage the development of co-guaranteing entities (local partners such as cities, provinces, and other local financing entities).

f. ***Delivering significant contributions to adaptation needs***: indirectly by freeing-up, via the crowding in private savings in mitigation activities, funding capacities of multilateral and bilateral overseas assistance for grant-based public climate funding of adaptation projects that often have a much a higher share of non-commercial or easily marketable goods and services; directly by scaling-up, through the support to projects delivering mitigation, adaptation and access to basic needs benefits, ***a grant-equivalent contribution of private savings to sustainable development goals*** .

[9] In a study that includes the energy and transportation sectors only, Hourcade et al. (2021) show yearly equity inflows up to 300 US billion over the next 20 years, and up to 160 US billion in cash-grant equivalents. These results translate the power of leverage of well-designed guarantees illustrated in Figure 2 below

Basic principles of a multi-sovereign guarantees mechanism (MSGM)

A multi-sovereign guarantee architecture, implies a political commitment between a set of developed and developing countries. The former have to agree *to issue sovereign guarantees* for low-carbon projects the latter and provide technical assistance if requested; the latter have to accept to host these projects and to create a business environment facilitating their success (legal framework, public investment, conducive policy-settings such as feed-in tariffs for renewable electricity, and domestic public guarantees). This pre-supposes an agreement of all participating countries on the essential parameters of the system and around the automaticity of the payment for default.

To be economically, financially and politically credible a MSGA has to secure three types of 'additionality' in the context of imperfect ex-ante information on each project: financial additionality (hedge against windfall profits, diversion of public aid to projects that don't need it and catalysation of new equity, grant and cash-grant equivalent inflows), mitigation additionality (greater avoided greenhouse gas emissions), development additionality (larger catalytic impacts on broader development goals). ***Shared robust and transparent project selection procedures are then needed to secure these three additionalities*** and hedge against both suspicions of political bias and risks of funding 'white elephants.' These procedures have to be based on three pillars (and sub-pillars):

- ***Access to sovereign guarantees need to be restricted to projects directly contributing to host countries' NDCs***, thus linking them closely to those countries' overall sustainable development policies and securing the respect of their national circumstances
- ***Agreed upon calibration rules of the amount of guarantee*** based on:
  - An assessment by a third-party expert body of the upper and lower bounds of expected emission abatement by types of projects in specific countries or regions. This body will mobilize peer-reviewed modeling exercises and local expertise to inform the negotiation on the extent of guarantees with uncertainty ranges about the mitigation additionality of projects given their insertion in specific development policies in an uncertain context.
  - The use of a notional value per ton of avoided emission (Stiglitz et al., 2017) to improve the overall economic efficiency of the portfolio of funded projects for a given amount of avoided emissions. This value can be derived, by convention, within the range of the marginal costs of carbon abatement for a 1.5 ° C target given by the set of IPCC scenarios. The lower the per capita income of a country, the higher the distance between this value and its capacity/willingness to pay for carbon abatement, and the higher the yielded equity benefits of the system.
- ***Assessment of the country-specific "social, economic, and environmental value of mitigation actions [and] their co-benefits"*** (Article 108 of the Paris Agreement decision) to be incorporated in appreciation of the project and to guide the willingness of both the host and the donor country to support the projects through additional grants, subsidies and supporting infrastructures. This value must incorporate the impacts of the projects in terms of employment, external commercial balance, and fiscal revenues as well as their contribution to the long-term environment and sustainable development objectives of the host country.

A key to success is here to ***find the right balance between the 'statistical additionality' of projects in a context of imprecise knowledge of their individual future performance, and high transaction costs that might deter such initiatives***. Their progressive standardization matters for small projects which could then be bundled, securitized, and repackaged in standardized financial terms and be included in the diversified asset pools (over USD 100 million considered by asset managers (BFTF 2018). This *bundling* would incentivize other guaranteeing entities to build platforms or pipelines for new forms of private-public partnerships adapted to diverse sectors and geographies. This would also enhance the capacity of national development banks to offer a mix of guarantees and loans and capture important opportunities at the level of cities and local communities by mobilizing local savings in local currencies,

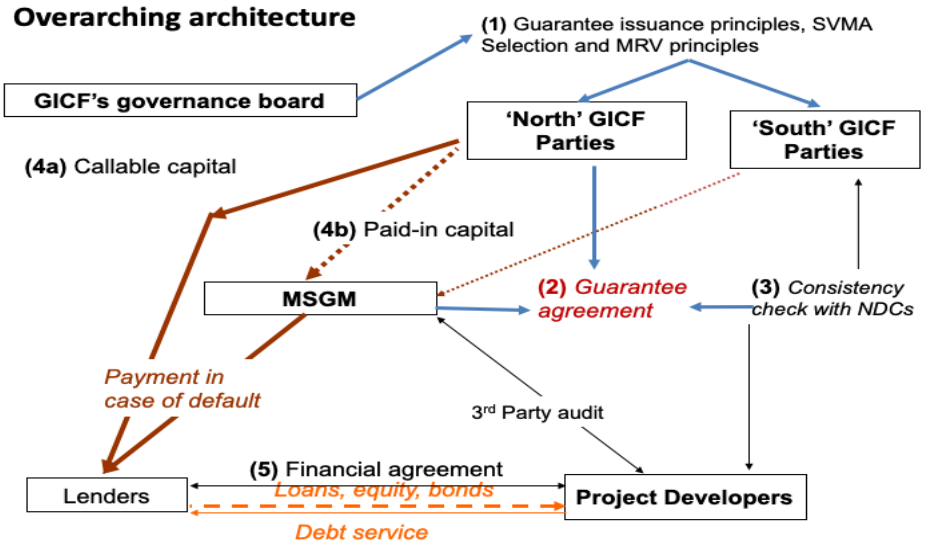
Another key factor, with less immediately tangible outcomes, but critical for a climate friendly evolution of the financial system, is the emergence, as the MSGA gains in credibility, of Carbon Remediation Assets (CRAs), an asset-class with a high levels of increased recognition. Such CRAs world increase the efficacy of financial intermediaries in redirecting global savings by securing their credit rating and capitalizing private sector service providers. Even more importantly this would also ***help solve the macro-creditworthiness problem for host countries***. Any foreign loan or bond will indeed first be recorded as national debt and lower thei country capacity to issue loans in national currency. The credibility enhancement coming from multilateral guarantees might contribute to persuading rating agencies that the new debt is justified by expected economic and fiscal gains from induced growth and the built infrastructure's value as collateral. This would also partly offset the penalty imposed by Basel III rules on long-maturity investments and help the Banking system to 'green' its investment portfolio.

From basic principles to an operational MSGA: what steps forward?

The basic principles just described lead to a mechanism sketched in Figure 1 with a) the recognition by the host country that the project conforms to its NDCs; b) the commitment by guarantor countries to an amount of paid-in capital and an amount of callable capital in case of project failure and c) financial agreements that give project developers access to capital markets in the form of equity or low interest rates from institutional investors and banks.

But passing from this sketch to a stabilised mechanism at scale apt to trigger the circle of trust we need, is impossible without launching a learning process with progressive correction of the first tests.

FIGURE 1 : The Architutures of a Multi-Sovereign Guarantee Program (MSGM)



This is why we propose to mandate ***high-level expertise task-force*** at the next COP, to deliver one to two years year later, consensual information about response options to three layers of questions for an immediate launch of an operational prototype (by a group of initially willing-countries who accept new entrants agreeing to respect its rules).[10]

The first layer is consensus about the parameters necessary to secure financial, mitigation and development additionality of the system and the procedures to review them in the light of experience. This discussion must be connected with the establishement of the institutional conditions for a) protecting the project assessment cycles from the diverse forms of lobbying interference at the level of project selection, b) maximizing the synergies with the multiple existing sources of public finance (sovereigns, multilateral financial institutions including the GCF, bilateral agencies, national development banks) and c) facilitating the emergence of private guarantee facilities to serve the segments of the market that should be able to operate commercially to free-up sovereign guarantees for projects with high development additionality.

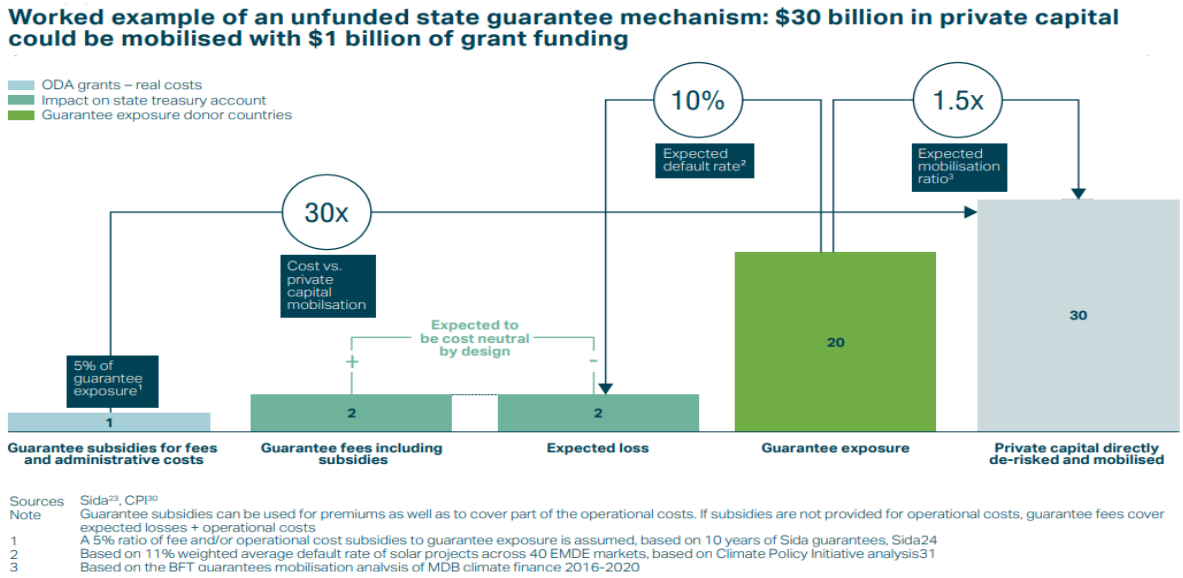
The second layer is to avoid the risk of an 'universal' facility, leading to an overdominance of large scale mitigation projects in the energy sector to the detriment of other sectors (transportation, buildings, agriculture) or small scale projects (basic needs in remote areas). The way out is to organize the MSGA as ***an architecture of dedicated facilities, working under the same overall principles, but targeted to certain sectors and problems***. The optimal use of guarantees cannot be the same in the transportation sector as in the scaling-up of wind energy. Targetted facilities would allow for an accelerated build-up

[10] A recent example is the Green Guarantee Company established by the GCF

of expertise in particular sectors and settings through accumulated experiences. One can even envisage a platform supporting the coordinated decarbonization efforts in some highly energy-intensive activities ('hard-to-abate' steel, cement, fossil-based chemicals, CH4 emissions from gas and oil fields).

The third layer is to maximize the capacity of the mechanism to attract private capital finance for projects delivering joint benefits in terms of mitigation, adaptation and SDGs. Part of the response lies in the project assessment methodologies of the total social returns of the projects. Another part might be, in addition to a tax on high incomes and high-carbon enterprises to fund *adaptation grants,* to dedicate part of the increase of the capitalization of the MSGA to back the grant based efforts of governments in favour of adaptation and reinforce the contribution of the private sector to this effort. The leveraging effect of guarantees can be very high if all the ingredients are in place (see Figure 2).

Figure 2: How A Guarantee Mechanism with Grant Funding Leverages Project Financing Even More



Sources Sida[23], CPI[30]
Note Guarantee subsidies can be used for premiums as well as to cover part of the operational costs. If subsidies are not provided for operational costs, guarantee fees cover expected losses + operational costs
1 A 5% ratio of fee and/or operational cost subsidies to guarantee exposure is assumed, based on 10 years of Sida guarantees, Sida24
2 Based on 11% weighted average default rate of solar projects across 40 EMDE markets, based on Climate Policy Initiative analysis31
3 Based on the BFT guarantees mobilisation analysis of MDB climate finance 2016-2020

Conclusions

This paper's essential proposal is for establishing a multi-sovereign guarantee architecture at scale in the very near future. This is likely a critical test of the planetary cooperation capacity to step up climate financing dramatically. Absent this step, we will miss in the next ten years enormous opportunities to tap the massive global capital markets to address the sharply rising climate challenges. The size of global capital markets is enormous but very little of it is currently going towards opportunities in the low-carbon transition because of higher investment costs and fear of up-front financing risks.

Given the deep market coordination problems involved, a publicly backed global MSGA is now, in the context of constrained direct public funding, an essential platform to de-risk climate investments, catalyse private savings and help very diverse structures to work and invent innovative policy-packages apt support fast-tracking mitigation and its co-benefits on adapatation and overall SDGs

At the same time, a MSGA will create, by tapping private financial markets to fund mitigation investments, a context more conducive to convincing public treasury managers to scale up grants and concessional loans dedicated to adaptation and loss&damages, of which demand are becoming ever more pressing. Waiting for a second tier of existing distributed public financing institutions to do so, with conflicting objectives, unclear incentives, and too small a credible scale, is a bit like 'waiting for Godot' (who eventually never arrives).[11]

BIBLIOGRAPHY

Abiad, A., Furceri, D., & Topalova, P. (2014). *IMF survey: The time is right for an infrastructure push*. International Monetary Fund

Bhattacharya, A., Oppenheim, J., Stern, N. (2015). *Driving Sustainable Development through Better Infrastructure: Key Elements of a Transformation Program*. Global Economy and Development Working Paper No. 91, Brookings Institution, Washington DC.

BFTF (2018). *Blended Finance Taskforce calls to scale up the issuance and use of development guarantees* Bended Finance Task Force 2018

BFTF (2023): *Better Guarantees, better finance: Mobilising capital for climate through fit-for-purpose guarantees*, Bended Finance Task Force 2023

GCF (2021) *Scaling-up Climate Finance in the context of COVID 19, a science based call for policy-makers,* Green Climate Fund

Hourcade, J.C., Dasgupta, D., Ghersi, F., (2021) *Accelerating the Speed and Scale of Climate Finance in the Post-Pandemic Context* Climate Policy 21 (10)

IMF (2021). *World Economic Outlook update July 2021*. Fault lines widen in the Global Economic Recovery, International Monetary Fund, Washington DC.

OECD (2022) *Mobilised private climate finance: trends, insights and opportunitie*, in Climate Finance Provided and Mobilised by Developed Countries in 2016-2020: Insights from Disaggregated Analysis. Available at: https://www.oecd-ilibrary.org (Accessed: 10 November 2023)

Songwe, V., Stern, N., *Finance for climate action Scaling up investment for climate and development* Report of the Independent High-Level Expert Group on Climate Finance November 2022"

Stiglitz, J., Stern, N., (2017) Report of the High Level Commission on Carbon Prices

[11] Samuel Becket, "Waiting for Godot: A Tragicomedy in Two Acts", 1994.

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