Investing in Adaptation Yields and Financial Protection to Achieve the Triple Dividend in Recovery Packages and Beyond[1]

Building Back Better for Economy Recovery, Growth and Climate Resilience

Policy Background

Summary

The aim of this policy background is to recommend sustainable financing options in context of economic realities, intensified by climate change and amplified by Covid-19. Part I highlights the **immediate** need to capture triple investment dividends that address the pandemic, climate resilience, and economic recovery with growth. Part II highlights the current resource gaps and the importance of broadening the menu of tools to enable an economic transition required **currently and beyond.**

Part I: Achieving the Triple Dividend in Recovery Packages and Beyond

The Covid-19 Context

Research shows that the viruses and resulting pandemics like Covid-19 are expected to increase in frequency as a result of climate change.[2] The Covid-19 pandemic has made necessary the imposition of a severe economic lockdown. This global disruption and uncertainty will continue for many months and will have implications on livelihoods, economic growth, fiscal space, investment, and losses to financial and human capital. What is clear is that exposure grows exponentially due to vulnerabilities, and the ability to deal with this exposure is a function of capacity in terms of access to financial, technical, educational, infrastructure and community resources. This global disruption and its impact on countries and their existing systems, has shown the need to balance long-term benefits with high upfront short-term costs. The need to make informed assessments about low-probability and high impact events grows ever more urgent.

Investing in strategies that pursue and secure adaptation yields and financial protection will help achieve the triple dividend[3] of (1) reduced pandemic risk, (2) economic recovery and growth, and (3) climate resilience, which is made more urgent and more relevant by the Covid-19 pandemic.

Countries are hoping to protect their respective economies from Covid-19 disruptions through fiscal stimulus packages. Of the USD 8 trillion in global stimulus packages (equaling 10% of global gross domestic product, GDP), V20 countries accounted for merely USD 43 billion, equivalent to 0.54%[4], while representing 15% of the world's population.

[1] MCII together with the V20 Secretariat hosted at the Global Center on Adaptation prepared this policy background to provide information and data points in support of sustainable financing options. The ideas presented in this Policy Background aim to inspire adaptation action – they are the views of the author and do not necessarily reflect those of the institutions represented.

[2] World Economic Forum, Coronavirus isn't an outlier, it's part of our interconnected viral age, 4 March 2020; World Health Organization, Climate change and infectious disease, no date; Patz, J.A., et al., Effects of environmental change on emerging parasitic diseases, 2000; Bouma, M. and H. van der Kaay, The El Niño Southern Oscillation and the historic malaria epidemics on the Indian subcontinent and Sri Lanka: an early warning system for future epidemics? Tropical Medicine and International Health, 1996; Martens WJM, Rotmans J, Rothman DS, Environmental Change, Climate and Health: Issues and Research Methods, 2002; Hales, S., et al., Potential effect of population and climate changes on global distribution of dengue fever: an empirical model, 2002; Wilson, M.L., Ecology and infectious disease, in Ecosystem Change and Public Health: A Global Perspective, 2001.

[3] Global Center on Adaptation, Integrated Response to building Climate and Pandemic Responses in Africa, May 2020.

[4] Author's Calculations based on IMF World Economic Outlook (October 2019); IMF Tracker on Policy Responses to COVID-19 as of 8 April 2020. More updated data can be on the IMF Website. Note: This excludes monetary and macro-financial responses.

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Although the pandemic is affecting all countries, it has particularly exposed the collective vulnerability of V20 countries and the persistent inequalities between the Global North and South, with most V20 countries likely to be hit particularly hard. The majority of V20 countries already had challenging economic situations prior to the Covid-19 pandemic, not least due to the challenges posed by climate change and recurring disaster calamities.

There is already more than US 2.3 trillion of external debt and this, in combination with a collapsing GDP, 20-40% decline in remittances, and a large fiscal effort to shield economies and people from Covid-19 impacts, means more debt. Moreover, according to the International Monetary Fund (IMF), USD 100 billion has left emerging markets into "safe havens", the largest capital outflow ever seen.

In other words:

Prior to the Covid-19 pandemic, many V20 countries were already in or near debt distress while others were coming out of climate-induced disasters or other disasters. For example, the Philippines had already spent most of its emergency funds on two earthquakes and a volcanic eruption. Some countries, such as Kenya, Ethiopia and South Sudan are continuing to face disasters such as locust infestation affecting food production, exports and food security, while others like Vanuatu, Fiji, the Philippines and Bangladesh, have been hit by cyclones and typhoons during the economic shutdown. Moreover, prior to the Covid-19 pandemic, developing countries already needed USD 140 billion to USD 300 billion per year by 2030 for climate change adaptation,[5] while the financing gap to achieve the Sustainable Development Goals (SDGs) is USD 2.5 trillion to USD 3 trillion per year. These shortcomings may translate to an undermining or reversing of any development gains so far.

Emerging markets witnessed the largest capital outflow ever recorded, reductions in remittances, depressed demand effects as a result of mandatory lockdown, and effects on supply with countries slowing down or ceasing production. This means that economic activity is down, financial markets are reacting, and tax revenue for much needed social protection expenditures and investments are declining. In addition to the lack of resources described in (1), higher cost of capital makes it hard for V20 countries to deal with incoming, current and future climate-induced losses, as well as the delivery of SDGs. This existing funding gap, and lack of access to financing, is compounded with the impacts of the Covid-19 pandemic's resulting economic lockdown.

Given (1) and (2), shared leadership and collaboration are required to maximize existing tools and broaden the menu of financing for V20 countries.

The country response options to these crises, and their implications for the medium and long term are influenced by the aforementioned inequalities. The G20 commitment in support of the World Health Organization (WHO), the IMF, the World Bank Group, the United Nations and other groups is clear; countries will endeavor to beat the virus and protect people first.[6] The sooner this is achieved, the sooner the rebound can begin. What this means, however, is a potential for a prolonged economic standstill, into the typhoon season and other climate and disaster calamities. This possibility and the resulting large GDP deficits could compound the recurrent risk of climate and disaster calamities and leave countries ill-prepared for future shocks, aggravating the impact on the economy and society. Equally important as the coordination between G20 and international support is ensuring that collaboration and partnerships are established between the G20 and V20 to ensure that efforts take into consideration vulnerable developing countries context and needs.

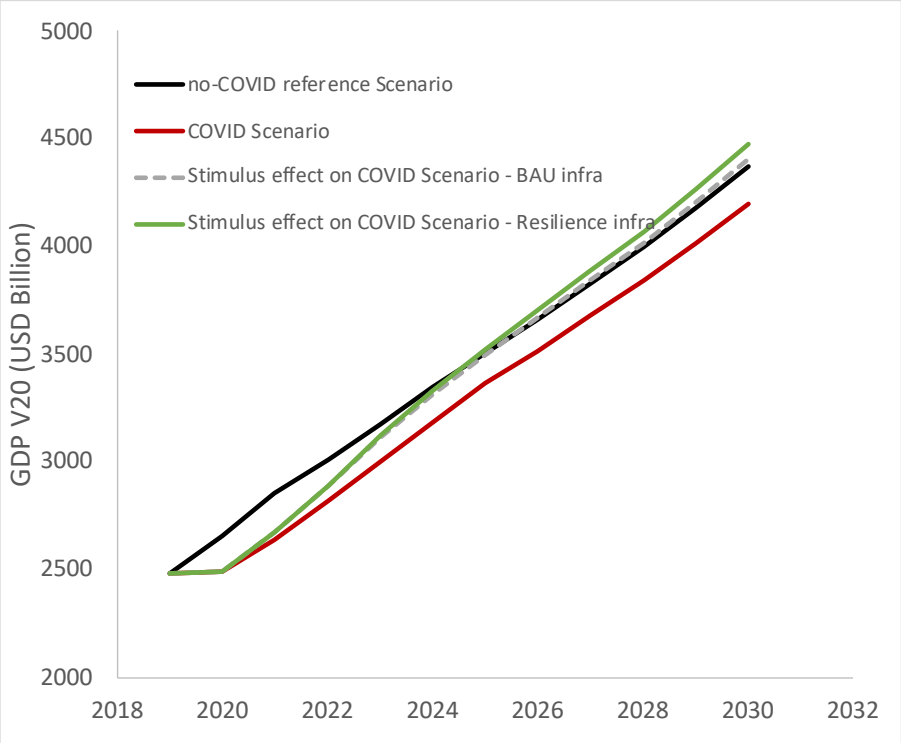
[5] United National Environment Program – Technical University of Denmark (UNEP DTU), The Adaptation Finance Gap Report, 2016.
[6] General Secretariat of the Council, Extraordinary G20 Leader's Summit: Statement on Covid-19, 23 March 2020.

Box 1. Adaptation Yields, Financial Protection and Triple Dividend Explained

To sustain V20's[7] growth, and speed up efforts to end extreme poverty, investment in resilient infrastructure is fundamental. The COVID-19 pandemic has amplified calls for infrastructure to be resilient and adaptable so that it can effectively operate in times of crisis. According to the World Bank, developing countries need about 4.5% of GDP per year for the next decade to fill their infrastructure gap.[8] Economically, there is a strong case for modernization, upgrade, and development of resilient and sustainable infrastructure, with EU research suggesting a USD 4 return on every USD 1 invested.

In financial terms, yield is used to describe the return on one's investment as a percentage of the original investment. In the case of bonds, the yield refers to the annual return on investment. Adaptation in this context refers to activities that lower the risks posed by the consequences of climate change, and thus improve climate resilience by reducing vulnerabilities. Some examples are (i), large-scale infrastructure changes such as coastal defenses or protecting mangroves as a measure against sea-level rise and flooding, (ii) behavioral shifts such as reducing water consumption for crops or switching to drought-resilient crop varieties or micro, small and medium-sized enterprises (MSMEs) purchasing flood insurance, and (iii) risk monitoring technology such as early warning systems for cyclones. Considering these two definitions, the adaptation yield refers to the annual returns of adaptation investments calculated as losses and costs avoided and increased productivity. The below figure illustrates the near- and long-term effects on GDP of the COVID-19 crisis and 2020-2021 investments in resilient infrastructure.[9]

Figure 1. Adaptation Yields Illustration[10]



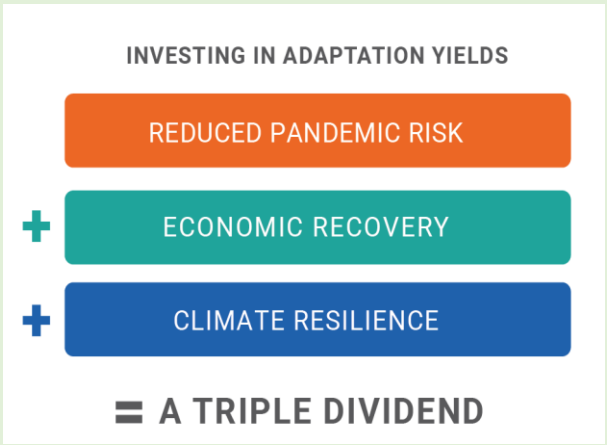
Source: Methodology from the Global Center on Adaptation using data from IMF and World Bank (2020)

[7] For more information on the V20 Group of Ministers of Finance, see pp.21.
[8] World Bank, Price Tag for Sustainable Infrastructure Spending in Developing Countries is 4.5% of GDP, 19 February 2019.
[9] The business-as-usual infrastructure returns may not take into consideration climate-adjusted asset value, so it's likely that the business-as-usual infrastructure returns are overstated.
[10] Global Center on Adaptation, Integrated Response to building Climate and Pandemic Responses in Africa, May 2020.

Financial protection in this context is when countries can manage macro-fiscal implications of climate change. For MSMEs and households, this means maintaining a level of financial security to address losses and costs of increasing extreme and frequent climate-induced disasters and to cope with accumulating long-term financial risks as a result of accelerated climate change.

To overcome the twin Covid-19 and climate crisis, considering the scarce investment funds available, the objective of the triple dividend is to undertake investments that incase climate resilience, while also reducing pandemic risk and enabling an economic recovery that is promoting climate-proof growth. Below is an overview of a proposed classification of resilient investments to achieve a triple dividend.

Figure 2. Triple Dividend Explained



Source: Global Center on Adaptation, Adapted from ODI, GFDRR, and the World Bank

Table 1. Proposed Classification of Resilient Investment taxonomy

Sector	Example Measure by Policy Target →			Resilience Outcomes		SDG Benefit (Goal no.)
	COVID-19 Response	Pandemic Resilience	Post-Crisis Recovery	Pandemic	Climate	
Digital Economy	Internet access and digital tools	Internet access and digital tools	Internet access and digital tools	E-commerce, tracking tools and information sharing	Disaster and climate data access	9
Disaster Risk Reduction		Financial protection: infrastructure insurance	Financial protection: infrastructure insurance	Recovery less exposed to disaster risks	Communities rebuild faster	11
	Emergency Preparedness (e.g. early warning systems, mobile alerts)	Emergency Preparedness (e.g. early warning systems, mobile alerts)	Emergency Preparedness (e.g. early warning systems, mobile alerts)	Reduced transmission following disasters	Reduced exposure of populations to hazards	

Employment & Livelihoods	Social safety nets (e.g. cash transfers, cash-for-work)	Social safety nets (e.g. cash transfers, cash-for-work)	Social safety nets (e.g. cash transfers, cash-for-work)	Reduced economic shock from pandemic response	Reduced economic shocks from climate hazards	8, 1
Employment & Livelihoods	Labor heat stress measures	Labor heat stress measures	Labor heat stress measures	Reduced illness susceptibility for pandemic disease and lost work	Reduced heat-related illness and lost work	8,1
Energy	Clean energy access	Clean energy access	Clean energy access	Health systems energy needs met; reduced respiratory disease	Disaster resilience of energy systems	7
Food & Agriculture	Disaster-resilient agriculture	Disaster-resilient agriculture	Disaster-resilient agriculture	Reduced pandemic food and supply risk and recovery less exposed to disaster risks	Reduced exposure of agriculture to climate hazards	2
Food & Agriculture	Enhanced nutrition	Enhanced nutrition	Enhanced nutrition	Reduced illness susceptibility for pandemic disease	Reduced food insecurity during climate shocks	2
Health	Financial protection; health insurance		Financial protection; health insurance	Access to health services for pandemic disease	Access to health services for climate-sensitive diseases	3
Health	Public healthcare services	Public healthcare services	Public healthcare services	Access to health services for pandemic disease	Access to health services for climate-sensitive diseases (e.g. Malaria)	3
Infrastructure		Financial protection; infrastructure insurance	Financial protection; infrastructure insurance	Recovery less exposed to disaster risks	Communities rebuild faster	9

Infrastructure	Sanitation facilities	Sanitation facilities	Sanitation facilities	Reduced transmission of pandemic disease	Reduced transmission of climate-sensitive disease (e.g. cholera)	6
Water	Clean water access	Clean water access	Clean water access	Reduced transmission of pandemic disease	Reduced climate-sensitive disease susceptibility and transmission	6

Source: Methodology from the Global Center on Adaptation

Building back for the long haul through a "Triple Dividend" Response

The objective of building back better through a triple dividend response is to achieve long-lasting gains by reducing pandemic risk, while at the same time increasing climate resilience and strengthening economic recovery and growth.

As shown in Table 1 above, the resilience-boosting investments taxonomy to achieve the triple dividend can include the following:

1. Access to resilient essential services (e.g. health and healthcare, education);
2. Affordable resilient basic infrastructure (e.g. clean drinking water, sanitation, renewable energy and grid components with energy appliances for energy efficiency, low-carbon transportation, efficient cellular and internet connection);
3. Access to financing and financial services (e.g. credit, insurance, leasing) for households and MSMEs;
4. Employment generation and online skills training (e.g. upskilling, essential services, vocational training, critical sectors in the digital and green economy, etc.; Note, online skills training is linked to the existence of basic infrastructure);
5. Food security (climate-resilient agriculture value chain including logistics, employment in agri-business);
6. Socio-economic advancement and empowerment (e.g. health literacy, hygiene protocols, financial literacy, climate risk literacy, digital literacy, etc.)

More specific examples include:

1. Developing countries and emerging markets rely on imported "just in time" food supply and medical equipment, which is arguably efficient but lacks resilience, while other developing and emerging countries are exposed to large orders from a few suppliers. The new system must put a monetary value on resilience and diversify and upgrade its supply chain including investing in some domestic and localized capacity to retain critical functionality.
2. In vulnerable countries, MSMEs account for 29% of GDP and employ 78% of the workforce.[11] MSMEs typically do not have the financial or investment capacity to absorb shocks or purchase

[11] V20, Vulnerable countries to insure MSMEs amidst worsening climate disasters, 14 September 2019.

protection instruments. The new system should prioritize needs-responsive financial protection, which supports pro-active risk management, risk reduction, immediate liquidity needs, as well as investment support for MSMEs.

3. Modular domestic and localized renewable energy and grid investments can ensure energy access and reduce the overall system cost while improving domestic energy security and resilience by reducing exposure to international volatility and supply chain risk. Due to high tariffs, high subsidies and increase emissions for fossil fuels in the power sector, there is no longer a business case for additional large import coal capacity over the medium-term nor is there a business case for imported diesel for islands, travelling extensive distances with high cost and high disruption risks. The efficient use of power and renewable energy brings cost-competitiveness and has been an important job creator. Perhaps the fastest near-term boost to the economy can include modernizing energy infrastructure to drive job growth and reduce high fossil fuel subsidies and fuel expenses for state-owned power companies, thereby freeing-up space in the public budget. The V20 countries may look to investment in cost-effective options of new technology, which can be accelerated through widening its funding pool.
4. National disaster funds, contingent credit lines, and risk transfer (including catastrophe bonds and insurance) are three of the main sovereign risk financing instruments. Yet, many countries lack access to disaster funds, are not eligible to access contingent credit lines, or purchase too little or no insurance. 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.[12] 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 which went to supporting the underwriting of insurance policies, thereby helping to open up a market for such insurance in the first place.[13] Thus, to allow more vulnerable countries to access pre-disaster or post-disaster financing, innovative mechanisms may be needed beyond the three main sovereign risk financing instruments, such as the utilization of capital markets through resilience bonds (see pp.9) or pre-arranged finance through humanitarian relief funds (see pp.18).
5. Cities are hotbeds for climate change vulnerability, yet they are the least prepared to adapt. For a majority of developing-nation cities, the bond market remains long out of reach because of a lack of credit rating and perceived political risk. Resilience bonds for cities can improve their access to finance. For example, in adaptation projects such as aquifer re-charge to supply water over the long term, the pre-development and recharging can be grant funded or publicly funded while the commercial use, including distribution can be funded by resilience bonds. The revenue line can include the cost of water to ensure the sustainable use of the aquifer. The future operating and maintenance costs can be managed by future cash flows.

The new system needs to prioritize new investment in resilience (including preparedness[14]) by prioritizing the achievement of adaptation yields and financial protection, and with it the triple dividend for reduced pandemic risk, economic recovery and growth, and climate resilience. This system can reduce life and economic losses as well as the overall cost of response and recovery. Shocks

[12] KfW Development Bank, BMZ assumes premium payment for drought insurance, 26 June 2020.
[13] Moghalu, C., The ARC plans to insure 30 African countries against climate risks by 2020, 13 June 2018.
[14] This has been recognized in priority four of the Sendai Framework for Disaster Risk Reduction, as well as during the consultations for the World Humanitarian Summit (WHS).

need not result in major disasters, if they are planned for in advance, investment in the right physical infrastructure and distribution channels was made, and decision-making mechanisms are in place to trigger the early and coordinated delivery of effective response arrangements, which are backed by pre-committed financing arrangements.

Box 2. Resilience Bonds to build a Resilient Recovery

In many countries' budgeting process, it is clear that the pandemic has become a priority, making it difficult to allocate for climate adaptation and resilience. For example, the cost of the pandemic in Colombia is 8% to 10% of GDP. However, other (debt) instruments can be utilized such as bonds to attract international investors. According to the IMF, a "very conservative, low-end estimate" of emerging economies' financial need to deal with the Covid-19 pandemic is USD 2.5 trillion. Even after using all foreign currency reserves, emerging economies would still require at least USD 700 billion in additional funding. [15] Resilience bonds are an intersection of social bonds and sustainability bonds. They can be designed to be responsive to acute needs such as emergency medical equipment, social protection programs for vulnerable households, and rapid financing for communities and MSMEs, as well as for medium-term to long-term needs such as resilient hospital infrastructure, supply chains, basic infrastructure (water, sanitation renewable energy, etc.), logistics, urban services, and food supply (Refer to Box 1 for an explanation on resilience bonds and investment gap).

Resilience bonds can include the following:

- Bonds (multilateral development bank bonds, government bonds, supranational bonds, municipal bonds, corporate bonds, etc.)
- Project bonds, asset-backed securities
- Other financial instruments similar to the above (loans, trust beneficiary interests, etc.)
- Issuance programs (bank-issued bonds, commercial paper, medium term notes, CP, MTN, etc.)

The differences between the resources required based on GDP losses, a fiscal multiplier of 0.8[16] and the existing size of the fiscal and monetary programs per region will be calculated to estimate the resources required. Based on these conservative estimates, the following resources may be required for developing countries and emerging markets per region to deal with the impacts of Covid-19.

Table 2 Example of Investment Gap and Allocation of Resilience Bonds per Region

	Minimum Investment Need	Current Fiscal/Monetary Programs	Investment Gap
Sub-Saharan Africa	USD 370.70 billion	USD 44.12 billion	USD 326.58 billion
Asia-Pacific	USD 1.76 trillion	USD 488.03 billion	USD 1.27 trillion
Middle-East and Central Asia	USD 423.65 billion	USD 106.36 billion	USD 317.29 billion
Latin America and the Caribbean	USD 668.02 billion	USD 182.56 billion	USD 485.45 billion
Total	USD 3.22 trillion	USD 821.07 billion	USD 2.40 trillion

Source: Author's calculations based on International Monetary Fund, World Economic Outlook Database, April 2020; International Monetary Fund, World Economic Outlook Data Base, October 2019; International Monetary Fund, Policy Responses to COVID-19 as of April 29, 2020.

[15] Financial Times, Developing countries scramble for funds to stave off virus impact, 1 April 2020.
[16] In developing countries, the fiscal multiplier on government spending is higher than for government consumption with a multiplier of 1 over the medium-term. If debt is over 60% of GDP, the fiscal multiplier can have a negative impact no output. In this case, a fiscal stimulus of 0.8 is used as a conservative estimate. National Bureau of Economic Research, Country Characteristics Determine the Effects of Fiscal Stimulus, 12 September 2012.

Like climate change, the Covid-19 pandemic revealed weaknesses in the existing economic system and resource gaps to deal with non-financial shocks. The increasing intensity and frequency of climate-induced disasters and impacts means a high potential for more intense and frequent non-financial shocks. This next section highlights resource gaps, maximizing existing tools and broadening the menu of options to enable improved ability for climate vulnerable developing countries to build ability to recover, enable growth, and build long-term climate resilience through improved adaptive capacities.

It is important to note that while there is interest to consider financing in exchange for policy conditions, it is important to consider the role of this financing. There are two types of low-income/middle-income country situations: some only need liquidity with sound fundamentals while others have too much debt so the IMF would typically not engage; this is mostly the domain of International Development Association (IDA) at the World Bank. There should be a clear distinction between the role of the IMF and multilateral development banks (MDBs) such as the World Bank. The IMF should be able to provide liquidity in order to deal with balance of payments issues, stabilizing the economy and restoring sustainable economic growth. Investment funds from MDBs are more suited for restrictions. In other words, investment funds and debt relief exist for different reasons and is very country specific. That said, it is important that both the IMF and MDBs begin adequately pricing financing to reflect both transition risk and physical climate risk. It may be prudent to increase the cost of capital for fossil fuel and business as usual infrastructure while reducing the cost of capital for renewable energy, low-carbon infrastructure, and adaptation projects.

Part II: Toolkit Expansion for Economic Recovery, Growth, and Climate Resilience

Resource Gaps

Many V20 countries are in unchartered territory as they face increasing intensity and frequency of extreme weather events and other natural hazards, as well as increasing vulnerability to long-term climate-induced damages. In the first quarter of 2020 alone, V20 countries collectively suffered a minimum of 24 disasters, including volcanic eruptions, heavy rains, floods, tropical cyclones, typhoons and locust outbreaks. Locust infestations persist, in fact, affecting food production, exports and food security in Kenya, Ethiopia, and South Sudan, with the second wave of infestations expected to threaten millions more. In many cases, these disasters have depleted emergency funds at both the national and sub-national level. Moreover, with typhoon and hurricane seasons approaching the Pacific and Caribbean, respectively, pressure on emergency funds will increase. In Asia, the Philippines and Bangladesh were hit by typhoons as early as May 2020.

The ability to deal with exponentially-increasing exposure[17] to climate change is a function of internal adaptive capacity, which is itself challenged by economic realities among V20 countries (e.g. persistent macroeconomic imbalances in Lebanon and Tunisia, severely damaged infrastructure in conflict-ridden Yemen, debt vulnerabilities across almost all V20 membership, hampering their ability to access capital). These economic realities are then, in turn further compounded by recurring climate change and natural hazard risks, aggravating the impact on the economy and society, and making it even more difficult to protect from, or invest out of, these risks.

In June 2019, the World Bank warned International Development Association (IDA) members[18] of rising debt vulnerabilities;[19] 35 out of the 48 V20 members are IDA countries, of which 4 have distressed debt, 8 have high debt, 11 have moderate debt and 9 have low debt.

Table 3. Debt Sustainability

Unsustainable Debt	Sustainable debt but at high risk to debt distress	Moderate Debt	Low Debt
• Grenada • Lebanon • South Sudan • Sudan	• Afghanistan • Barbados • Ethiopia • Gambia • Ghana • Haiti • Kiribati • Malawi • Maldives • Marshall Islands • Samoa	• Bhutan • Burkina Faso • Comoros • Democratic Republic of Congo • Kenya • Madagascar • Niger • Papua New Guinea • The Philippines • Vanuatu	• Bangladesh • Cambodia • Honduras • Nepal • Rwanda • Senegal • Tanzania • Timor-Leste • Vietnam

[17] These exposures can include: poor national healthcare systems, ill-prepared supply chains, lack of digitization and increasing rapid onset events and slow onset events including temperature shifts, drought and El Niño/ La Niña.
[18] IDA support depends first and foremost on a country's relative poverty, defined as GNI per capita below an established threshold and updated annually ($1,175 in fiscal year 2020).
[19] International Development Association, Addressing Debt Vulnerabilities in IDA Countries: Options for IDA19, 4 June 2020.

	• Sri Lanka • Tuvalu	• Yemen	

Source: IMF 2019; World Bank/IDA 2019

The structural difference across the V20 exists of course, including differences in the quality and ability of institutions. But, while already in severe economic, financial and fiscal distress, all V20 countries face a dearth of funding by which to address climate and natural hazard risk as well as sustainable development imperatives. It is estimated that developing countries including the V20 need USD 140 billion to USD 300 billion per year by 2030 for climate change adaptation, while the financing gap to achieve the Sustainable Development Goals (SDGs) is USD 2.5 trillion to USD 3 trillion per year.[20] And these wide resource gaps are growing.

Optimizing and looking beyond business-as-usual is required for forward-looking relief and resilience investments to combat massive disruption, growing material losses, and uncertainty, which will continue to undermine personal security, food security, livelihoods, the stock of human and financial capital, fiscal space, economic growth and the achievement of sustainable development goals (SDGs) among the V20 countries.

There is a need to take a long-term investment horizon, recognizing that expenditures on well-planned relief and resilience actions are near-term financial investments that have the potential to **not only forestall a reversing of development but generate positive net economic benefits** within and across borders over the longer term. There is a need for shared leadership and collaboration in the V20 and G20 through global multilateral development institutions such as the IMF and World Bank, as well as regional multilateral development banks such as the Asian Development Bank (ADB), African Development Bank (AfDB), Inter- American Development Bank (IDB) and Caribbean Development Bank (CDB) to steer and design economic transformation programs that include a universal application of physical climate risk and transition risk into assessments, to maximize the impact of existing tools and to broaden the menu of financing for V20 countries.

Maximizing the Use of Existing Tools

There is a need for a stable source of capital for climate-related investment, especially when other channels such as tax revenue and private capital become less available. Although there is already a lack of private capital for climate change adaptation and sustainable development, and potentially constrained donor support for the same through international organizations, climate change is a global reality, with spillovers crossing borders. Thus, collective solutions are warranted. For example, Vietnam has become one of the top 25 largest food exporters in the world.[21] The Mekong Delta, Vietnam's most agriculturally productive region for rice, aquaculture and fruit production, which provides food for 200 million people globally, is at risk due to flooding from heavy rainfall and sea-level rise. These risks are already high and expected to further increase, putting these commodities at risk[22] and any reductions in agricultural output would have consequences for global food security.[23] Moreover, developing countries currently have USD 11 trillion in external debt and USD 3.9 trillion in debt service due in 2020. The poorest countries, eligible for IDA, have USD 36 billion of debt to be

[20] United National Environment Program – Technical University of Denmark (UNEP DTU), The Adaptation Finance Gap Report, 2016.
[21] Seifert, V., Ahmed S.J., Kreft, S., Castro N.C., Promoting Climate Risk Insurance for the Micro, Small and Medium Enterprise (MSME) Sectors of Vietnam, Indonesia and The Philippines: An Initial Assessment Study, 2019.
[22] Seifert, V., Ahmed S.J., Kreft, S., Castro N.C., Promoting Climate Risk Insurance for the Micro, Small and Medium Enterprise (MSME) Sectors of Vietnam, Indonesia and The Philippines: An Initial Assessment Study, 2019.
[23] Future Directions International, The Mekong Delta: Land Subsidence Threatens Vietnam's "Food Basket", 18 July 2020.

serviced by 2020 to multilateral, bilateral (mostly non-Paris Club) and commercial creditors.[24] Given tightened credit markets, rising spreads and large reductions in foreign exchange reserves, debt defaults by developing countries of this scale could threaten global financial markets.

A system of relief (short- to medium-term) and resilience (long-term) financing that can address immediate liquidity requirements after extreme events as well as boost system strength and flexibility in the face of growing/creeping climate and natural hazard risks can provide an important lifeline to V20 economies. Such a system would allow for accessible, predictable, and fair financing options that can equip V20 countries with the ability to successfully deliver programs to protect their people and economy.

The system should include/presume the optimizing of existing tools. In this regard, some V20 countries can utilize the following climate and disaster risk financing options to close the protection gap described in (1) to (5):

1. Drawing on existing budgets for climate and disaster funds
2. Drawing on emergency budgetary reserves (national and/or sub-national)
3. Realigning budget items to increase spending and/or increasing emergency budgetary reserves

These first three CDRFI tools are subject to availability and ability. For example, the Marshall Islands is expected to incur at least USD 3 million of losses per year due to earthquakes and tropical cyclones. In the next 50 years, there is a 50% chance of losses exceeding USD 53 million[25], equivalent to a loss of almost 25% of GDP. In 2018, tax revenue was USD 31 million[26] while the National Disaster and Assistance Emergency Fund from national contributions is between USD 450,000 and USD 500,000 per year, covering just over 15% of minimum losses. The Philippines has already spent most of their emergency funds on two earthquakes and a volcanic eruption in first four months of 2020.

The CDRFI tools described in (4) and (5) are subject to accessibility, in addition to availability and ability.

4. Budget support from existing programs with grants and/or loans (including disaster risk management loans or contingent credit lines) from regional development banks such as the African Development Bank (AfDB), Asian Development Bank (ADB), Caribbean Development Bank (CDB) and the Inter-American Development Bank (IADB), the World Bank and the IMF; this includes IDA, which helps the poorest countries through IDA credits with zero or very low interest charges and repayment terms of over 20 to 30 years, including grace periods of 5 to 10 years, as well as grants to countries with a high risk of debt distress.[27] Moreover, while the IMF mostly focuses on balance of payment support, coordination between the Central Bank and Ministry of Finance may be able to enable budgetary support through existing IMF support.
5. Risk transfer such as insurance and catastrophe bonds can be used to deal with low probability and high consequence events.

To cost-effectively invest out of vulnerability and enable financial protection, it is of utmost importance to understand the losses associated with the materialization of climate-related risks and the gains from avoiding or reducing climate risk exposure. Currently, however, the risks, the associated

[24] Brookings, What to do about the coming debt crisis in developing countries, 13 April 2020.
[25] Pacific Catastrophe Risk Assessment and Financing Initiative, MH Country Profile, 22 August 2017.
[26] International Monetary Fund, IMF Executive Board Concludes 2018 Article IV Consultation with the Republic of the Marshall Islands, 18 September 2018.
[27] World Bank, What is IDA?, April 2020.

financial losses and even more so, the costs of measures avoiding those losses are unknown to vulnerable countries. The models and risk data remain siloed in the insurance-buying process.[28] Moreover, with climate risk materializing with more frequency and severity, means that the bell curves have stopped looking like bells and have become irregular with "fat tails" and "longer tails", with outcomes that would usually fall more than three standard deviations from the norm.

In other words, because conventional financial theory uses a normal distribution to explain movements in the markets and economy, this can significantly underestimate risk. It underestimates the importance of investments and action to reduce climate vulnerability and increase sustainability. Risk underestimation damages economies, in particular MSMEs and the poor and vulnerable that rely on them. This, coupled with a lack of tailored affordable financing substantiates a market failure, which has led to underinvestment in resilience.

Based on a risk-layering approach to building resilience, the most cost-effective reduction in exposure to climate risks will integrate investments in: (i) Risk reduction through adaptation measures including soft engineering and hard engineering; and (ii) Risk retention through national reserves/emergency funds or budget re-allocations, risk transfer, contingent credit lines, cat-bonds and humanitarian (grant-based) support in line with the frequency and impact of natural hazard events.

The goal is thus to identify types of combinatory risk reduction and risk transfer investments that come with the lowest overall costs while maximizing resilience through incentivizing adequate investment in both, adaptation and financial protection.[29] In other words, it is about using the right instrument and/or combination of instruments to address a spectrum of frequency and impact.

For climate and disaster risk financing and insurance to be better accepted and understood, it is key to ensure that climate-related data is public so that development partners and insurance companies no longer compete on access to data and risk models or identification, but instead compete through their ability to manage risk. Moreover, CDRFI's integration in national adaptation planning processes can help to address the underinvestment and underutilization by incentivizing a cost-effective investment mix in adaptation measures, and risk finance instruments as elaborated above. This can underpin the building of capacity in national and local markets to the point where cost-effective tools and management can be addressed by the private sector or public-private partnership models.

Moreover, it is important to be reminded that the monetary authority (whether the central bank, reserve bank, or treasury) has the ability to support the needs of fiscal authorities, particularly when conventional routes to raise funds such as tax revenues and borrowing from the public (domestic or foreign) may not be accessible (and assuming a liquidity crisis did not originate in the financial sector and inflation is not a pressing problem.) Countries need to be willing to take unconventional tools to use fiscal and monetary macroeconomic tools in unconventional and innovative ways.

6. Exercising the powers of the monetary authority. In cases such as the current Covid-19 one, in which a prolonged contraction is expected, and thus inflation is not an immediate issue, the monetary authority can support and coordinate with fiscal policy by exercising its role of 'lender of last resort'.[30] That is, the monetary authority can 'print money,' subject to the

[28] Ahmed, S.J., Seifert, V., and Kreft, S., Enhancement of Nationally Determined Contributions in the Context of Climate and Disaster Risk Financing, Munich Climate Insurance Initiative, 17 April 2020.
[29] Ahmed, S.J., Seifert, V., and Kreft, S., Enhancement of Nationally Determined Contributions in the Context of Climate and Disaster Risk Financing, Munich Climate Insurance Initiative, 17 April 2020.
[30] Monsod, T. C., Solon, O. J. C., Gachoco-Bautista, M. S., de Dios, E. S., Capuno, J. J., Abrenica, M. J. V., … Reside, R. E., Surviving the Lockdown and Beyond, 2020.

quality and ability of institutions, by buying government securities and/or infusing the banking system with liquidity.[31]

Broadening the Menu

When the recommended tools are considered exhausted, insufficient or inaccessible and depending on the situation[32], there can be five additions to broaden the menu of instruments to enable liquidity for V20 countries including non-V20 members from low-income and middle-income countries.

1. IMF V20 Special Drawing Right (SDR) Allocation for Low-Income to Middle-Income Countries

V20 countries only receive 3.44% of SDR allocation, while G20 countries receive 79.27% of SDR allocation. Since SDR is calculated as a function of GDP and country voting shares in the IMF, richer countries have higher borrowing capacities at low rates of 0.05%. The Economist suggests that this is analogous to an overdraft budget that may not need to be paid back.[33] It may be an opportune time to increase SDR allocation for countries that need them the most.

To give context to allocation, assuming a total SDR allocation equivalent to USD 281 billion, the SDR allocation for the Philippines (with the highest allocation in the V20) is equivalent to USD 1.2 billion; the Philippines has reserves of USD 87.6 billion.[34] For Tuvalu (with the lowest allocation in the V20), the SDR allocation is equivalent to USD 1.46 million; Tuvalu has reserves of over USD 50 million.[35] Considering the reserves V20 countries have versus the SDR allocation, it means that the SDR allocations do not add as much value. G20 countries such as Germany, the United Kingdom and the United States have SDR allocations of USD 15.7 billion, USD 11.9 billion and USD 49 billion, respectively. G20 countries likely do not need SDR allocation due to their large reserves and would thus be more helpful if they allocated those to climate vulnerable developing countries.

Since a country's SDR allocation can be re-assigned and used for payment by other countries, there are two options: (i) for G20 countries and other rich countries that do not need their SDRs to lend their SDRs to V20 and other low-income to middle-income countries, thus boosting the lending capacity of the IMF to those with fewer options and greater need; and (ii) special carve-out SDR allocation for low-income to middle-income countries can prevent the allocation dilution, thus serving countries that need it the most.

2. IMF V20 Technical Support for National Solutions[36]

A country's monetary authority typically takes on the role of 'lender of last resort' and infuses liquidity into the banking sector through printing money, post-climate and disaster calamity rebuilding. The government can consider targeted bailouts to prevent liquidity pressures from turning into solvency problems while investing in structural change during the rehabilitation and recovery stage to improve financial stability by improving its resistance to non-financial shocks and adequately pricing risk.

[31] However, it is important to note that though inflation may not be an immediate issue, monetary financing could potentially trigger a depreciation of the domestic currency, which would make imports more expensive and increase the value of foreign currency debt.
[32] There are two types of V20 country situations: some only need liquidity with sound fundamentals while others have too much debt so the IMF would typically not engage. For countries that have short-term liquidity needs, the IMF is looking to create an additional liquidity instrument for countries to go in and out of over the short-term instead of precautionary lending instruments where money is locked in a specific country for a certain number of years. The short-term liquidity instrument means lower cost of capital for countries with sound fundamentals without long-term lock-in, while increasing the availability of IMF financing for other countries.
[33] The Economist, Special Delivery: Can an obscure financial instrument help the IMF rescue cash-strapped countries?, 11 April 2020.
[34] Bangko Sentral ng Pilipinas, Gross International Reserves, 11 April 2020.
[35] International Monetary Fund, Tuvalu: Article IV Consultation, July 2018.
[36] Monsod, T. C., Solon, O. J. C., Gachoco-Bautista, M. S., de Dios, E. S., Capuno, J. J., Abrenica, M. J. V., … Reside, R. E., Surviving the Lockdown and Beyond, 2020.

The credit to the banks can also be used to put a moratorium on debt payments until after the climate and disaster calamity. Moreover, a moratorium on debt payments could avoid crises from other sectors (e.g. real estate, power) from spilling over the financial sector to protect financial stability.

The IMF and partners can support low income and middle-income countries in the schematics of the above options.[37]

3. Grant-based relief fund

According to MunichRE's NatCatSERVICE database[38], V20 countries suffered damages of at least USD 3.361 billion in 2018 alone. While risk transfer, contingent credit, and national disaster funds or set asides can be useful instruments to support the often times large government expenditures required to sustain the economy and finance the recovery ex post disaster, a separate and international grant-based relief fund for low-income and middle-income countries should be set aside and unlocked subject to certain parameters. This could be done via pre-arranged financing either before the disaster is expected to strike or when a country puts in an emergency request for relief due to a climate and/or disaster calamity. Both disbursement mechanisms would need to be based on independently verifiable standards, such as parametric triggers for natural hazards or reasonable 'emergency standards', applicable to the national level but agreed upon by all countries eligible of receiving support through such fund. This can increase predictability instead of having to scramble and hope for ad-hoc support from the international community. Since there is a possibility for the fund to be depleted in a certain year due to the frequency and intensity of climate-induced disasters or shocks, the size of the fund should be based on allocation from climate finance or proceeds from a future international carbon market that corresponds to the future materialization of climate impacts which can be ascertained from the trajectory of atmospheric concentrations of CO2, updated on an annual basis, as seen in Table 4. Alternatively, if the funds are depleted, there may be a case to be made for a re-insurance arrangement to cover the shortfall or the leveraging of capital market capacities through bond issuance.

Table 4. Illustrative Allocation of the Grant-based Relief Fund

Atmospheric Concentrations of CO2 by 2050, measured in parts per million	Illustrative Allocation of Climate Finance or International Carbon Market Proceeds to Relief Fund for Vulnerable Developing Countries (%)
>450	10
401-450	9
351-400	8
301-350	7
251-300	6
201-250	5
151-200	4
101-150	3
51-100	2
0-50	1

[37] Indebtedness needs to not only be depoliticized but sidestepped by providing a more robust yet simplified vulnerable country-responsive debt management menu of options for post-climate and disaster calamities. This menu of options can be coordinated and collaborated on through consultations with the IMF, Financial Stability Board (FSB) and V20 member Ministries of Finance and their respective monetary authorities (central bank, reserve bank and/or treasury). For now, after a climate and disaster calamity, it would be justified to have debt service relief or a moratorium on debt repayments by V20 countries, other low-income and middle-income countries to multilateral lenders until recovery.

[38] MunichRE, NatCatSERVICE (Based on 848 global events), 2018.

Ideally, disbursement parameters are also tied to the quality of resilience building plans, allowing relief grants to be evaluated (and approved) as a component (or in the context) of larger productive resilience investments. There is an opportunity to tie this into a risk layering for countries, as mentioned above. A potential host of this grant-based relief fund could be the Green Climate Fund through a special carve-out.

Moreover, should there be a decision to complement the grant-based relief funds with resources to accelerate adaptation investment, there may be scope for the use of proceeds from a future international carbon market to pursue adaptation projects which also correspond to the future materialization of climate impacts which can be ascertained from the trajectory of atmospheric concentrations of CO2, updated on an annual basis. Moreover, to incentivize action earlier rather than later, a discount rate can be applied each year to the allocation, so funds reduce over time, as seen in Table 5.

Atmospheric Concentrations of CO2 by 2050, measured in parts per million	Illustrative Allocation of Climate Finance or International Carbon Market Proceeds to Relief Fund for Vulnerable Developing Countries (%)	Year	Discount Rate (%)
>450	10	1	4
401-450	9	2	6
351-400	8	3	8
301-350	7	4	10
251-300	6	5	12
201-250	5	6	14
151-200	4	7	16
101-150	3	8	18
51-100	2	9	20
0-50	1	10	22

4. Instruments Outside Debt

There are some V20 countries running thin on resources and would rather not increase the debt to GDP ratio. Since most of the funding from multilateral development banks are debt instruments, donors and multilateral development banks may take into consideration countries' debt limitations and instead utilize other financing tools such as equity with buyout provisions that could be paid through the revenues at a pre-agreed rate of return.

5. Investment funds for boosting system resilience

Resilience is the interaction between social and physical infrastructure to sustain critical functionality in a more disruptive future where the volatility and frequency and the impact of external events is much more severe than it has been. In addition to rapid-onset disasters, slow-onset disasters account for nearly two thirds of disaster losses in the Asia-Pacific. It is revealed that annualized economic losses more than quadruple to USD $675 billion when slow- onset disasters are added to the region's risk landscape.[39]

[39] United Nations Economic and Social Commission for Asia and the Pacific, Asia-Pacific Disaster Report 2019, 2019.

Rebuilding V20 economies must include resilience, productive employment and cost-effective outcomes. Thus, there is a need to accelerate investments in systems that prioritize these three needs. It is clear that there has been an underinvestment in resilience-building efforts, reflecting capacity constraints, large upfront costs, and limited fiscal space.[40] Expanding investment will require the use of capital markets in the form of green bonds,[41] social bonds and/or resilience bonds, and specific forms of official development aid (ODA), which can be financed through current ODA targets since donor countries to ODA have missed USD 2 trillion since the Financial Crisis.[42] Most recently, the African Development Bank (AfDB) raised a USD 3 billion 3-year AAA-rated social to help alleviate the economic and social impact of disruption on livelihoods and Africa's economies[43].

Other options include private equity funds that focus on longer-term growth stage investment opportunities in climate resilience such as the Lightsmith Group.[44] Moreover, investment in climate resilience is a sizable capital expenditure versus business as usual. By changing the financing from a capital-expense model with costs paid upfront into an operating- expense model by matching the expected revenue and cost savings with the payments, better known as lease financing, can improve the affordability and accessibility of climate resilient activities[45] (For in-depth examples on important resilience boosting investments, see pp.7-10).

That said, it is equally important to consider welfare effects in several investment areas, including mitigation, infrastructure and services such as water and sanitation facilities, as well as in the provision of social protection. Cutting emissions, for example, ties to social welfare effects and economic gains supporting growth. A recent study shows that the cumulative benefits in the form of net income from avoided climate impacts, especially for developing countries with large populations of poor and vulnerable people, is larger than mitigation costs at both the national and global level. Specifically, a financial investment of between USD 4.73 trillion and USD 30.66 trillion for G20 countries, and USD 48.62 billion to USD 352 billion for vulnerable countries outside the G20, can translate to net income gains of USD 126.68 trillion to USD 616.12 trillion until 2100. Failure to cut emissions will lead to losses between USD 149.78 trillion to USD 791.98 trillion until 2100.[46] Moreover, the menu of tools can also take into consideration social safety nets further described in Box 3 below.

Box 3. Welfare Effects in the Context of Social Protection

Poor and vulnerable households are key drivers of growth in vulnerable developing countries, and today, they are paying the price of global inaction. The recovery packages must drive economic transformation that yields positive welfare effects for the poor and vulnerable and jumpstart the MSME growth engine they rely on.

There needs to be a strong nexus to social safety nets for extremely poor and poor households. Social safety nets as one element of social protection[47], comprised of non-contributory transfers in cash or in kind to individuals or households in need are an efficient tool to support poor people through shocks.

Most discussions within the realm of social protection are questions of fiscal space. Though fiscal space is necessary, it is important that social and financial protection against climate risk and opportunities

[40] International Monetary Fund, IMF Policy Paper: Building Resilience in Developing Countries Vulnerable to Large Natural Disasters, June 2019.
[41] 35th Asian Shadow Financial Regulatory Committee Statement (Singapore), Blue and Green Solutions to Climate Change, 13 January 2020.
[42] United National Conference on Trade and Development, The Covid-19 Shock to Developing Countries, March 2020.
[43] African Development Bank, African Development Bank launches record breaking $3 billion "Fight COVID-19" Social Bond, 27 March 2020.
[44] Forbes, How Private Equity Can Help Fight Climate Change, 19 March 2020.
[45] Institute for Energy Economics and Financial Analysis, Unlocking Rooftop Solar in the Philippines, August 2018.
[46] Wei, Y., Han, R., Wang, C. *et al.*, Self-preservation strategy for approaching global warming targets in the post-Paris Agreement era, 14 April 2020
[47] There is differentiation in addressing social protection between households and micro enterprises from small and medium enterprises.

to reduce poverty and social exclusion does not start in the budget allocation. Instead, it should begin in a comprehensive program of social protection to enable transformation in poverty reduction and social inclusion. The poor, at-risk households and small businesses are more exposed to climate change risk in agriculture, water systems, etc.

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, a calculation of climate-reducing efficiency of x% for every USD spent, risk is reduced by x% in the form of x% of poverty, x% of productivity, etc.

An example of a regional safety net is Kenya's Hunger Safety Net Program (HSNP). It is a social protection program in response to a slow-onset natural disaster (drought). HSNP began in 2008, designed to give long term support through regular cash transfers, to those households most vulnerable to food insecurity. Through HSNP, more than 600,000 of Kenya's most vulnerable people have access to cash transfers on a regular basis and up to 2.1 million people reached with emergency cash transfers in times of drought or flood[48].

A comprehensive program of social protection is needed to enable transformation in poverty reduction and social inclusion to improve welfare effects. This can be delivered through an Adaptive Social Protection (ASP) program, taking elements, for example from the World Bank-led Sahel Adaptive Social Protection Program (ASPP), which was launched in March 2014[49]. This means integrating social protection with (i) climate and disaster risk management and (ii) adaptation investments. Countries such as Honduras, Nicaragua, Burkina Faso, DR Congo, Ghana, Kenya, Malawi, Niger, Tanzania, Uganda, the Philippines and Vietnam have some experience using social protection tools to tackle a range of vulnerabilities including disasters, health and education. An example of ASP is when droughts are anticipated, and the program thus scales up conditional cash transfer via the social safety net program to ensure a quick and effective response. This can also include linking public works with social safety nets where able-bodied adults work on rebuilding or other value generating activities in exchange for cash or food[50]. As for connecting work within the climate risk insurance-MSME-social protection continuum, it could be advisable to look into the combination of social insurance and climate risk insurance approaches, as well as into the combination of labor market programs and climate risk insurance approaches. Additionally, one could consider integrating micro-enterprises, often referred to as 'one-man shops', which are subject to climate risk vulnerability and fall between social assistance and social insurance, into the scaling up and climate-sensitive modification of existing social protection approaches.

Shared Leadership and New System Design

Climate vulnerable countries require shared leadership and collaboration at the global level to survive and thrive with a loss multiplier subject to the climate and disaster risks, currently and in the future. Current budgets, however, fall short of what is needed to reduce life and economic losses. The five additions proposed here suggests there are better ways to manage down risks and utilize opportunities. Without these 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 thus far. Despite the high degree of uncertainty and the great and growing need for more predictability, the ultimate equation changed: risks and the opportunities arising from the climate

[48] UK Department for International Development, Hunger Safety Net Programme (HSNP Phase 3), 23 March 2020.
[49] The World Bank, Sahel Adaptive Social Protection Program (ASPP), 28 February 2018.
[50] The World Bank, Sahel Adaptive Social Protection Program (ASPP), 28 February 2018.

crisis will still be determined by the resources mobilized, deployed and invested in a new system design that can effectively boost resilience and enable sustainable development.

Background

The Vulnerable Group of Twenty (V20) Ministers of Finance was founded on 8 October 2015 in Lima, Peru during the Annual Meetings of the World Bank Group/IMF through leadership from the Philippines and 19 other countries including Bangladesh, Ethiopia, and Costa Rica. Current membership of the V20 spans 48 countries. The V20 is a dedicated dialogue and action platform of Ministers of Finance of countries systemically vulnerable to climate change. The V20 addresses climate change from economic and financial perspectives and works to mobilize significantly greater resources for climate action. The V20 needs support urgently in order to address the increasingly severe effects of climate change on economic growth, balance of payments, fiscal space, investment, inflation, and costs to financial and human capital. conditions specific to climate vulnerable economies in the developing world, ensuring its interventions, for instance, focus support on micro, small and medium enterprises (MSMEs), smallholder farmers, and sectors that represent those with the lowest incomes, while advancing programs with significant positive implications for poverty alleviation programs that tackle income inequality.

Members

Africa & Middle East

Burkina Faso, Comoros, Democratic Republic of the Congo, Ethiopia, The Gambia, Ghana, Kenya, Lebanon, Madagascar, Malawi, Morocco, Niger, Palestine, Rwanda, Senegal, South Sudan, Sudan, Tanzania, Tunisia, Yemen

Asia-Pacific

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Latin America & Caribbean

Barbados, Colombia, Costa Rica, Dominican Republic, Grenada, Guatemala, Haïti, Honduras, Saint Lucia

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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.

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