

Background Note: Further Taxonomic Considerations of Premium and Capital Support and Allocation Aspects

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For the internal use of the V20¹

1. Introduction and Overview

Climate vulnerable countries require shared leadership and collaboration at the global level to survive and thrive with a loss multiplier subject to climate and disaster risks, currently and in the future. Current budgets, however, fall short of what is needed to reduce life and economic losses. Climate and disaster risk financing and insurance (CDRFI) can support the managing down of risks and utilization of opportunities. Without the accessibility and affordability of financial tools, however, the lives lost and the financial and operational fall-out in climate vulnerable countries could undermine and reverse the development gains achieved so far. For example, annual adaptation costs in developing countries alone are currently estimated to be in the range of USD 70 billion, with the expectation of reaching USD 140–300 billion in 2030 and USD 280–500 billion in 2050.² Further, analysis suggests that under business as usual (BAU), temperature increase will reduce GDP for a typical low-income country by 9 percent in 2100, considering current mitigation pledges under the Paris agreement³.

The imperative of responding to climate change losses and adaptation finance needs in vulnerable countries calls for substantially scaling up investment in risk financing instruments that builds both resilience and reduces debt without compromising the fiscal space for crucial social and economic spending. However, the lack of climate finance available to climate vulnerable countries represents a barrier to realizing these opportunities.

¹ Prepared by Panda A., Ahmed S., Seifert, V. and Kreft S. (2021) This paper is a living document to support discussions on premium and capitalization support - including in the context of the InsuResilience HLCG - and takes into consideration views from a diverse range of climate vulnerable developing countries.

² UNEP (2020), Adaptation gap Report

³ IMF, (20192007), "Fiscal Policies for Paris Climate Strategies: From Principle to Practice," IMF Board Paper, International Monetary Fund

To enable V20 countries to access climate finance through premium and capital support (PCS) for climate and disaster risk insurance (CDRI), there is need to consider countries' overall fiscal and financial positions to access funds through loans, credits, and grants: Many countries that lack access to disaster finance are often highly vulnerable to climate impacts and also show weak public debt profiles⁴, with negative implications for their capital costs. In the context of CDRI, market rate insurance premiums further limit many countries' scope to fully participate in insurance markets. Without financial support they therefore typically purchase little or no CDRI. For example, due to the Covid-19 crisis, members of the African Risk Capacity (ARC), a sovereign risk pool accessible for country members of the African Union, lacked the resources to renew their policies in 2020. As such, Germany absorbed premium payments for Zimbabwe, Burkina Faso, Gambia, Mali, Mauritania, and Senegal instead. Moreover, it is important to note that the ARC insurance company itself began operations in 2014 building on a 20-year returnable zero interest loan of USD 200 million in risk capital from Germany and the United Kingdom. Almost 50% of this loan went to supporting the underwriting of insurance policies, thereby helping to open a market for such insurance in the first place. Thus, to allow more vulnerable countries to access pre-disaster or post-disaster financing, innovative mechanisms may be needed at the macro, meso and micro level.

Providing concessional financing⁵, e.g. PCS is now being discussed globally as an important tool to enable and encourage the use of risk finance and insurance by directly or indirectly reducing the costs to beneficiaries.⁶ Following the first official global discussion of PCS in the 4th meeting of the High-Level Consultative Group (HLCG) of the G20+ and V20-led InsuResilience Global Partnership in June 2021, the July 2021 V20 Summit Communiqué calls for the systematic provision of smart premium subsidies and capitalization to close the financial protection gap.⁷ Smart PCS can play a critical role in improving the affordability of climate-smart insurance by directly or indirectly reducing the cost of insurance premiums. The improved affordability can pave the way to build new insurance markets and increase insurance penetration rates, provide funding and liquidity for disaster risk insurance products, and reduce vulnerability. Further, a more systematic provision of smart PCS support for micro, meso and macro level instruments offers the much-needed predictability of resources over an economic cycle and helps to jump-start access and value recognition of such tools. In this context, it is also instrumental to ensure that PCS is provided through an inclusive and transparent global delivery structure, administering the access and allocation of PCS.

⁴ Volz U. et al (2020), Debt relief for a green and inclusive recovery, MCII

⁵ The term covers any form of financial support or provision of concessional finance (inclusive of grant finance) to reduce the insurance premium and support capitalization of e.g. risk pools.

⁶ Vivideconomics (2016), Understanding the role of publicly funded premium subsidies in disaster risk insurance in developing countries.

⁷ 1st Climate Vulnerable's Finance Summit Communiqué, available at: <https://www.v-20.org/activities/ministerial/1st-climate-vulnerables-finance-summit-communiqué>

Broadly speaking, several forms of concessional support may be considered to support countries in using CDRFI, including the provision of grants or concessional credit. Looking across the entire spectrum of disaster risk finance, PCS can include measures to reduce the costs of insurance products, such as directly financing the insurance premium through premium subsidies as well as indirectly subsidizing the insurance product by providing capital necessary for product development, marketing and distribution or capitalizing risk carriers, e.g. regional and (sub-)national risk pools or market-based structures such as the Natural Disaster Fund, to support operating costs or contribute to the carrier's risk capital. Capital support can also be provided for insurers operating at the micro or meso levels, for example through debt- or equity investments as is the mandate of the InsuResilience Investment Fund.

In the context of contingent credit lines, capital support can be introduced to further reduce the cost of capital, that is, loan interest payments. Moreover, when considering risk retention instruments, capital support can also include measures that finance the capitalization of (national) emergency funds. One example in this regard is provided by the US and the Marshall Islands: Marshallese contributions to the Disaster Assistance Emergency Fund are matched, one to one, by the US government.⁸

The here presented paper, however, focuses on CDRI instruments only. In this context, PCS can be defined as *any form of financial support or provision of concessional finance (inclusive of grant finance) to reduce the insurance premium either directly or indirectly through capital support for the risk carriers*. The more significant the contribution and collaboration of donors, development partners and climate vulnerable countries in the context of PCS, the greater the benefits for scaling up the use of CDRI: Through facilitating better access to CDRI, stakeholders can enable learning-by-doing and continuously expand collaboration for successively enhancing the deployment of targeted CDRI instruments over the medium to long term.

To ensure maximum impact, development partners need to create and refine operational guidelines based on increasing analytics. Building on the earlier [MCII Background Brief on SMART Premium and Capital Support: Core Principles and Operational Indicators](#), this note develops further on the methodological aspects of providing PCS based on the five SMART principles.

⁸ Martinez-Diaz, L., (2019), The Future of Disaster Risk Pooling for Developing Countries

2. Background

The development of disaster insurance and reinsurance markets in smaller and lower-income states is impeded by a variety of demand and supply side market inefficiencies,⁹ with most of the demand side market inefficiencies rated in the highest severity category for low-income countries.

In a well-functioning private insurance market, premiums are risk-based and differentiated so that each buyer pays a premium to cover one's own expected loss and expense costs as well as profit loadings¹⁰ to compensate the insurer for bearing the insured risks. However, in most low- and middle-income countries, the lack of well-developed insurance and capital markets makes it challenging to implement market-based insurance and continues to limit the uptake of risk transfer instruments. In the case of lower income segments, risk premiums tend to be even higher in relative terms, because they tend to live in more vulnerable regions.¹¹ At the macro level, governments might find it difficult to justify paying premiums considering competing public expenditure needs.

High insurance costs can lead to important trade-offs for individuals, MSMEs and governments which can result in CDRI policies that exclude the most vulnerable people and countries. In such circumstances, improving the affordability and sustainability of CDRI can be achieved by providing support for reducing premium and other product-related cost through concessional finance, including grants. Doing so can be quite important when implementing or introducing CDRI in climate vulnerable countries at the micro, meso or macro scale.¹²

While PCS for insurance products in the form of direct or indirect premium subsidies has largely been used at the micro scale in the agriculture industry¹³, the use of PCS outside of the agricultural sector, specifically at the macro and meso scale is underutilized.

3. Premium and capital support for CDRI

Recent evidence suggests that the use of PCS for sovereign risk pools as well as at micro and meso level instruments has the potential to reduce the cost of premiums, thereby increasing affordability. However, as PCS is a rather new support tool and data on its effectiveness and impact is still lacking, the realm of

⁹ GRIF, (2021), Literature Review of Evidence on Disaster Risk Finance

¹⁰ Profit loading is simply an amount added (by the insurance company or insurer) to an insurance premium to cover business expenses and contingencies including cost of capital.

¹¹ Vyas, S. et al, (2019), Understanding the Drivers of Cost-Effectiveness, MCII Discussion Paper Series.

¹² Vivideconomics (2016), Understanding the role of publicly funded premium subsidies in disaster risk insurance in developing countries.

¹³ Mahul, O. and Stutley, C. (2010), Government support to Agricultural Insurance, Challenges and options for developing countries, World bank

PCS applications is characterized by more unknowns than knowns.¹⁴ Generally, one can differentiate two types of PCS:¹⁵

- *Market-accelerating premium and capital support* that enables or promotes competitive insurance markets. This focuses on aspects that kick-start and accelerate the risk market infrastructure, such as data collection and management systems, catastrophe risk models, legal and regulatory frameworks¹⁶, climate risk and financial literacy, and premium subsidies. At the macro scale, subsidized risk capital, such as the capitalization of catastrophe (re)insurance pools, can contribute to enhancing competitive insurance markets and creating new business opportunities for the financial markets by reducing the cost of capital.
- *Social protection premium and capital support* is provided as part of social safety net programs. Social safety nets are a specific type of social protection and typically target extremely poor and poor households and thus offer an important avenue to extend protection to the most underserved population segments. Social safety nets are comprised of non-contributory transfers in cash or in kind to individuals or households in need and constitute an efficient tool to support poor households through shocks. The most common form of social premium subsidies are direct premium subsidies that are fully or partially equivalent to the insurance premium. This type of premium support is relevant also in the context of micro agricultural schemes where premium subsidies are provided to help increase uptake. In cases where insurance markets are lacking and low income and vulnerable households are the target group, PCS for social insurance can be used as a part of broader safety net program to insure the most vulnerable population that would otherwise not purchase insurance. There is now growing experience and evidence for using disaster risk finance instruments to scale shock responsive social protection mechanisms such as in Ethiopia and Kenya. To realize cost-effective solutions such as social safety net programs to improve welfare effects, it is key to determine which risk transfer or financing mechanism is best to ensure social protection from climate risk. For example, findings show that implementing a bundled package of DRM and DRF instruments could increase average resilience by 1.6 percent, equivalent to a \$13 billion improvement in well-being across all countries.¹⁷

However, despite the benefits that can accrue from PCS, there remain considerable uncertainty and ambiguity on questions such as **the eligibility criteria for PCS, the timespan for which it should be provided and how much PCS should be allocated to individual recipients.**

¹⁴ Panda, A. and Surminski, S. (2020), Climate and Disaster risk insurance in low-income countries, Working Paper 348, GR- LSE

¹⁵ Adapted from Cummins, D. and Mahul, O. (2009), Catastrophe Risk Financing in Developing Countries Principles for Public Intervention

¹⁶ In the context of this paper, support for the creation of enabling legal and regulatory frameworks falls outside the scope of PCS.

¹⁷ Hallegatte, S. et al 2017, Unbreakable: Building the Resilience of the Poor in the Face of Natural Disasters. Washington, DC: World Bank.

This is further complicated by the issue of the scale for which PCS interventions are discussed, as there are different kinds and types of PCS for target groups at the micro, meso or macro scale.¹⁸ However, with increasing demand for financial protection as a result of the increasing frequency and intensity of climate-related hazards, it has become important to provide guidelines on how, when and to whom to provide PCS when aiming to insure vulnerable sovereigns, sectors or households.

4. Eligibility: Who should receive support?

To support the quality, efficiency, and sustainability of the impact of PCS, it is important to determine the eligibility criteria of recipients affecting how PCS can help CDRI reach scale and become sustainable after a certain period; with sustainability being affected by changes in value recognition and financial ability over time as well as the level of warming above pre-industrial levels by the 2030s.

At the sovereign scale, CDRI solutions differ in terms of **pre-existing structural parameters relevant to the implementation of CDRI such as the stage of insurance market development, socio-economic contexts, physical risk and fiscal positions**. Taking this diversity into account is key to avoiding a one-size fits all approach for PCS interventions.

As such, the eligibility criteria should be composed of a variety of indicators to reflect the multi-dimensional aspects of the country contexts affecting eligibility. Following are the four major eligibility criteria to help determine a categorization of V20 countries. Based on such a categorization, recipients of PCS could be identified:

- **Population and Geography (PG):** Population and geography of a country play an important role in defining the capacity to absorb and respond to disaster risk. For example, most low-lying islands with small populations comprise a heterogeneous group but share many similar characteristics and vulnerabilities which pose challenges for development and macroeconomic stability. Due to their small population and economic size, they have narrow production and export bases as well smaller insurance and underdeveloped capital markets as compared to countries with large populations and less remote geographic locations. Moreover, in the case of natural hazard events, related impacts may be less concentrated on individual regions, but affect the entire territory at the same time. The IMF's categorization of Small Developing States (SDS) could serve as proxy for small insurance markets.¹⁹

¹⁸ The issue of PCS can be complicated needs at different scales. For example, at the micro level, unsubsidized microinsurance programs have in general not been particularly successful and it is usually very difficult to end the subsidy regime. Further, affordability of CDRI may differ from individual, MSMEs to sovereigns, so does the decision to demand insurance as compared to other instruments.

¹⁹ The IMF classifies as SDS those members with populations under 1.5 million, excluding advanced economies and fuel exporting countries (as defined by the WEO).

- **Economic and debt status (EDS):** A second criterion indicating eligibility for PCS pertains to the economic and fiscal status of the recipient. Countries with low income and weak fiscal positions should be given priority to receive PCS to compensate for their weaker capacity for paying CDRI premiums. Regarding countries' economic status, IDA eligibility²⁰ could serve as a proxy for severely restricted ability to pay. With view to their fiscal position, countries' debt stress can be considered to understand their debt status. These considerations may also include industries and micro, small, and medium enterprises (MSMEs) that contribute to employment but lack liquidity/working capital as well as people at-risk or below a certain threshold of ability to recover. In this context, a second proxy that can be used to determine *both*, countries' economic *and* debt status is a combination consisting of the World Bank-IMF Bank Debt Sustainability Framework for Low-Income Countries (LIC-DSF)²¹ list and market access countries (MAC). MACs typically have significant access to international capital markets, while low-income countries (LICs), meet their external financings needs mostly through concessional resources. Further, to support prioritization amongst countries that meet these requirements in the context of the EDS eligibility criterion, their Highly Indebted Poor Countries (HIPC) status can be considered.
- **Climate risks and vulnerability (CRV):** A third criterion for determining countries' PCS eligibility should consider countries' current and future exposure and vulnerability to climate risks. There are various indices globally such as the Global Climate Risk Index²², the Verisk Climate Change Vulnerability Index²³, the ND-GAIN country index²⁴ or the Climate Vulnerability Monitor²⁵ that can be anchored to determine vulnerability and exposure to climate-related hazards as a key data point. In this context, it should also be noted that countries' PCS levels should be climate risk adjusted, translating into higher support needs as climate change progresses over time, not only in the context of PCS but also adaptation investments.²⁶ Underlying these considerations is the recognition that (future) premium prices will increasingly reflect the accelerating frequency and intensity of sudden onset events, such as droughts, hurricanes, and heavy rain, and thus increase. This will, in turn, add further insurance affordability and access constraints. For example, if

²⁰ For IDA eligibility, a country's relative poverty defined as GNI per capita must be below an established threshold (USD 1,185 in FY2021).

²¹ The framework helps determine the risks of debt distress, taking account of a country's capacity to carry debt and its projected debt burden under both baseline projections and shock scenarios (see [IMF 2018](#) for more detail).

²² Global Climate Risk Index 2020, GermanWatch

²³ <https://www.maplecroft.com/risk-indices/climate-change-vulnerability-index/>

²⁴ The ND-GAIN Country Index summarizes a country's vulnerability to climate change and other global challenges in combination with its readiness to improve resilience. See <https://gain.nd.edu/our-work/country-index/>

²⁵ The Climate Vulnerability Monitor is developed in collaboration with the Climate Vulnerable Forum (CVF), the sister initiative of the V20 Group and currently being updated, with prospective publication in 2022: <https://daraint.org/climate-vulnerability-monitor/climate-vulnerability-monitor-2012/monitor/>

²⁶ Depending on the level of warming above pre-industrial levels by the 2030s

climate change impacts livelihoods to a point of unsustainability, this is likely to be reflected in the insurance policy – either through increased premiums or more limited coverage.

These three overarching eligibility criteria and related indicators can be combined to determine three major groups/categories for which PCS should be provided:

- **Category 1 - PCS for climate vulnerable countries or industries (Potential sustainable markets, with lack of willingness to pay):** This category includes climate vulnerable MSMEs or countries with adequate fiscal space that are willing to recognize the value of financial protection, e.g. through the integration of sovereign insurance in macro-fiscal decisions or business continuity and liquidity management (to protect from business interruption and maintain credit access). Countries (or MSMEs) in this category are mostly under no high debt stress and with high income but are climate vulnerable and have purchased no or little insurance. While most likely reflecting low sensitivity to PCS²⁷, that is a low impact of PCS on these actors' *ability to pay*, there is supporting evidence that PCS can positively influence these actors' *willingness to pay* and hence **increase the uptake of insurance**. In such contexts, market-accelerating PCS interventions may be best suited and applied only in the short to medium term, but with potentially high impact: As sustainable insurance markets may be created relatively quickly after a period of learning, such designed PCS interventions may make insurance products more affordable and accessible to groupings with low ability to pay. In the context of risk pools, these groupings can include lower income countries with limited fiscal space, while in the context of national insurance markets, this can include smaller MSMEs. Further research is needed to understand the cases where PCS can be effectively provided to such “healthy frontrunners” which can expand the insurance space with important co-benefits for lower income countries, industries and people that fall into category 2.
- **Category 2 - PCS for climate vulnerable lower-income countries, industries, and people (with lack of ability to pay):** Many countries in this category include low-income countries with moderate to high debt stress based on the LIC-DSA framework. In contrast to the above introduced category, purchasing disaster risk insurance presents particularly high opportunity costs - countries in this category would show high sensitivity to PCS, meaning their ability to pay could be increased substantially. At the same time, PCS interventions could have to be much longer term than the above to even reach the potential of creating sustainable insurance markets and should consist of a mix of market-accelerating and social protection-based PCS measures. Looking at countries listed in the context of extremely restricted fiscal space and at risk of external public debt

²⁷ Sensitivity to PCS is defined here as the marginal impact of increasing PCS on outcome variables such as ability to pay the premium (note: not *willingness* to pay, i.e. purchase disaster insurance).

distress²⁸, further identification and prioritization for PCS should consider these countries' climate vulnerability. In the context of national industries, these considerations may also include MSMEs that contribute to employment but lack liquidity/working capital as well as people at-risk or below a certain threshold of ability to recover.

- Category 3 - PCS for Small Market Low Income Countries (SDS, lacking ability to pay).** Small markets which include SDS are among the most vulnerable to climate impacts. At the same time, SDS also have small and limited diversified economies and small populations (~under 1.5 million)²⁹, and thus highly limited fiscal space, while often also suffering from high external public debt. Like category 2, PCS measures would need to be longer term and consist of a mix of market-accelerating and social protection-based interventions, depending on the scale of the mechanisms PCS is being provided for. The IMF's classification of SDS can serve as an indicator for small countries with needs PCS for CRDI, again with priority given to regions or countries with high climate-related exposure and vulnerability (e.g. figure 1).

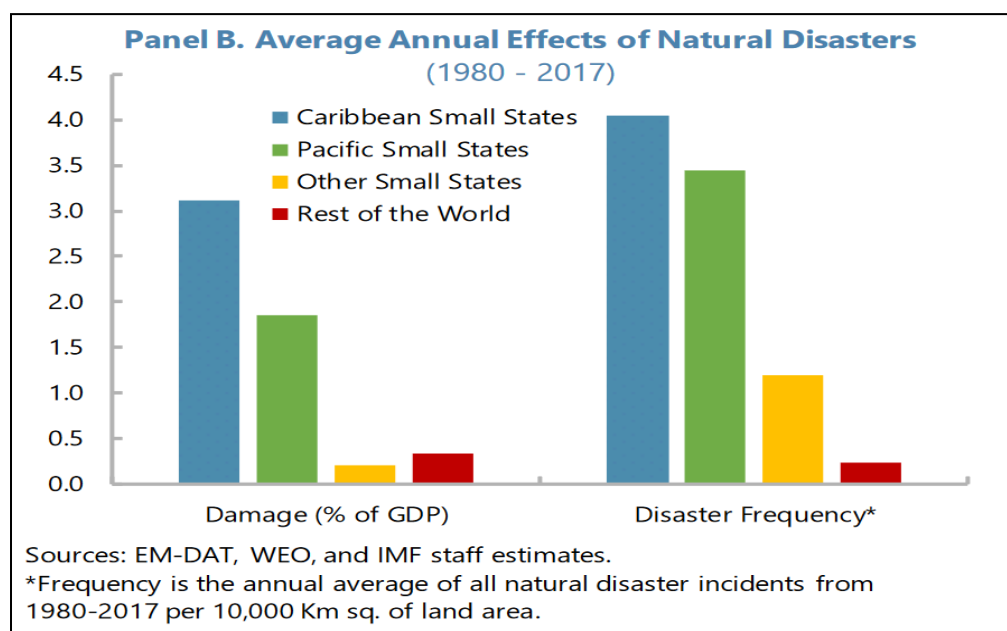


Figure 1: Annual Average Effects of Natural Disasters in Small States, Source: IMF, 2019³⁰

²⁸ IMF (2020) Public Sector Debt Definitions and Reporting in Low-Income Developing countries

²⁹ IMF (2020) IMF Engagement in small states, Draft Issues Paper for an Evaluation by the Independent Evaluation Office (IEO)

³⁰ IMF (2019) Building Resilience in Developing Countries to Large Natural Disasters

Table 1: Proposed V20 PCS Country classifications based on suite of indicators and indication of sovereign insurance uptake

Country	Total Population (Million)	Income Status	Lending category	GNI per capita (2021)	Central Government Debt (Percent of GDP) 2000-2019	Average Annual weather-related economic losses-1997-2016 (GDP loss %)	Overall Climate Vulnerability in 2030 ³¹	Debt Stress (LIC DSA, 2021) ³²	MAC-DSA ³³	HIPC, 2020 ³⁴	Small States Expanded (IMF, WB)	Risk Pool Policyholder and Accessible Pools (2019/20)
Category 1: Climate Vulnerable Countries (Potential Sustainable Markets, with lack of willingness to pay)												
Lebanon	6.8	UMI	IBRD	5510	154.7410865	0.1	Moderate		High Scrutiny	No	No	No (N/A)
Colombia	50.9	UMI	IBRD	5780	33.0022139	0.1	Moderate		Lower Scrutiny	No	No	No (N/A)
Dominican Republic	10.6	UMI	IBRD	7260	26.63832	0.3	High		High Scrutiny	No	No	No (CCRIF-SPC)
Costa Rica	5.2	UMI	IBRD	1146	38.16970	0.1	Moderate		High Scrutiny	No	No	No (CCRIF-SPC)
Category 2: Climate Vulnerable Lower-Income Countries (Lack of ability to pay)												
Madagascar	28.4	LI	IDA	480	49.84531015	0.7	Acute	Moderate		Yes	No	Yes (ARC)
Afghanistan	39.8	LI	IDA	500	67.9461	0.2	Acute	High		Yes	No	No (N/A)

³¹ Climate Vulnerability monitor (2012), <https://daraint.org/climate-vulnerability-monitor/climate-vulnerability-monitor-2010/download-the-report/>

³² IMF (2021), List of LIC DSA for PRGT Eligible countries <https://www.imf.org/external/Pubs/ft/dsa/DSAlist.pdf>

³³ IMF (2021), <https://www.imf.org/external/pubs/ft/dsa/mac.htm>

³⁴ Heavily Indebted Poor Countries (HIPC)

Niger	25.1	LI	IDA	540	36.36609385	0.4	Acute	Moderate		Yes	No	Yes (ARC)
DRC	92.5	LI	IDA	550	95.116520	0.0	Severe	Moderate		No	No	Yes (ARC)**
Malawi	20.3	LI	IDA	580	60.61373342	0.5	Acute	Moderate		Yes	No	No (ARC)
Sudan	44.9	LI	IDA	650	107.5763629	0.1	Acute	In debt stress		No	No	No (ARC)
Rwanda	13.3	LI	IDA	780	47.91230855	0	Severe	Moderate		Yes	No	No (ARC)**
Burkina Faso	21.5	LI	IDA	790	32.8618	0.2	Acute	Moderate		Yes	No	Yes (ARC)
Ethiopia	117.8	LI	IDA	890		0.2	Acute	High		Yes	No	No (N/A)**
Yemen	30.5	LI	IDA	940	54.47830415	0.1		Moderate		No	No	No (N/A)
Tanzania	62.1	LMI	IDA	1080		0.1	Acute	Low		No	No	No (ARC)
South Sudan	11.4	LI	IDA	1090	52.08023065	0.1	NA	High		No	No	Yes (ARC)**
Nepal	30.4	LMI	IDA	1190	40.9047081	0.2	Severe	Low		No	No	No (N/A)
Haiti	11.5	LMI	IDA	1250	41.33058015	2.7	Acute	High		Yes	No	Yes (CCRIF-SPC)
Senegal	17.2	LMI	IDA	1430	41.0439617	0.1	Acute	Moderate		Yes	No	Yes (ARC)
Cambodia	15.7	LMI	IDA	1490		0.8	Severe	Low		No	No	No (SEADRIF)
Kenya	54.7	LMI	Blend	1760	49.69935285	0.4	Acute	High		No	No	No (ARC)
Bangladesh	171.7	LMI	IDA	2010	38.5653	0.7	Acute	Low		No	No	No (N/A)
Honduras	9.4	LMI	IDA	2200	42.25282095	2	Acute	Low		No	No	No (CCRIF-SPC)

LC Ghana	32.4	LI	IDA	2230	45.3938931	0.1	High	High		Yes	No	No (ARC)
Papua New Guinea	9.1	LMI	Blend	2660	30.82329415	0.2	Acute	High		No	No	No (PCRIC)
Vietnam	100.2	LMI	IBRD	2660	38.32699205	0.6	Acute		High Scrutiny	No	No	No (N/A)
Bhutan	0.8	LMI	IDA	2860	82.4663	0.2	Acute	Moderate		No	No	No (N/A)
Morocco	36.3	LMI	IBRD	2980	59.24193175	0.1	Acute		High Scrutiny	No	No	No (ARC)**
Tunisia	11.8	LMI	IBRD	3100	53.5548709	0.1	Severe		High Scrutiny	No	No	No (ARC)**
Philippines	110.2	LMI	IBRD	3430		0.6	High		Lower Scrutiny	No	No	No (SEADRIF)
Mongolia	3.4	LMI	IBRD	3670	54.70427845	0.3	Severe			No	No	No (N/A)
Sri Lanka	22.1	LMI	IBRD	3720	79.3077157	0.4	Moderate		High Scrutiny	No	No	No (N/A)
Category 3: Small Market Low Income Countries (SDS) ³⁵												
Palau	0.02	HI	IBRD	1650		0	High		Lower Scrutiny	No	✓	PCRIC
Barbados	0.3	HI		1446	104.0699	NA	Moderate		High Scrutiny	No	No	CCRIF-SPC

³⁵ SDS receives IMF's Extended Credit Facility (ECF) and Rapid Credit Facility (RCF) with no ex-post conditionality

Kiribati	0.1	LMI	IDA	3010	12.92634066	6.6	Acute	High		No	No	PCRIC
Fiji	0.9	UMI	Blend	4720	45.67046565	2	High		High Scrutiny	No	✓	No (PCRIC)
Marshall Islands	0.06	UMI	IDA	5010		6.7	Acute	High		No	✓	PCRIC
Tuvalu	0.01	UMI	IDA	5820	35.76459707	8.5	Severe	High		No	✓	PCRIC
Maldives	0.5	UMI	IDA	6830	49.7473115	0	Acute	High		No	✓	No (N/A)
Grenada	0.1	UMI	Blend	8740	82.99404025	7.5	Severe	In Debt Distress		No	✓	Yes (CCRIF-SPC)
Saint Lucia	0.2	UMI	Blend	8790	52.8814931	1	Moderate	Moderate	High Scrutiny	No	✓	Yes (CCRIF-SPC)
Gambia	2.5	LI	IDA	750	68.73351085	0.3	Acute	High		Yes	✓	ARC
Comoros	0.9	LMI	IDA	1450	31.602191	0.1	High	Moderate		Yes	✓	ARC
Timor-Leste	1.3	LMI	Blend	1830	5.335465119	0	Acute	Low		No	✓	No (N/A)
Vanuatu	0.3	LMI	IDA	2780	30.1169439	3	Acute	Moderate		No	✓	No (PCRIC)
Palestine	4.7	LMI	IDA				Acute			No		No (N/A)

Source: Compiled by authors from various sources and V20-MCII Briefing Note on “Building Access to Sovereign Climate Risk Pooling for All V20 Members”

** Theoretically eligible to access the pool, but no signatories to the ARC Establishment Agreement yet.

5. Time span: For how long premium and capital support should be provided?

To garner sustainable and clear benefits arising from PCS and avoid problems of moral hazard, it is important to decide on the length of the PCS measure. Criteria used to define the length of PCS measures must be flexible enough to accommodate changing circumstances in the medium and long term. While there is no agreed definition of short term and long term in the case of PCS measures, this paper defines short term as 1 to 4 years, medium term as 4 to 8 years and long term as 8 to 11 years or more.

For **category 1 - countries with potential for sustainable markets** - PCS can be provided, if it is cost-effective, generates resilience benefits and increases the capacity of entities (country/sectors/populations) to move towards a sustainable insurance market in a few years' time. In such markets **insurance coverage and penetration can be effective indicators** to monitor the progress, while interventions should be designed with a clear phase-out strategy in mind.

For **categories 2 and 3 - lower income and small market lower income countries** - such a PCS strategy should consist of outlining and evaluating PCS measures for the small, medium, and long term based on objective indicators. Figure 2 suggests a framework and indicators that can guide such evaluation.

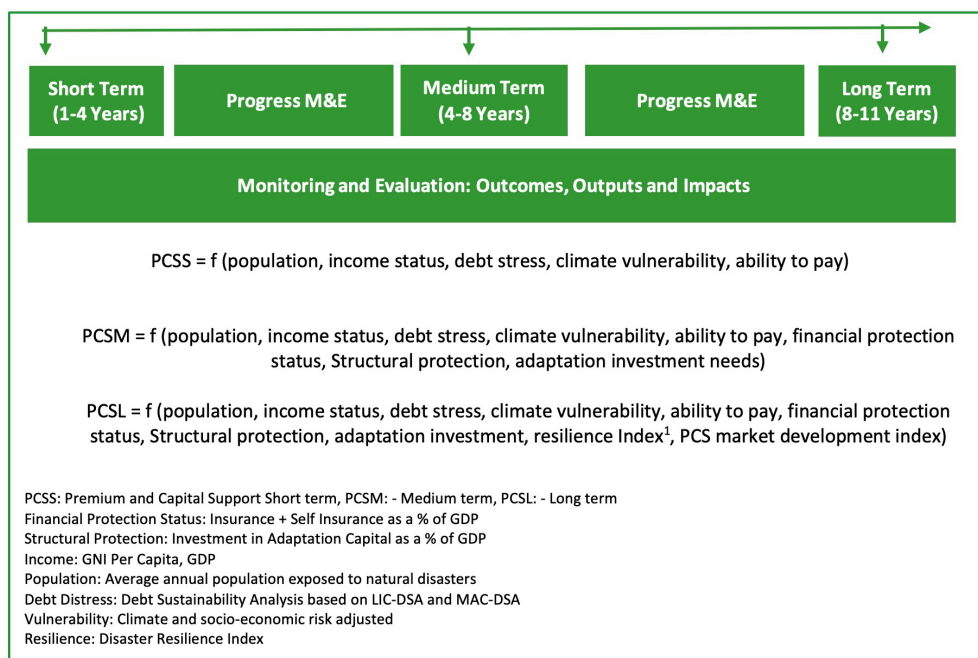


Figure 2: Proposed PCS eligibility criteria over time (Scale: 1-11 Years) - How long to provide PCS

In the short term, both Category 2 and Category 3 countries should be eligible for PCS, with the length of the intervention being a function of how population, EDS, climate vulnerability and ability to pay over time.

$$PCSS = f(\text{population, income status, debt stress, climate vulnerability, ability to pay})$$

To better understand the necessity and length of medium-term PCS interventions, one should consider changes in the short-term indicators in addition to the potential progress countries have been making in providing enabling conditions for sustainable market development. These may include indicators such as changes in the financial protection status of the country, investment in adaptation and improvement in disaster preparedness and resilience.

$$PCSM = f(\text{population, income status, debt stress, climate vulnerability, ability to pay, financial protection status, structural protection, adaptation investment needs})$$

For PCS interventions over the long term, considerations should furthermore include changes in the medium-term indicators in addition to a PCS market development index³⁶ and a resilience index.

$$PCSL = f(\text{population, income status, debt stress, climate vulnerability, ability to pay, financial protection status, structural protection, adaptation investment needs}^{37}, \text{resilience index}^{38}, \text{PCS market development index})$$

6. Size: How much premium and capital support should be provided?

PCS for CDRI is a recent tool in the ex-ante disaster risk financing architecture and there is limited experience and evidence to decide on the quantity of PCS at macro and meso level. So far, decision-making on the quantity of PCS seems rather arbitrary and ad-hoc and less based on any concrete formula. For example, in the case of the recently established Africa Disaster Risk Financing Programme (ADRFi)³⁹, until the 4th year of participation, a country will receive premium support of up to 50% of the country's annual premium. In the case of ARC, the UK Department for International Development and KfW contributed USD 98 million in the form of a 20-year non-interest-bearing loan to directly capitalize ARC Limited. Similarly, in the context of CCRIF-SPC (Caribbean Catastrophe Risk Insurance Facility, formerly CCRIF), there is little information available on how the USD 10 million grant provided by the EU in 2020

³⁶ The PCS market development index is a proposed index for measuring outcomes of PCS interventions in the long term.

³⁷ Estimates based on level of warming above pre-industrial levels by the 2030s

³⁸ Resilience index is a proposed index to monitor the resilience progress in countries in the long term after PCS intervention.

³⁹ ADRIFI, https://www.africanriskcapacity.org/wp-content/uploads/2018/12/ADRIFI_3.3.pdf

was determined and whether considerations of the consequent 26 per cent reductions in gross premiums for CCRIF-SPC policyholders played a role in that decision-making.⁴⁰

The quantity of PCS for different categories of countries/scales is a complex optimization problem. It involves various aspects of CDRI in the context of different, customized catastrophe insurance solutions, which are tailored to specific local conditions at the macro, meso and micro level. **At the micro level, the most common form of premium subsidy is direct premium subsidies that are proportional to the insurance premium that would be charged in a private insurance market.**⁴¹

PCS can have both market accelerating effects and social protection effects depending on its use. In the case of countries where there is more need of insurance market building to create new business opportunities, capitalization of catastrophe (re)insurance pools, can be justified to enhance competitive insurance markets through supporting the development of the required insurance market infrastructure, technical capacity, or of risk models rather than (only) directly subsidizing premium payments. In cases where public financial delivery systems face severe leakage, PCS measures targeting poor and vulnerable households at the micro and meso level, may furthermore be justified as part of a social safety net programme. All of these interventions would come with different costs and hence different PCS quantities. More recently, there have also been attempts to integrate micro or meso level schemes into macro schemes through innovative financing. For example, in July 2019, CCRIF-SPC launched its COAST facility. In the context of COAST, Caribbean governments are the policyholders, while payouts are channeled directly to beneficiaries in the fisheries sector, with governments thus effectively subsidizing the insurance coverage for fisher folk in full.⁴² Determining the amount of PCS in this context would therefore require making considerations in the context of the ability or willingness to pay of both, governments and fisher folk.

Although no concrete guidelines exist on deciding on the financial size of PCS, initial insights point towards the following considerations:

- Needs-based considerations
- Optimality considerations
- Sustainability considerations

⁴⁰ CCRIF-SPC (2020), CCRIF's members in the Caribbean and Central America renew catastrophe risk insurance policies ahead of another active hurricane season

⁴¹ Cummins, D. and Mahul, O. (2009), Catastrophe Risk Financing in Developing Countries: Principles for Public Intervention. World Bank.

⁴² CCRIF-SPC Brochure (2019), COAST-The Caribbean Oceans and Aquaculture Sustainability Facility

- **Needs-based Considerations:** The amount of PCS support should be based on the needs of the target group. Related criteria could build on the following aspects:
 - Many low-income countries need relatively larger PCS shares as compared to high income countries, which have a larger scope for tradeoffs between economic growth and the impact of insurance-related expenses on fiscal positions. If countries have no option but to rely on debt for paying insurance premiums, they might choose less or no insurance coverage to avoid debt stress. **As such, countries with higher impact on fiscal costs arising from the cost of premiums should be provided with higher levels of PCS.**
 - Many countries face the risk of low frequency and high impact events where, compared to their expected average losses, a larger share of capital and output are at risk. **Countries where a share of capital and output larger than their respective expected average losses is at risk from low frequency/high impact events should be provided with higher levels of PCS.**
 - The amount of PCS should consider countries' risk exposure in the context of their economic positions. For example, for smaller and more exposed countries, insurance premiums relative to GDP are higher than for larger economies. **As such, countries with relatively higher insurance premium-to-GDP ratios should receive higher levels of PCS.**
- **Optimality considerations**
 - In the context of CDRI for the sovereign level, one important question is the appropriate/optimal level of risk transfer or adequacy of insurance against government preferences over debt and growth outcomes.⁴³ Although it is complicated to decide on the optimal level of insurance depending on the benchmark used for comparison, this is important since many countries might be underinsured as compared to their level of risk. This is especially relevant for smaller and highly exposed economies where natural hazards carry a higher social cost and where, therefore, governments' risk aversion and the benefits of insurance are higher. Yet, choosing higher insurance coverage would provide higher protection to growth by enabling a faster recovery, but also entail fiscal costs. Support from international donors in the form of PCS is therefore important to help achieving an optimal level of insurance protection.

⁴³ This section draws from Aliona Cebotari and Karim Youssef (2020), Natural Disaster Insurance for Sovereigns: Issues, Challenges and Optimality, IMF working paper, WP/20/3

- Based on these observations, key considerations when determining the amount of PCS should define optimality in the context of the previously introduced benchmarks of economic growth and debt, and ensure proportionality between the provided PCS amount and optimal insurance coverage.
- In practice, the exact amount of PCS is influenced by political and economic considerations. Further research is warranted on how to decide on the exact amount of PCS at micro, meso and macro levels based on exposure to disasters, government preferences on debt and economic growth and broader resilience considerations.
- **Sustainability considerations:** The amount of PCS often also depends on the viability of the supported scheme. More specifically, while PCS should, at minimum, make the targeted insurance mechanism or project viable (lower bound), it should not substantiate moral hazard or dis-incentivize other risk reduction measures. As such, **PCS levels should be set with reference to a lower bound threshold beyond which PCS might lead to unsustainable outcomes.**

7. Conclusion

This paper analyzed and examined the three questions of who should receive how much PCS and for how long, given different considerations in the context of country and scheme specific characteristics. Based on the available country level data and indicators, this paper developed an initial framework to give some preliminary guidance on addressing the above questions. Going forward, the research gaps and needs as highlighted by this paper should be addressed to further improve, refine and expand on the here presented components.

Most importantly, there is a need to further define the variables and parameters affecting the determination of PCS needs and their relationship to one another in the context of different scenarios and the targeted level (i.e. micro, meso or macro level insurance). Such account should provide the basis for econometric models, allowing all PCS stakeholders, but most importantly recipient countries and local and regional insurance providers, to determine and articulate their PCS needs on a transparent and assessable basis.

To pursue the above stated objectives, the V20 need to push forward the international dialogue on the provision of PCS, specifically in the context of the InsuResilience Global Partnership and with its' respective G7 and G20+ members. This dialogue will also need to be situated within and aligned with other related international discussions and implementation initiatives, e.g. the call on the G7 to reform international crisis finance and the V20-led Sustainable Insurance Facility (SIF).

As outlined in this paper and the two prior MCII Background Notes providing further context to the here discussed items, priority topics include the formalization and adoption of commonly agreed-upon principles for the application of PCS and further discussion on their reliable and sustainable operationalization.

Furthermore, the V20 and the members of the InsuResilience Global Partnership may collaborate on making the international delivery structure for PCS more systematic, including through the identification of methods to determine the amount and time span of PCS interventions and identify the respective recipients as mentioned above. Doing so can also contribute to reducing the fragmentation and in-transparency of the international delivery structure for PCS. To address these purposes, the V20 may support a call for a task force consisting of key members of the InsuResilience Global Partnership.

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The Munich Climate Insurance Initiative was initiated as a non-profit organization by representatives of insurers, research institutes and NGOs in April 2005 in response to the growing realization that insurance solutions can play a role in adaptation to climate change, as suggested in the UN Framework Convention on Climate Change and the Kyoto Protocol. This initiative is hosted at the United Nations University Institute for Environment and Human Security (UNU-EHS). As a leading think tank on climate change and insurance, MCII is focused on developing solutions for the risks posed by climate change for the poorest and most vulnerable people in developing countries.

