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DISASTER RISK FINANCING (DRF):

EMERGING LESSONS IN FINANCING ADAPTIVE SOCIAL PROTECTION



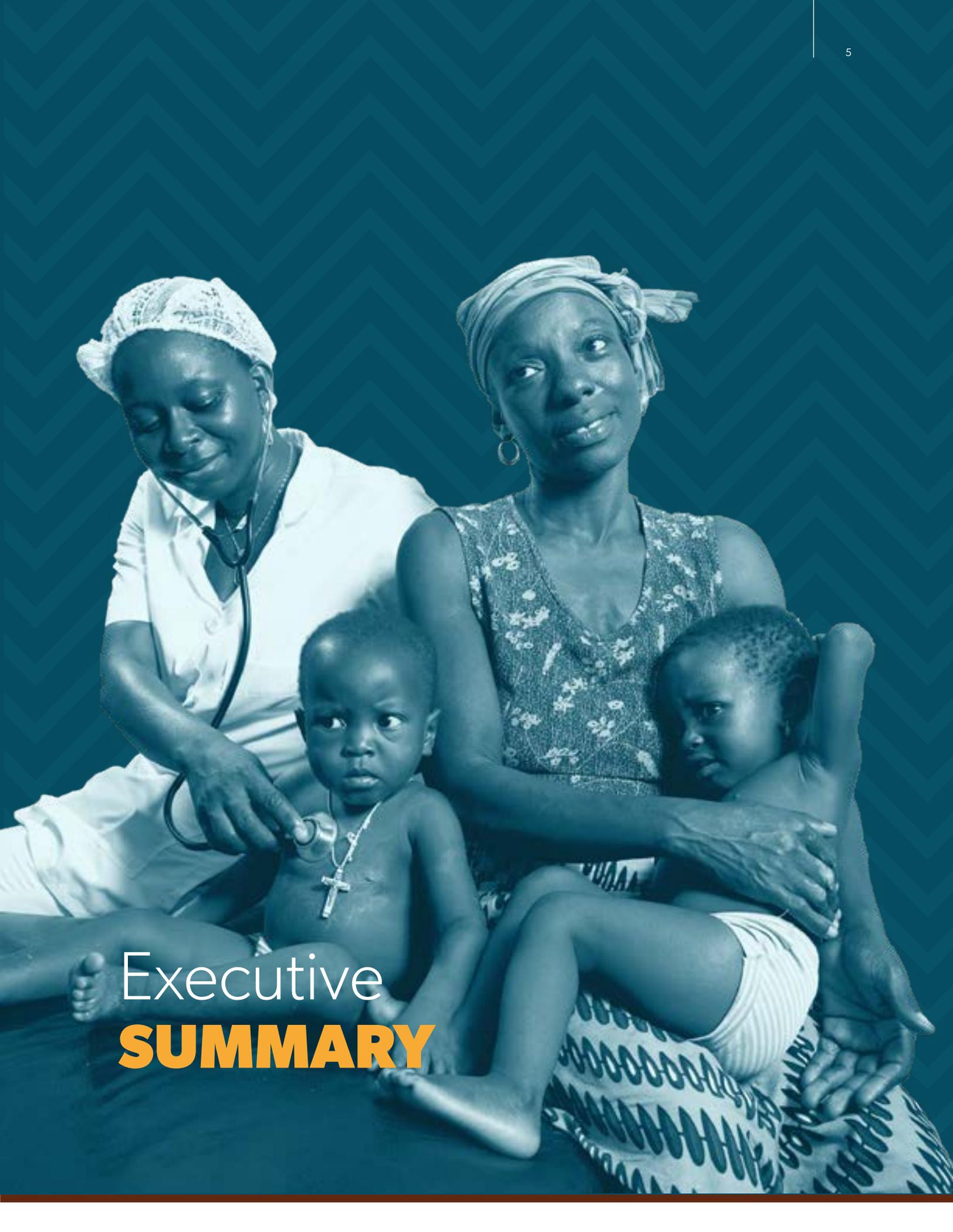
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Abbreviations

ASEAN	Association of Southeast Asian Nations
ASP	adaptive social protection
CAT-DDO	Catastrophe Deferred Drawdown Option
DRF	disaster risk financing
EWS	early warning systems
GDP	gross domestic product
GoM	Government of Mozambique
HSNP	Hunger Safety Net Program (Kenya)
INGC	National Institute of Disaster Management (Mozambique)
IPC	Integrated Food Security Phase Classification
NUSAF	Northern Uganda Social Action Fund
PSNP	Productive Safety Net Program (Ethiopia)
SEADRIF	Southeast Asia Disaster Risk Insurance Facility
SP	social protection
UN	United Nations
WHO	World Health Organization



Executive
SUMMARY

This paper aims to improve understanding of how disaster risk financing (DRF) enables social protection (SP) systems to respond to and mitigate the impacts of climatic and potentially other shocks. As the relationship between poverty and disasters becomes clearer, many poor and chronically disaster-affected countries are now examining how SP systems can be designed to provide an effective shock response mechanism when disasters hit. In poor countries with limited resources, social assistance interventions such as food aid and cash transfers—often described as “safety nets”—have formed the primary government SP intervention for vulnerable groups. As disasters become more severe and frequent, more governments are establishing shock-responsive or adaptive social protection (ASP) programs to channel temporary assistance in response to crisis. The COVID-19 crisis is accelerating this trend, with almost every country or territory having planned, introduced, or used ASP measures in response to the pandemic (Gentilini et al. 2020).

While it is evident that ASP systems are an efficient way to flex or scale support during or after a crisis, the added value of adopting a DRF approach is not always so clear. This paper highlights how and why a DRF approach is critical in enhancing ASP systems’ ability to respond effectively to crises. The primary advantage of a DRF approach to ASP is its ability to ensure that resources required to respond are in place, in turn ensuring that assistance reaches affected communities on time—as soon as possible following a shock, or in the case of slow-onset disasters such as drought, before communities are severely affected. Experience suggests that without a DRF approach to ensure that all necessary actions have been taken to resource the scalable mechanisms, operationalizing ASP will be less effective.

A solid and growing body of evidence shows the multiple benefits of a timely response to shocks and disasters. An ASP system that provides timely assistance to the household level can greatly increase the impact and effectiveness of crisis response. Most importantly, an early response ensures direct household-level welfare gains in food security and child nutrition. Speedy assistance also preempts household reliance on negative coping strategies, such as the sale of productive assets, which undermine resilience and push households into poverty. These benefits reduce the overall costs of humanitarian response, which increase as response is delayed. Reducing the losses and impact of a crisis also reduces the economic impact nationally and ensures that scarce government and donor resources are not diverted from basic public services or other development investments.

A DRF approach recognizes that while shocks and disasters cannot be prevented, a government can strengthen its own preparedness to manage their impacts. A DRF approach enables governments to move away from reliance on traditional humanitarian support financed with funds raised after an event and toward a pre-planned national response system. This paper outlines what a DRF approach looks

like when applied to ASP systems in practice. With a technical (rather than operational) focus, it outlines three emerging lessons for developing ASP systems that face recurrent shocks, such as those arising from natural hazards. The lessons highlight experiences and examples where the application of a DRF approach has proved an important factor in success. It also considers what light these lessons can shed on ASP response to the current COVID-19 pandemic.

Lesson 1: Understand the potential cost of response before the disaster

Understanding the cost of responding to disasters before they occur is an essential element of a DRF approach. Without a clear understanding of the response costs, it is impossible to assess whether such a system is financially feasible or determine the most appropriate way to trigger and finance a response. The costs of an ASP system should be assessed using data from multiple historical years, not just one potential shock event. This ex ante thinking is the fundamental characteristic of a DRF approach: by calculating the potential cost ex ante, policy makers and politicians can make informed decisions before and not during the crisis. Moreover, important trade-offs (e.g., when, how much, and to whom to make payments) can be worked through and the necessary financing instruments established in the most efficient way. Examples of countries that have conducted such ex ante analysis include Afghanistan, Ethiopia, Fiji, Kenya, Lesotho, Malawi, Niger, Senegal, and Uganda.

Lesson 2: Pre-plan the funding required to ensure timely response

Ensuring funds are available when they are needed is another critical element of an effective DRF strategy. Once the potential cost and likelihood of response are understood across the range of disaster severity scenarios, financing instruments can be put in place to ensure there is a minimum ASP financing package during and/or after a disaster. Two key issues should be considered when establishing financing instruments for an ASP program:



Timeliness: Given the importance of speed of response, instruments should be in place (ex ante) to release the right level of funding when it is required, avoiding the need to agree on and arrange finance during a crisis.



Risk layering: Since no single financial instrument can cover all levels of response in an efficient way, a range of different instrument should be considered to address different risks. Depending on the context and the frequency and severity of risk, these could include contingent reserves, contingent credit, and market-based instruments. The appropriate combination will differ in each circumstance but will work to increase the ownership, impact, and cost-efficiency of disaster response financing.

Examples of countries with timely and layered DRF instruments include Caribbean nations belonging to the Caribbean Catastrophe Risk Insurance Facility (CCRIF);¹ governments with a World Bank Catastrophe Deferred Drawdown Option (CAT-DDO) such as Kenya and Malawi; and Mozambique, which has established a Disaster Management Fund.

Lesson 3: Put effective delivery mechanisms systems in place

Understanding the cost of disaster response and putting the financing in place to provide response funds is of limited benefit if the assistance cannot be efficiently channeled to disaster-affected populations. Hence the third key lesson is the need to develop effective delivery mechanisms to distribute assistance quickly and efficiently to disaster-affected populations. Payment systems are critical here. The coverage of mobile and digital money systems is expanding rapidly in many low-income countries, and ASP systems that use these to transfer payments are able to disburse cash faster, more efficiently and with greater accountability than those using manual systems; this is true for both regular and emergency payments. In addition to speed, such systems offer security and flexibility and have proven very robust even in the face of widespread physical destruction. This makes a strong case for putting such systems in place before disasters, particularly in places that are chronically affected by shocks. Examples of countries with preestablished electronic or mobile payment mechanisms include Ecuador, Fiji, Kenya, the Philippines, and Uganda.

DRF requires a global shift in thinking: rather than seeing disasters as unpredictable humanitarian crises, it sees them as predictable events that can be planned for and managed to minimize impact and increase protection. DRF involves moving from a reactive approach that addresses the fiscal impact of disasters once they happen to a proactive approach. It also supports a depoliticized decision-making process by providing models and estimations that are based on robust predictions and calculations. By taking a DRF approach to ASP, governments can ensure that needed funding and delivery systems are in place to provide timely assistance directly to families and individuals most affected by a shock.

¹ The member countries are Anguilla, Antigua and Barbuda, The Bahamas, Barbados, Belize, Bermuda, Cayman Islands, Dominica, Grenada, Haiti, Jamaica, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Trinidad and Tobago, and Turks and Caicos Islands.

1

INTRODUCTION



This paper aims to improve understanding of how disaster risk financing (DRF) enables social protection (SP) systems to respond to and mitigate the impacts of climatic and potentially other shocks. The growth of SP programming has spurred interest in using SP systems to respond to destructive disaster events in low-income countries. This paper highlights some of the emerging lessons in establishing shock-responsive or adaptive social protection (ASP) programs and argues for the value of applying a DRF approach to developing these programs. With a technical (rather than operational) focus, it draws on examples to show how DRF has (or could have) contributed to ASP systems, and also considers the lessons available for emerging crises such as the COVID-19 pandemic.

The incidence and impact of climatic disasters and extreme weather events have been increasing over recent decades. Between 2005 and 2015, over 6,400 weather-related disasters claiming over 606,000 lives were recorded worldwide (CRED and UNISDR 2015). In addition to causing devastating human losses, such events can have huge economic impact. In 2017 alone, there were 330 natural catastrophe events (97 percent weather related) that generated economic losses estimated at US\$353 billion (Aon Benfield 2017). The cost of recovery from a single disaster can run into billions and undermine national economic growth. The damage and losses arising from Super Typhoon Haiyan in the Philippines in 2013 were estimated at over US\$12.9 billion, equal to 5 percent of national gross domestic product (GDP) (Bowen 2016). According to one study, the annual economic impact of flooding in Pakistan is between US\$1.2 billion and US\$1.8 billion, equivalent to 0.5–0.8 percent of national GDP (Watson et al. 2017).

Although it is widely accepted that climatic disasters are likely to increase with the impact of climate change, localized climatic crises have recently been eclipsed by the COVID-19 pandemic, fast emerging as the largest global health (and economic) crisis in modern history. The full human and economic impacts of this disaster have yet to be fully quantified. However, the global economy is expected to shrink by 5.2 percent in 2020, the deepest recession since the Second World War, with the largest number of economies experiencing a decline in per capita income since 1870 (World Bank 2020). Emerging markets and developing economies are expected to decline for the first time in 60 years. As is the case with all disasters, poor countries and poor people will be least able to cope. Experience has shown that poor and marginalized populations are often highly exposed and vulnerable to disasters. The poor often live and rely on land subject to recurrent chronic disasters such as floods and droughts, which slowly erode their livelihood and incomes. Moreover, though they have fewer assets and lower incomes than better-off households, they still lose far more proportionately when hit by a disaster. The ongoing COVID-19 crisis will likely make countries more financially vulnerable to other forms of shocks over the coming years at the government, firm, and household level, especially as contingency

funds and other financial resources (including humanitarian aid) are used to respond to the current crisis and may not be fully replenished.

In recent years, cash transfers have increasingly been used as a modality for humanitarian response. At the same time, many low- and middle-income countries have established or expanded their SP systems, which generally operate by providing regular cash transfers to preselected beneficiaries or households. This practice has generated growing interest in and experience with shock-responsive or ASP systems that can combine humanitarian and development objectives. Consequently, several SP systems have been used to disperse additional assistance directly to shock-affected households following a disaster—and in some cases even before a disaster. Nonetheless, there are still relatively few shock-responsive social protection systems in operation.

This paper explains why and how a DRF approach can improve efforts to adapt SP systems to respond to shocks and crises. It explains what DRF means when applied to SP systems, and it shares key lessons along with examples showing how these lessons have been applied in practice. The remainder of this paper is structured as follows:

Section 2 explains and defines the key terms discussed in this paper, namely “disaster risk financing” and “adaptive social protection” (or “shock-responsive social protection”). It also highlights some of the recent evidence providing the rationale for a DRF approach to adaptive social protection.

Section 3 is divided into three subsections that respectively address three key emerging lessons in using DRF for ASP:

- **Lesson 1: Understand the potential cost of response before the shock.** This lesson highlights a key DRF principle—that most shocks are predictable, and that their likelihood and impact can be modeled and quantified in economic terms before, rather than after, they hit. This subsection explores the data and analysis required to understand the potential impact of different shocks upon different populations. It looks at how this information is translated into financial cost estimates that can be used to set triggers for response and inform the design of social protection scaling mechanisms that are financially feasible.
- **Lesson 2: Pre-plan the funding required to ensure timely response.** The second key DRF principle is that funding can be pre-planned to ensure it is available when needed. Such pre-planning entails identifying funding sources before a shock and making sure they are available for various disaster scenarios. This subsection outlines the range of possible financing instruments that could be used to finance a response and shows how risk layering helps governments meet disaster costs in a timely and efficient manner.
- **Lesson 3: Put effective delivery mechanisms in place.** This subsection addresses a third key DRF principle: the importance of having strong financial delivery mechanisms in place to promptly disburse social assistance when a shock response is triggered. It focuses on the key factors to consider before any shock hits, such as fund release, fund transfer, registration, and enrollment.

Section 4 considers how the emerging lessons explored in section 3 could support and further strengthen the current COVID-19 response.

2

Definitions and **RATIONALE**



2.1 What is disaster risk financing?

DRF is much broader than the term “financing” would suggest. It is part of a global shift in thinking: rather than seeing disasters as unpredictable humanitarian crises, it sees them as predictable events that can be planned for and managed to minimize impact. DRF involves moving from a reactive approach that addresses the fiscal impact of disasters once they happen to a proactive approach, one that puts in place the systems and financing required to respond to disasters or severe weather shocks **before** events take place. DRF entails increasing the financial resilience of national (and subnational) governments, businesses, and communities against disasters. Under a DRF approach, shocks are managed as part of everyday financial planning. The World Bank, through its Disaster Risk Financing and Insurance Program (DRFIP), has identified four DRF principles to support better financial decisions in relation to disasters:

- 1. Timeliness of funding.** There can be no effective disaster response if resources are not available when they are needed—and resources will be needed at different times rather than all at once. A DRF approach advocates for the necessary resources to respond immediately and effectively at the onset of a disaster, or even before. This enables government and businesses to maintain their investments in human capital and economic growth despite disasters.
- 2. Disbursement of funds.** Having finance available is of limited benefit without mechanisms to allocate and distribute assistance from central government to affected populations.
- 3. Disaster risk layering.** Because no single financial instrument can address all disaster risk, DRF encourages governments to examine the full range of options for financing different types and levels of disaster risk.
- 4. Data and analytics.** Under a DRF approach, governments seeking to make sound financial decisions are encouraged to collect and analyze the right information.²

To date, DRF approaches have made most progress with regard to climatic events (box 2.1). Nonetheless, the same thinking can be applied to other shocks that create unexpected funding liabilities for governments. Examples include a sudden influx of refugees or a major hike in staple food prices. In any case, the purpose of the paper is to draw experiences from DRF to inform ASP financing, irrespective of the type of shock or disaster that it will respond to.

Growing numbers of countries are developing DRF-informed ASP systems, and a few have a fully formed DRF approach in place; but countries too often respond to shocks and disasters with a post-disaster funding model. This is characterized by a lack of pre-agreed plans, which results in a fragmented, poorly coordinated, and late response. Needs are assessed after the shock has already happened, slowing down funding appeals, which usually do not meet funding goals. It is this delayed response that forces households to resort to negative coping strategies, keeping people in poverty or pushing them back into it.

The case for DRF is compelling, but the process of implementing DRF is rarely easy or quick. Applying DRF to social protection systems can form a good starting

² World Bank Disaster Risk Financing and Insurance Program, “[Disaster Risk Finance: A Primer—Core Principles and Operational Framework](#)”

BOX 2.1: WHY DRF IS MOST ADVANCED FOR CLIMATIC HAZARDS

DRF is most advanced in relation to climatic hazards because these risks are comparatively predictable and regular. Accessing finance to cover a disaster risk involves understanding the amount and regularity with which finance will be required; and in the case of events such as hurricanes or droughts, this understanding is growing. Climatic events can be defined, understood, and measured using scientific, quantitative data sources. For example, hurricanes are graded according wind speeds, and droughts can be measured based on rainfall.

Thus historical, objective hazard data can be coupled with catastrophe risk modeling techniques to estimate the likelihood of such events occurring in the future. This information assists in understanding both how often and how much finance would be needed to provide a reasonable level of response. Once there is a modeled understanding of risk, financial mechanisms like insurance are possible, and disaster insurance has emerged as a very feasible and popular approach to financing disaster risk.

In the case of non climatic risks such as conflict, epidemics, or market volatility, far less certainty exists. The scale and nature of conflict is extremely hard to predict. Historical patterns may not provide any clue to future events, so countries are unlikely to consider securing financing for them, especially because they may believe such events can be prevented or avoided. Even if conflict is recurrent and highly likely—as for example in Somalia—the nature and scale of conflict is still impossible to predict. Another reason why DRF has played little role in financing response to conflicts is that conflict or civil unrest could itself undermine the governance structures required to access and use any financing available for relief and response. Moreover, the cross-border nature of conflict in terms of causes and impact makes it difficult to identify who should be responsible for planning for DRF. The Rohingya refugee crisis in Bangladesh exemplifies this problem. Market crises are similarly difficult to predict, and ex ante planning for such events could create a moral hazard (whereby certain parties could have an interest in ensuring that the conditions of an insurance payout were met, or other responses triggered, to avoid economic losses).

point. SP systems, particularly safety nets, provide established delivery mechanisms for distributing assistance. Thus they are a useful focus for calculating what financing is likely to be required in response to different forms of disaster. So long as appropriate plans, policies, and systems are in place, a well-articulated DRF strategy also makes vulnerable households more confident about the support they will receive in case of a catastrophe, enabling them to plan ahead.

Ultimately, political will is a critical factor for ensuring that a DRF approach is actually implemented. In poor countries with limited fiscal space, there is a strong onus to prioritize funding for regular SP programming. Earmarking funds to respond to disasters that have not yet happened seems like an unnecessary luxury to governments faced with many other immediate priorities. In highly disaster-affected contexts, the political economy is often complex, with multiple players and systems in place that both fund and deliver humanitarian responses. In such contexts, relief efforts may actually undermine rather than build nascent government SP systems. These contexts also make it extremely difficult to garner the political will to develop collaborative, proactive financing mechanisms. By highlighting case-study examples of DRF in a variety of contexts, this paper aims to demonstrate that a DRF approach can produce genuine win-win outcomes.

2.2 What is adaptive social protection?

This paper uses the term adaptive social protection to describe social protection systems that have been designed, modified, or used to channel temporary assistance to affected populations during a crisis or disaster.

Social protection more broadly can include a wide range of interventions targeted at both poor and nonpoor individuals and households; interventions will vary depending on specific needs at different stages of the life cycle and the level of insecurity to external shocks. In recent years, the number of low- and middle-income countries establishing or investing in SP systems has grown. In poor countries, the primary government SP intervention for vulnerable groups has been safety nets that provide relief such as food aid and cash transfers.³ Some of these programs emerged to meet the needs of very specific groups (e.g., HIV/AIDS orphans) and have a fixed budget and coverage levels. Other programs emerged from short-term humanitarian responses to specific locations or shocks. In recent years, in particular following the global financial crisis of 2008, the number of low- and middle-income countries establishing or investing in SP systems has grown, and governments have begun to adjust their budgets and fiscal policies to better finance this sector.

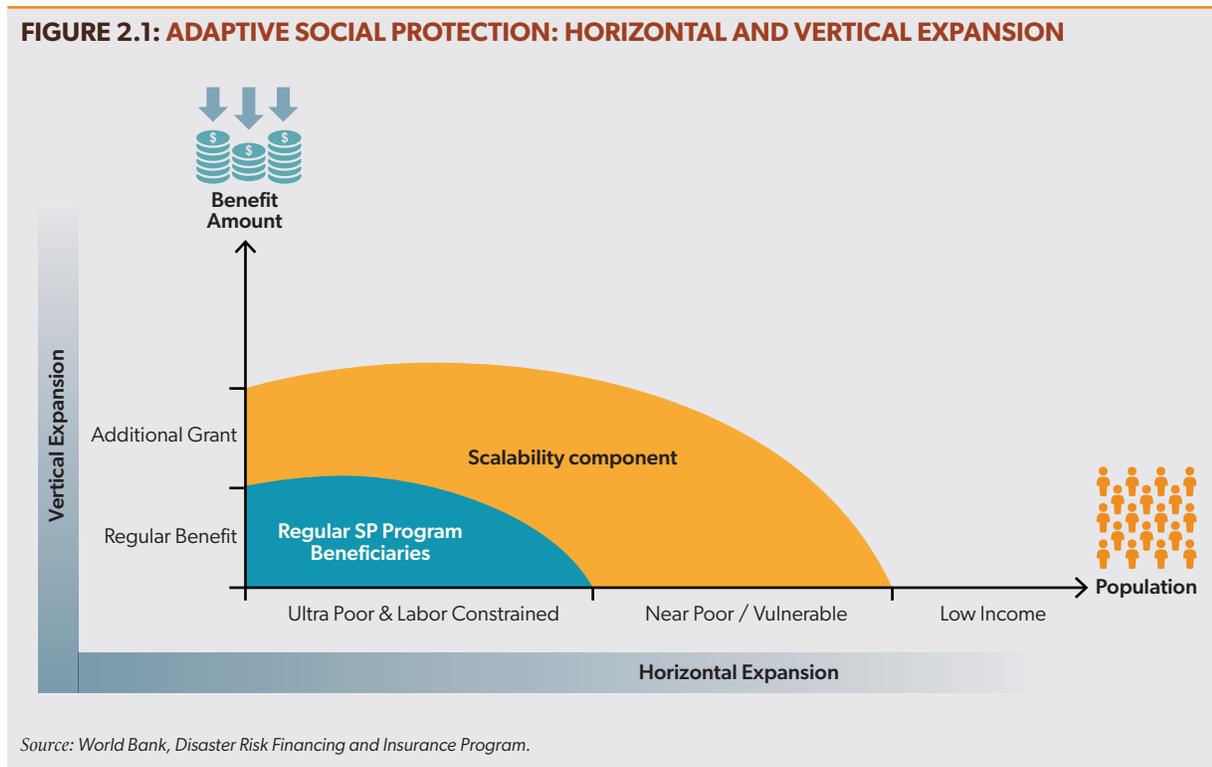
Successful SP programs are designed with delivery mechanisms that ensure relief is able to reach the poorest and most vulnerable. These delivery mechanisms—comprising national or subnational beneficiary selection and registration, grievance redress, management information systems, and payment—work hand in hand with policy design to yield meaningful programs and impacts (Lindert et al. 2020). When these delivery systems are adjusted or complemented to provide greater coverage in the event of a shock, they are called “shock-responsive,” “scalable,” or “adaptive” SP programs.

Adaptive social protection helps to build the resilience of poor and vulnerable households by investing in their capacity to prepare for, cope with, and adapt to shocks: it protects their well-being and ensures that they do not fall into poverty or become trapped in poverty as a result of shock impacts (Bowen et al. 2020). The emergence of ASP is a recognition that poor and vulnerable households are living in inherently shock-affected contexts and therefore need social protection to build their resilience.

Many countries have gradually come to recognize the important role of ASP in channeling resources to the poorest and have started investing in ASP interventions and the required delivery systems. In recent years they have been used for temporary scale-ups in response to a wide range of shocks (Barrientos and Niño-Zarazúa 2011; Bastagli 2014; O’Brien et al. 2018; OPM 2017). Governments and donors have found that when crises or disasters hit, such delivery systems are extremely useful in efforts to scale up assistance to individual households. One example is the Sahel Adaptive Social Protection Program,⁴ which started in 2014. The COVID-19 crisis is accelerating the trend further; by July 2020 almost every country or territory in the world had planned, introduced, or used ASP measures in response to the pandemic.

³ Social safety nets, social insurance, and labor market programs together constitute the social protection system, along with the policies that guide them and the delivery systems that underpin them. See ILO (2017); Robalino, Rawlings, and Walker (2012); World Bank (2012).

⁴ World Bank, “[Sahel Adaptive Social Protection Program \(ASPP\)](#)”.

FIGURE 2.1: ADAPTIVE SOCIAL PROTECTION: HORIZONTAL AND VERTICAL EXPANSION

During a crisis, ASP programs can adapt to offer temporary assistance in a range of ways. Most commonly they expand “vertically” and offer greater assistance to existing beneficiaries, but they can also expand “horizontally” and use existing program systems to provide assistance to additional beneficiaries in the affected area; see figure 2.1 (O’Brien et al. 2018). Initially many governments struggled to finance any flexing or scaling of SP programs, as low tax income and multiple competing priorities limited the available fiscal space (Bastagli 2014; Barrientos and Niño-Zarazúa 2011). As a consequence, the adaptation of SP programs for crisis response in many of the poorest countries has initially been financed through humanitarian response by external donors.

The emergence of ASP is relatively new, and in different contexts it has arisen for different reasons. In Pakistan, where the population needed temporary support following the 2005 earthquake and the 2010 floods, the flagship cash transfer program (Benazir Income Support Programme, or BISP) proved to be an ideal conduit for providing aid (O’Brien et al. 2018)). SP systems developed to address chronic and seasonal crises have also proved adaptable. An example is Ethiopia’s Productive Safety Net Program (PSNP), which has effectively replaced annual emergency assistance to millions (World Bank 2013); while a core group of chronically food-insecure people are regular SP beneficiaries, the program retains the ability to expand temporary assistance to wider populations in bad drought years. In other instances, it is only once a crisis hits that governments recognize their SP systems as the best way to channel emergency response. The scaling of government poverty grants in the Philippines in the wake of Typhoon Haiyan is a good example.

2.3 The case for a DRF approach to ASP

It is evident that ASP is an efficient way to scale support during or after a crisis, but the added value of adopting a DRF approach is not always so clear. In fact, however, DRF solves a major problem with ASP programs—that is, the problem of timing. Often, the decision to scale up assistance is made too late, only after the crisis has hit. This delay is clearly unavoidable for some shocks, such as earthquakes, but is less so for shocks such as drought, where early warning systems (EWS) are in place. In many cases, even after the crisis has hit response is delayed by conducting a needs assessment to verify and quantify how populations have been affected, and again by appeals for funding to meet the identified needs.

Adopting a DRF approach to ASP speeds up provision of assistance to affected communities. Assistance is provided *as soon as possible* following a shock, or, in the case of slow-onset disasters such as drought, before communities are severely affected by negative impacts. A DRF approach helps government move from a “wait and see” approach reliant on post-disaster assessments and appeal processes toward becoming proactive risk managers, with risk management and financing plans that are rapidly acted upon. With DRE, governments and donors do not regret acting early even if conditions improve or the impact on households was not as great as anticipated. This is because all actors acknowledge the compelling human and economic benefits of early action and accept that these more than outweigh the cost of response.

There is a solid and growing body of evidence on the multiple benefits of responding early to shocks and disaster. By facilitating a timely response through ASP, which is essential to build the resilience and protect the welfare of poor households, a DRF approach entails several key benefits:

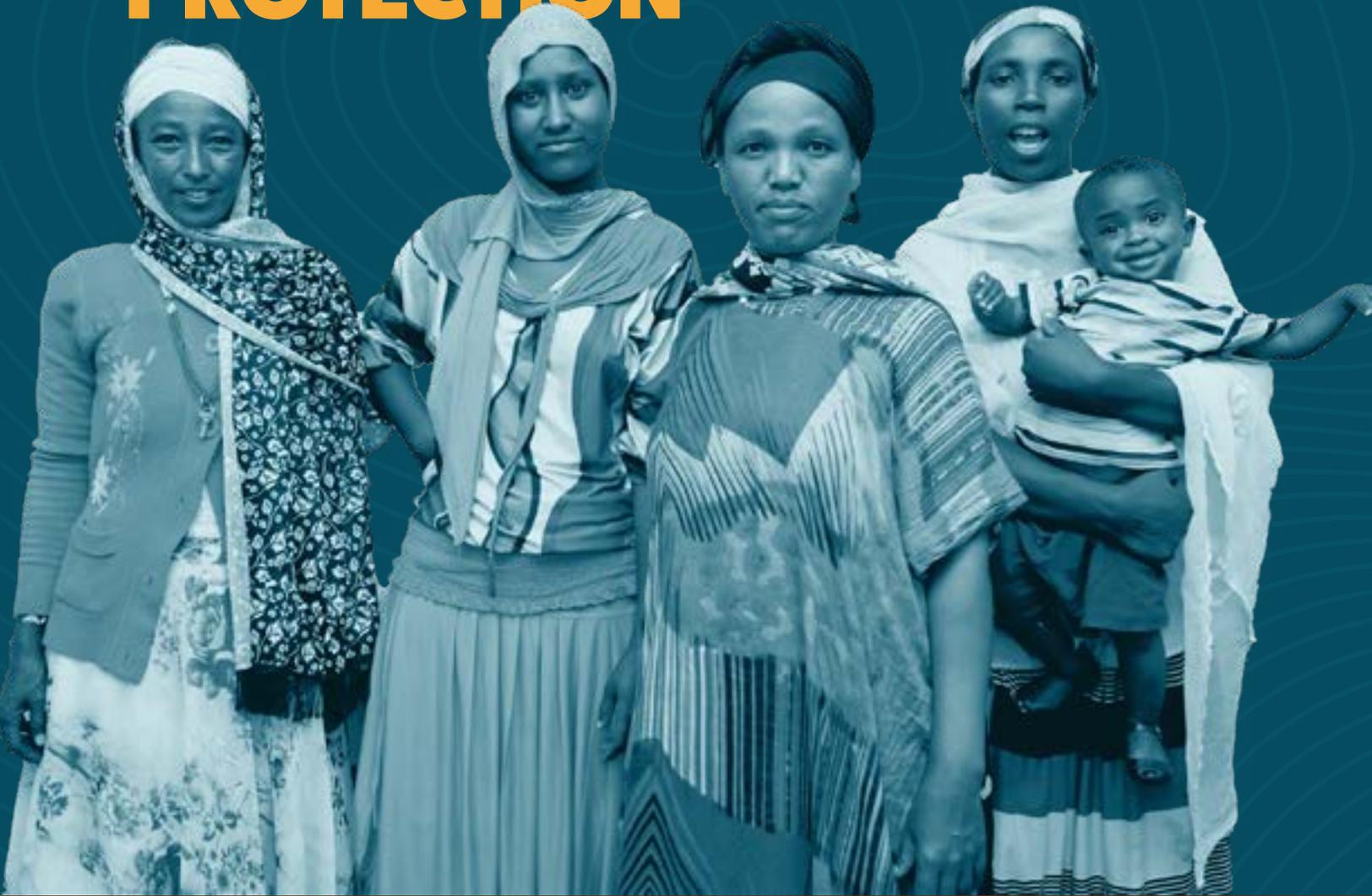
- **Direct welfare benefits:** There is consistent evidence that regular reductions in household consumption due to recurrent crises have a direct impact upon child nutrition. A recent study by the World Bank (Hill, Skoufias, and Maher 2019) analyzed high-frequency data collected during six droughts in eastern and southern Africa. It found that (on average) nutrition decelerates more rapidly in the 5 to 11 months after the start of harvest than in other times. It further estimated that the cost of not getting a response in place in time to meet the consumption needs of those suffering from drought reduces income per capita (GDP per capita) by 3.9 percent. A study on African insurance mechanisms (Clarke and Vargas Hill 2013) suggested the cost of drought to a household can increase from US\$0 to US\$50 if support is delayed by four months and could increase up to US\$1,300 if delayed six to nine months.
- **Preempting of negative coping strategies:** Disasters exacerbate poverty by forcing the poor and those vulnerable to poverty to resort to negative coping strategies, which often have long-term, irreversible, and sometimes intergenerational effects. This is well substantiated for slow onset events like drought. Research in Ethiopia has found that the vast majority (85 percent) of households cope with drought and other shocks by reducing food consumption (Dercon 2004). Many households (39 percent) sell assets, including productive assets such as livestock. Other research has found that where households choose not to sell productive assets (or do not have them), they cut their consumption to dangerously low levels (Rahmato 1991; Little et al. 2006). Chronically late delivery of cash and food assistance on a repeated basis undermines the resilience of poor communities and households,

deepening poverty. Conversely, prompt delivery allows households to recover more quickly. Looking at a rapid onset event such as tropical cyclone – in Fiji the government used its Government-to-Person (G2P) payment program to disburse F\$19.9 million (US\$10 million) in emergency relief to households within four weeks of tropical cyclone Winston. An impact evaluation (Mansur 2018) found that, after three months, assisted households had recovered to pre-crisis levels and were far less affected than households who had not been reached.

- **Reduced response cost:** The wider economic case for early response has also been the subject of several recent studies on the economics of early response (GHA 2014; Hobson and Campbell 2012; Pelham, Clay and Braunholz 2011). Some of these studies have estimated the direct financial costs of an early “no-regrets” response versus late “wait and see” humanitarian responses. A study on the economics of early response and resilience (Cabot Venton et al. 2012) in Ethiopia found that a late humanitarian response costs approximately seven times that of an early response. A recent USAID study (Cabot Venton et al. 2018) found that donors could save 30 percent on humanitarian aid spending if investment was provided earlier via systems such as the PSNP. As highlighted in a recent examination by the World Bank (2013), government delivery systems for food and cash transfers in Ethiopia (i.e., PSNP) were estimated to be 25 percent cheaper than the humanitarian system.
- **Reduced macroeconomic impact:** The macroeconomic impact of disasters can be enormous, particularly when response is delayed and impacts and losses are greater. A quicker and targeted response will reduce the macroeconomic impact. The average total humanitarian requirements of Ethiopia between the years 2005 and 2016 have been estimated to represent 1.3 percent of GDP. Financing recurrent drought response programming means the Government of Ethiopia has had to divert scarce resources away from basic public services, thereby undermining national development. The extra costs associated with late response exacerbate this.

3

Applying a Disaster Risk Financing Approach to **ADAPTIVE SOCIAL PROTECTION**



A DRF approach recognizes that while shocks and disasters cannot be prevented, a government can strengthen its own preparedness to manage their impacts. A DRF approach enables governments to move away from reliance on traditional humanitarian support financed with funds raised after an event and toward a pre-planned national response system. Effective, well-financed, and adaptive social protection systems can support disaster preparedness and response to shocks through flexible and scalable systems. They can also help households build resilience so that they are more prepared to cope with the impacts of shocks that materialize in the future.

This section outlines what a DRF approach looks like when linked to an ASP system. In theory, improving the ability of social protection systems to respond to shocks is a straightforward process. However, in practice, it is impossible to operationalize any solution without a DRF approach that ensures all necessary actions have been taken to resource the flexing and scaling mechanisms. These actions and the reasons for them are described in the three lessons discussed below.

3.1 Lesson 1: Understand the potential cost of response before the disaster

Pre-disaster financial planning is essential for any DRF approach, including as applied to ASP. Without a clear understanding of the estimated costs of an ASP system, it is impossible to assess the most efficient way to design the mechanism—and even whether such a system is financially feasible and therefore achievable in the first place.

The estimated costs of an ASP system should be assessed using data from multiple historical years, as well as input from catastrophe risk models. This assessment requires modeling costs over time and incorporating both normal and disaster years to understand the potential range of costs from year to year and the average over the long term. Cost estimation processes are significantly improved when the availability and quality of data is good. Developing such data on the financial impacts of shocks is a multi-stage and iterative process, one that involves estimating the cost of the impact of the shock and the cost of a feasible response, recognizing there is likely to a gap between the two.⁵ More specifically, it involves three different steps:

⁵ It is important to acknowledge that data collection involves trade-offs. More and more detailed data on disaster-affected populations and locations may allow for more accurate analysis but will require significant time and resources and may have limited marginal benefit for the task at hand. In some cases, a more parsimonious data collection exercise may provide the sense of quantum and trends required. Where information gaps exist, a default approach may be to base estimates of need on retrospective ex post needs assessments following similar climate-related disaster events.

1. **Assessing the nature of disaster risk**—that is, the types, magnitude, and frequency of the potential shocks to which the target population is exposed
2. **Assessing the vulnerability of the affected population**—that is, the socio-economic circumstances of the population and the existence of risk factors that affect people’s exposure to different shocks
3. **Establishing the rules for scaling up the ASP program**—that is, the thresholds for any trigger, as well as the scale and duration of social assistance provided

The information identified under steps 1 and 2 should be used under step 3 to inform the scale of response required to meet the different ranges of climatic shocks. Each of these steps is discussed in turn below. Note that this exercise is inherently easier for shocks where the data are rich and the analytics advanced, which is the case for many climatic events. As suggested in box 2.1, this is one of the reasons why DRF is more often used to address climatic risk than other types.

1. Assess the nature of disaster risk

Much of the information on risk exposure needed for this step is provided by national and global meteorological data, disaster preparedness planning, and EWS. Governments are usually very aware of the range of climatic and other disasters that affect their populations.

Information on the impacts of past shocks—including the cost of response—can often provide a useful benchmark for future costs and offer guidance on appropriate triggers, as it is often well documented and publicly available (O’Brien et al. 2018). The historical data on past events are combined with catastrophe risk modeling techniques to predict the likelihood of events of a certain magnitude occurring in the future. Droughts, floods, and hurricanes draw on a range of meteorological indicators that use modern technology, specifically satellite-generated remote sensing data. Unfortunately, this is not the case for anthropogenic hazards, such as conflict and epidemics/pandemics, where the potential impact of any given risk may never have been experienced before and is therefore much harder to understand and estimate.

Most climatic disasters have well-established international technical definitions and metrics for quantification, but these are not always enough to understand how each target population will be impacted by the same level of shock, and for this reason they are not used to define a response trigger. Given the complex relationship between vulnerability and risk, a standard definition of a shock does not necessarily translate into a standard assessment of impact in a specific (e.g., subnational) geographical area. Some hazards, such as floods, can only be defined locally in relation to long-term norms. Understanding the risk of a particular population involves calibrating standard definitions or measurements of climatic shocks and hazards to the local context. Locally agreed definitions of a “disaster” situation, and where possible a “pre-disaster” situation, may need to be developed as part of a DRF approach. Such definitions can then be used to trigger payment mechanisms and other response interventions. For example, in Afghanistan (see box 3.1) multiple data sets were used to develop an agricultural stress index that can be used to predict the locations likely to be affected by drought.

2. Assess the vulnerability of affected populations

This step combines the data on shocks or hazards with data on populations in the affected geographic area to assess their vulnerability. Accurately assessing impacts on different populations can be complex, as multiple factors will affect communities' vulnerability and resilience to shocks. Moreover, these factors can be highly dynamic, so that vulnerability to disaster risk can change significantly over time. Typical factors and information required to assess populations' vulnerability include the following:



Poverty and prices: Poverty rates, consumption levels, assets, savings, prices of staple foods, crops and livestock, labor rates, etc.



Livelihood patterns: Sources of income, agricultural production systems (types of crop, reliance on livestock, etc.)



Geography: Altitude, soil type/quality, proximity to water sources



Services and infrastructure: Access to health and education services, proximity to good roads, water supplies, markets, mobile networks, etc.



Timing: The point at which a shock hits (e.g., just before or just after a harvest)

Multiple models and methodologies have been developed to attempt to measure individual, household, and community disaster resilience (Schipper and Langston 2015); but few of these can be used to practically forecast the impact of or needs generated by a shock. To predict the needs that arise in response to shock(s) with a high level of accuracy requires reliable data on as many factors as possible down to very local levels. In reality, such data are often not available, are of poor quality, or are highly dynamic (e.g., population rates, poverty levels, price data).

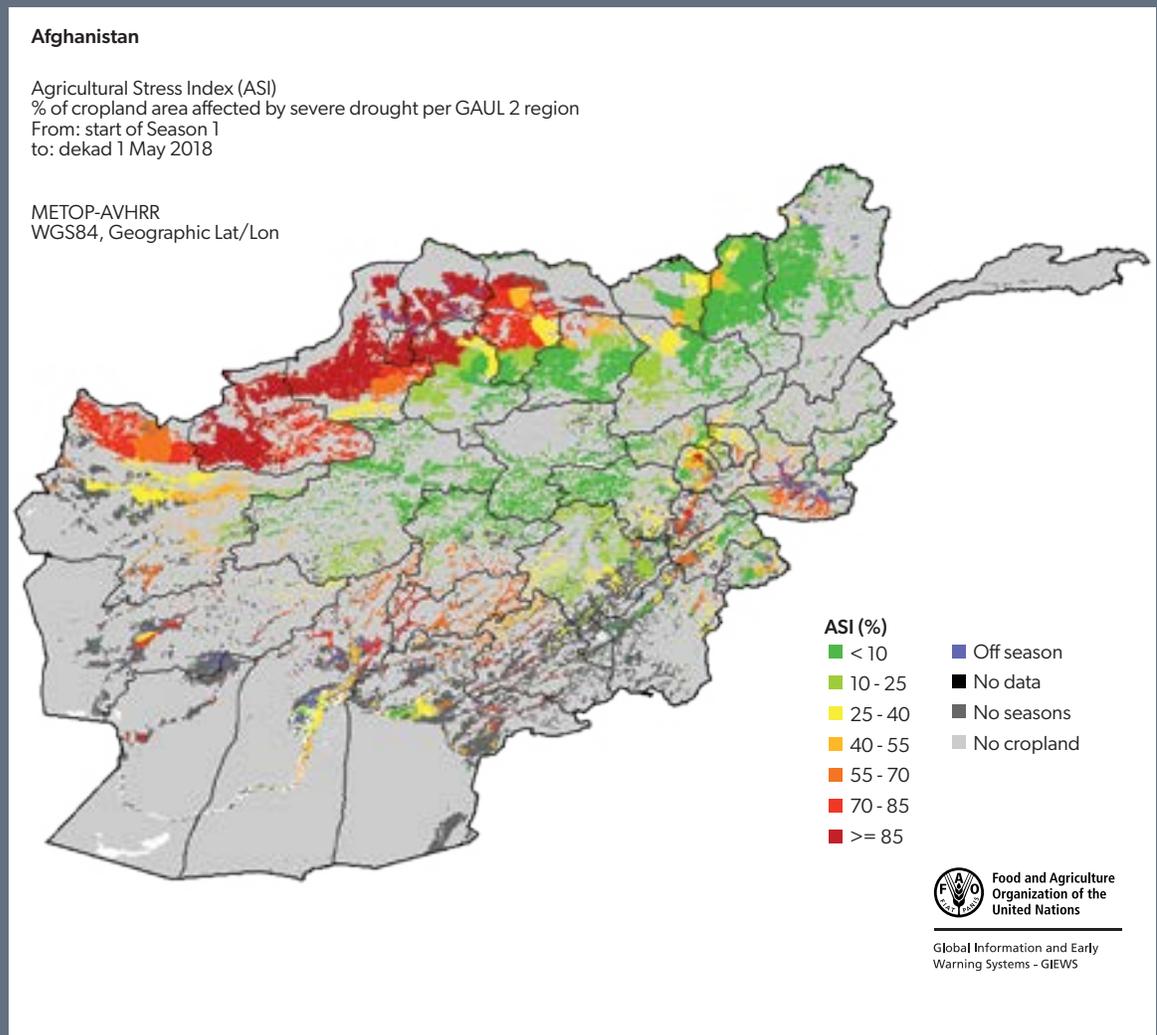
BOX 3.1: EFFORTS TO UNDERSTAND DISASTER RISK AND VULNERABILITY IN AFGHANISTAN

Afghanistan suffers chronic food insecurity exacerbated by regular climatic shocks, particularly drought. Development partners have been supporting the Government of Afghanistan to develop regular safety net programs for chronically food-insecure populations. There is broad agreement that the country could benefit from an ASP system that enables existing safety net programs to scale up temporarily in the face of chronic shocks. However, the national early warning systems required to inform such a system are still very weak. Consequently, data provision has been enhanced in recent years through donor support. This includes the World Bank’s Critical Risk Information Project and support from USAID via FEWSNET to produce key remotely sensed (satellite) data needed to develop indexes such as the agricultural stress index (see figure B3.1, <http://www.fao.org/giews/crisisupdate>).

The World Bank supported the government effort to undertake the Afghanistan Living Conditions Survey (ALCS) in 2016 to produce poverty maps for each district. Combined with seasonal assessments, these outputs can clarify how and where a temporary scale-up of the regular safety net would be required most frequently. This information in turn has been used to model the potential costs of a range of options in the development of the World Bank’s Early Warning, Early Action, Early Finance project to scale existing SP programs for the poorest and most vulnerable populations. The decision-making process to release finance and scale up the support program would be defined by protocols and linked to early warning systems.

Source: CSO 2018; World Bank Afghanistan Country team.

FIGURE B3.1: AGRICULTURAL STRESS INDEX



BOX 3.2: DESIGNING ASP WITH A DRF APPROACH: KEY QUESTIONS

- **When should the SP program respond?** To what shocks? How defined and measured? Using what data or triggers? Before or only after the shock?
- **Where should the shock response be made?** What is the geographic coverage of the expanded transfers? At a regional/district/ward/other level? Should the geographic coverage depend on the shock? Who decides? On what rationale?
- **Who should benefit from the shock response?** Existing beneficiaries or other members of the population or both? How would new or temporary beneficiaries be identified and targeted?
- **What should be the value of any additional transfers?** Should there be a standard amount or one that varies according to the shock? Should existing beneficiaries get the same or more or less than temporary beneficiaries?
- **How long should beneficiaries receive a scaled-up response?** Should payments or transfers be a one-off or continue for several months after the trigger threshold has been met—e.g., until the rains come or the floods subside?

3. Establish the rules for scaling up the ASP

The next step is to determine how the ASP will adapt or scale in response to a shock. This step brings the analyses of disaster risk and vulnerability together to quantify the impact of different levels of a defined shock on specific populations and geographies. Once the range of potential impacts is quantified, it can be modeled over time. Quantifying the cost in terms of need or loss created by a shock generally involves understanding the consumption (and other essential) gaps created at the household level by the different levels of shock. However, this calculation is not the same as calculating the cost of response. This is because in almost all scenarios the needs created by any shock are almost always higher than the limited scale of assistance available. Nonetheless, understanding the total needs is an essential basis for understanding what response would be both financially feasible and significant enough to reduce or mitigate the shock's negative impact.

Quantifying the potential impact is essential in helping to address a range of other issues that affect the cost and value of any response. Box 3.2 sets out the key questions for consideration in developing any ASP program.

The answers to these questions can be used to develop a matrix into which possible variables and parameters can be inserted to support decision-making. A decision matrix or scalability framework will form the basis of the rules of an ASP scaling mechanism. Table 3.1 provides an example of the framework used in Kenya to develop the scalability rules for adapting the Hunger Safety Net Program (HSNP) in response to drought. The final framework provides the answers to the questions listed in box 3.2.

Establishing the rules for scaling up an ASP system depends on understanding the cost implications of each parameter or rule change. Consequently, a financial budgeting model linked to the framework is essential for program designers seeking to assess the trade-offs required by design choices. The model should be capable of calculating both the cost of a one-off response and the costs of operating an ASP system over the longer term (10–20 years). Establishing the rules for an ASP program is often an iterative process, as was the case in Kenya (for the HSNP) and Uganda (for the Northern Uganda Social Action Fund, NUSAF). In both these cases, many of the parameters (such as payment amount) followed the rules for the regular SP program. However, establishing rules for some parameters was more difficult: limited data on

TABLE 3.1: SCALABILITY FRAMEWORK FOR KENYA’S HUNGER SAFETY NET PROGRAM (HSNP)

Geographic Location	Trigger Vegetation Condition Index (VCI)		Drought Phase Equivalent	Maximum Coverage of HHs to receive CT	Amount of Transfer	Frequency	Duration of Transfer
Sub-County	≥50 and 35 to 50	Wet or No Drought	1 Normal	Routine HSNP HHs	Standard payment	Every 2 months	On-going
				Routine HSNP HHs	Standard payment	Every 2 months	On-going
	20 to 35	Moderate Drought	2 Alert	HHs beyond routine % only if another Sub-County in the County has hit the severe or extreme VCI threshold	Emergency payment	Every month	For each month VCI at severe drought status
				Routine HSNP HHs	Standard payment	Every 2 months	On-going
	10 to 20	Severe Drought	3 Alarm	HHs beyond routine up to approximately 50%* Coverage in each Sub-County	Emergency payment	Every month	For each month VCI at severe drought status
				Routine HSNP HHs	Standard payment	Every 2 months	On-going
	<10	Extreme Drought	4 Emergency	HHs beyond routine up to 75% Coverage in each Sub-Location	Emergency payment	Every month	For each month VCI at extreme drought status
				Routine HSNP HHs	Standard payment	Every 2 months	On-going

Source: NDMA, 2016
 Note: HH = household.

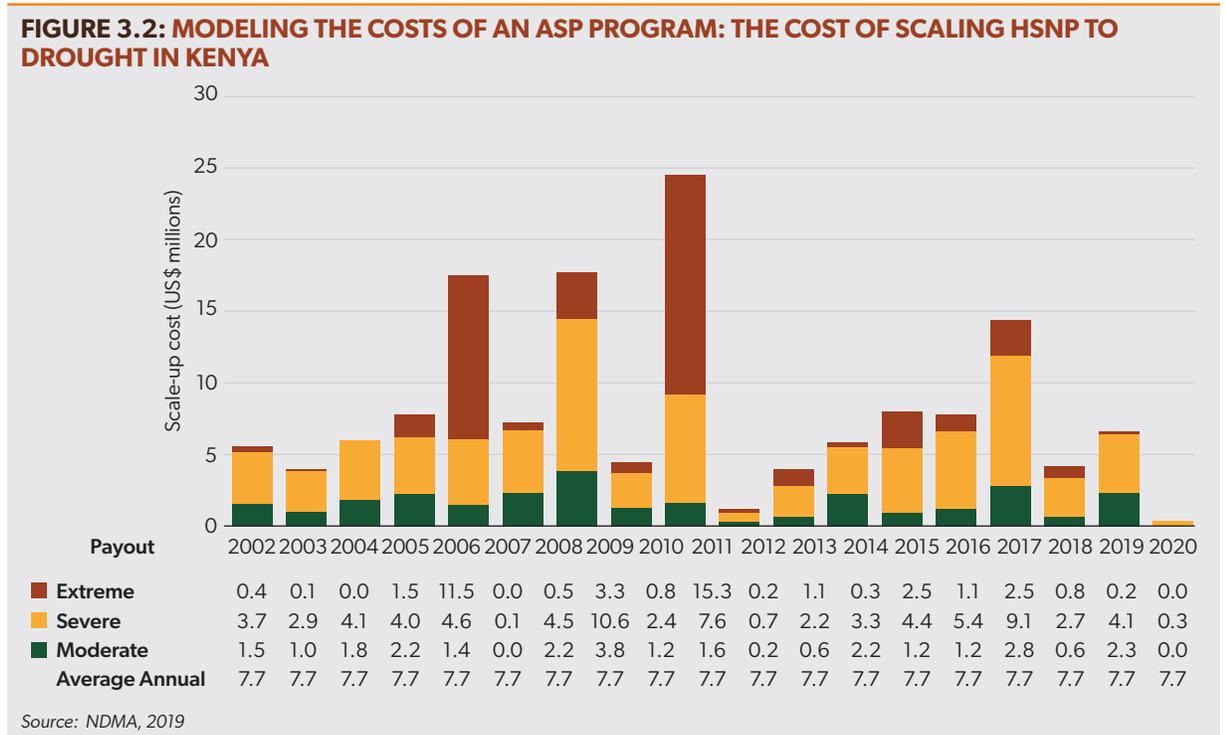
vulnerability in Kenya, for example, made it hard to understand what proportion of a population would be affected by different severities of drought. Scaling to provide 100 percent coverage was considered unnecessary (and very expensive). A maximum coverage of 75 percent was established based on analysis of the post-rains assessments undertaken twice each year to assess the proportion of the population in need of humanitarian support. Assessments during previous high-magnitude droughts had never put needs above 77 percent of a population, and on average the affected areas had identified 50 percent of households in need of food aid in drought years. Hence the scalability guidelines adopted these rates.

One of the most critical rules for scaling up an ASP program concerns the point at which a response will be triggered. Triggering too early or too often will increase costs and affect feasibility but triggering too late may undermine many of the benefits of an early response. As far as possible, decisions to scale up (or down) an ASP response should be triggered automatically using objective, pre-agreed, quantitative, and auditable indicators for which reliable, time series data exist. Using such

data removes any possibility that subjective analysis or political influence can affect decisions to expand assistance. It also means decisions are speedy and transparent to all involved. Establishing automatic and objective trigger points for response will also be an important criterion for certain potential funding sources or instruments. Increasingly, remotely sensed meteorological or agricultural satellite data provide indicators that best fulfill this criterion.

There is a risk, however, that highly objective triggers such as satellite-based indicators are too crude to capture localized hot-spot crises that arise as a result of multiple factors. The NUSAF program in the Karamoja region of Uganda adopted NDVI (an index of satellite-based observations of ground vegetation) as the primary indicator of drought to trigger a scale-up, but it also selected a secondary indicator to address concerns that a situation of need could arise that would not meet the primary trigger threshold. This secondary indicator, the Integrated Food Security Phase Classification (IPC), consolidates wide-ranging evidence on food insecurity using data from several development partners. In August 2016, the scale-up threshold of the primary indicator was met in six of the seven districts where the mechanism was operational. However, the secondary indicator showed clearly that the conditions in the seventh district were very similar, despite its failure to meet the primary indicator’s threshold for a scale-up. Based on this secondary indicator, the program was scaled up in the seventh district as well—an appropriate step given the very similar conditions in all districts across the region. The recent locust crisis in Uganda and other parts of east Africa is another example of a severe idiosyncratic shock affecting food security that would not clearly have been captured by satellite data but may be captured by a broader secondary indicator (Republic of Uganda Ministry of Agriculture, Animal Industry and Fisheries 2020).

Figure 3.2 shows the result of modeling the costs of the HSNP in Kenya based on the framework in table 3.1 under a specific set of parameter choices. The model shows the range of costs in very severe years as well as non-drought years and provides



an average over all years. The figure highlights the volatility in the funding requirements for HSNP over time, and hence suggests the challenges in allocating budget and value in risk transfer instruments. In this case, modeling has enabled policy makers to see that scaled-up payments would be required almost every year in response to severe drought, while a scale-up that triggered only in response to extreme drought would be far less frequent (and hence less expensive). This form of modeling has now been applied to other ASP programs in Afghanistan, Malawi, Niger, Senegal, and Uganda.

In practice, the rules for scaling or flexing a response will ultimately depend upon what is financially feasible (in all years) rather than the total actual needs assessed by any predictive impact model. As mentioned, in most cases the needs generated by a shock at the household level will far outweigh any response that can be provided by governments, particularly in low- and middle-income countries. Nonetheless, the model described here can assist in establishing a compromise among the different levels of response in terms of frequency, coverage, amount, etc.; it can also facilitate conversations with other potential funders. Whatever decisions are ultimately reached, the basic lesson is the same: an effective ASP must quantify the potential cost of response before the shock.

3.2 Lesson 2: Pre-plan the funding required to ensure a timely response

Ensuring funds are available when they are needed is a critical element of a DRF approach and is key for an effective ASP system. Once governments have a clear picture of the potential costs of responding to shock via an ASP system, they are far better placed to examine their risk financing options. There are two key issues here:



Timeliness: Funding sources should be identified and pre-arranged before any crisis or disaster (ex ante), avoiding the need to agree on and arrange finance during a crisis.



Risk layering: No single financial instrument can or should cover all DRF requirements, and different levels of shock (minor and frequent to severe and infrequent) are likely to require different types of financing.

Timeliness

Disasters can necessitate a range of responses that may require funding over different time scales. The immediate response operation clearly requires the most instantaneous funding, whereas recovery and reconstruction, which usually take time to get under way, do not need to be funded at once. ASP usually represents one of the most immediate forms of disaster relief, as it generally provides direct assistance to affected households. As outlined in section 2.3, the financial and human benefits of early response are significant, making it essential to provide assistance as soon as possible. Traditional humanitarian response is typically not timely; it involves waiting until a disaster has hit, undertaking a needs/loss assessment, and using the results to launch funding appeals (few of which are ever fully funded). Consequently, the humanitarian funds for emergency response arrive piecemeal and often many months after the crisis has hit.

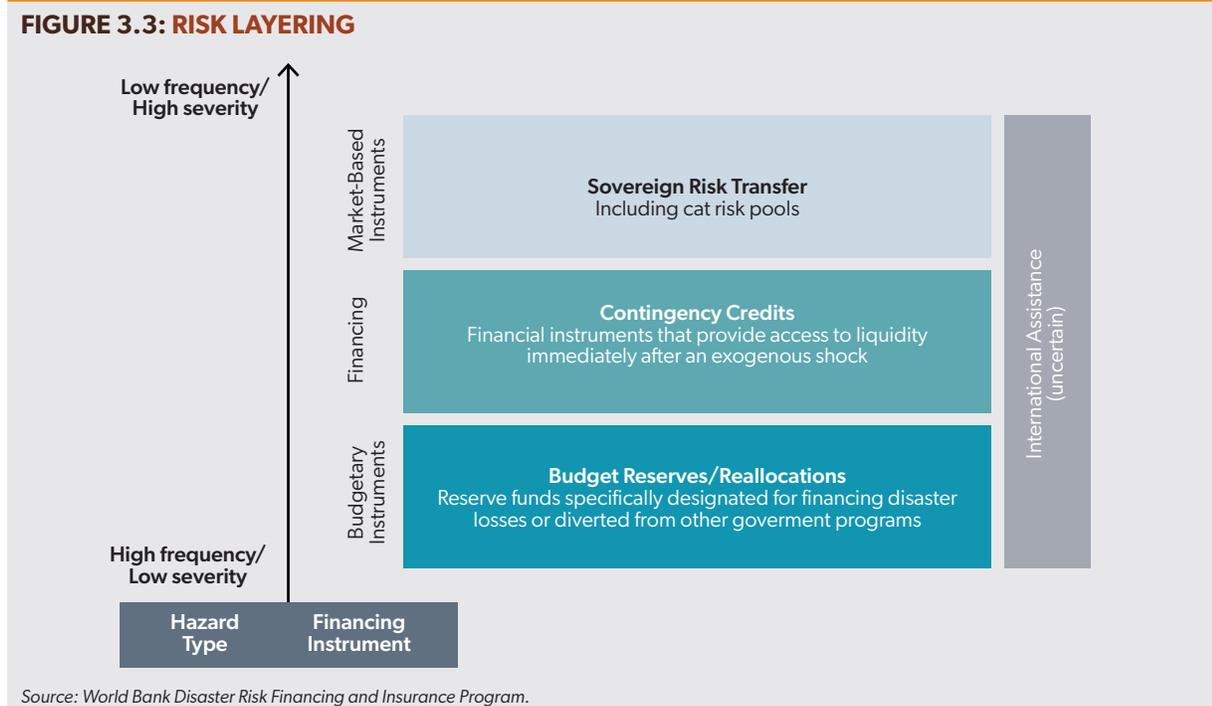
Under a DRF approach, the funding delivered when an ASP is triggered must be pre-identified and pre-positioned. The analysis and cost modeling of disaster risk and population vulnerability outlined in section 3.1 can show decision-makers how often different types of shock or disaster are likely to trigger a payout. Knowing the cost implications of different types of events allows governments to develop a pre-agreed funding plan for post-disaster response. Governments can then use this plan to put in place the requisite budgets and/or other mechanisms to ensure that sufficient and guaranteed financing is pre-positioned for each level of shock event.

Risk layering

Governments in poor countries rarely have sufficient resources to meet all needs created by disasters and may have to divert, forgo, or delay planned expenditures—actions that undermine development efforts and economic growth. DRF works to avoid this necessity by using a pre-agreed plan or strategy to identify which combination of financing sources is most appropriate for different types of shocks (by frequency and severity). This approach, known as risk layering, recognizes that every source of funding has different costs and benefits (both financial and other). A comprehensive DRF strategy or plan will assess these to ensure that cheaper sources of money are available and used first, and that the most expensive instruments are used only in exceptional circumstances.

In recent years, there has been an increase in the development and use of DRF instruments and risk-layered approaches to finance ASP responses. Most mechanisms fall into the broad categories outlined in figure 3.3 and discussed below.

Budgetary instruments (contingency/reserve funds) are used by many governments to finance emergency relief, rehabilitation, and preparedness activities. The advantage of such funds is that they are immediately available, assuming they are capitalized, and hence allow national and local agencies to develop realistic



BOX 3.3: MOZAMBIQUE'S DISASTER MANAGEMENT FUND

Mozambique is heavily exposed to multiple natural hazards, especially floods, cyclones, droughts, and earthquakes. The annual average damage caused by natural hazard events between 2000 and 2014 was estimated to be US\$188.3 million. Recognizing the magnitude of climate and disaster risks, the Government of Mozambique (GoM) has taken various steps to increase financial protection against disasters.

Until recently, an annual contingency budget allocation of around US\$2 million was the country's only ex ante financial instrument for disaster preparedness and response. The limited size of this allocation allowed the GoM to respond to small or medium-size events only. Moreover, the amounts allocated each year were not predictable. For the financing of emergency response to larger events and post-disaster recovery and reconstruction, the GoM had relied on ex post instruments, such as ad hoc budget reallocations and mobilization of donations or loans from the donor community, which are usually slow to materialize and remain insufficient to cover post-disaster recovery needs.

Recognizing this challenge, the GoM approved the creation of the national Disaster Management Fund (Fundo de Gestão de Calamidades) in October 2017 and is working toward its operationalization for 2020. This fund is a dedicated account managed by the National Institute of Disaster Management (INGC). It is expected to receive annual budget allocations of at least 0.1 percent of the state budget (a minimum annual allocation of about US\$4.5–5.0 million). The World Bank will top up the fund's allocation with an additional annual amount of US\$9 million in the fund's first two years and with US\$5 million in the following three years. The goal is to increase the availability and predictability of resources for emergency preparedness and response and make room for financing of recovery.

With technical assistance from the World Bank, the GoM has elaborated draft regulations that will govern the Disaster Management Fund. The fund will be able to support only immediate disaster preparedness and response activities. This support will be provided in kind and will be procured through pre-agreed contracts to speed up response to disasters. The fund has been designed so that it can purchase a sovereign parametric catastrophe insurance product, which could eventually provide an important backstop to the fund in the event of a large disaster. The regulations also specify, among other things, the mechanism for triggering the use of fund resources; the rules for requesting resources from the fund; requirements of pre-negotiated contracts for the delivery of specified goods; requirements for auditing the use of funds and transparency; and the concentration of fiduciary responsibility for the fund at INGC.

Source: World Bank 2019b

contingency plans. Some SP programs already include flexible or contingent budget lines that can be reallocated quickly to address minor shocks, thus avoiding bureaucratic delays (need for verification, administrative accounting, delivery scheduling, etc.). These budget funds are more effective for low- to medium-impact events that occur relatively frequently, such as localized climatic shocks like drought or short-term economic crises. The main disadvantage of such funds is the opportunity cost—i.e., the funds could be used for multiple competing needs. The fund described in box 3.3 is an example of ex ante financing for disaster response and although not specifically earmarked for ASP response a similar fund could be directly linked to finance ASP, if the triggers and delivery were aligned.

Contingent financing takes the form of ex ante loan agreements designed to give countries access to liquidity immediately following an exogenous shock.

These loans are typically offered by multilateral development banks and international financial institutions (including the World Bank, the Asian Development Bank, the Inter-American Development Bank, and the International Monetary Fund). The terms of the loan require the borrower to set out the specific triggers or thresholds used to define the shock event and the loan amount(s) or facility to be made available. The World Bank's Catastrophe Deferred Drawdown Option (CAT-DDO) (box 3.4) and Contingent Emergency Response Components (CERC) are examples of such instruments and funds that can be used for ASP.

Market-based instruments are products or agreements whereby a government transfers the risk of specific meteorological or geological events (droughts,

BOX 3.4: WORLD BANK'S CATASTROPHE DEFERRED DRAWDOWN OPTION

Developed in 2008 as the World Bank Development Policy Loan with a Catastrophe Deferred Drawdown Option, the CAT-DDO allows funds to be drawn upon declaration of a state of emergency or equivalent in the borrower's territory, as a result of a natural or health-related disaster. The CAT-DDO provides critical liquidity to enable a rapid response without compromising the availability of resources for longer-term development programs.

How it works:

1. Prior to Board approval, policy-based prior actions are completed, and a trigger is agreed upon.
2. The CAT-DDO is approved and becomes effective, but the client does not immediately draw on funds.
3. A disaster event occurs.
4. The CAT-DDO is triggered as defined (e.g., declaration of state of emergency).
5. Any portion of the funds can be withdrawn, and funds are generally received within 72 hours.

CAT-DDOs also incentivize proactive steps to reduce risk: in order to be eligible, governments must demonstrate capacity to manage the risks by strengthening the policy and financing framework for disaster risk management.

Since the introduction of the instrument, the World Bank has approved 17 CAT-DDOs for a total value of US\$2.4 billion. In response to the recent COVID-19 crisis, CAT-DDOs have been triggered in nine countries. This includes Kenya, where US\$120 million became available to support a broad range of economic policy initiatives and smooth out the macroeconomic shocks that COVID-19 is expected to impose on the government's finances.

Source: Hallegatte et al. 2017; <http://pubdocs.worldbank.org/en/526461507314946994/product-note-cat-ddo-ibrd-2018.pdf>

hurricanes, earthquakes, and floods) to actors in the market (insurance companies, reinsurance companies, banks, and investors) who are willing to accept them; or transfers the risk through regional risk pools (see box 3.5). Such products use scientific data and actuarial modeling to establish a cost (or premium) in return for a certain level of insurance cover. As with most insurance models, there is a trade-off between the cost of premiums and the frequency or scale of payout. Such instruments can be very useful for raising large sums for infrequent but extreme events.

BOX 3.5: CATASTROPHIC RISK POOLS: SOUTHEAST ASIA DISASTER RISK INSURANCE FACILITY

The Association of Southeast Asian Nations (ASEAN) is a regional grouping that promotes economic, political, and security cooperation among its 10 members: Brunei Darussalam, Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Vietnam. All are exposed to a wide range of disaster and climate risks, including floods and landslides, tropical cyclones and typhoons, earthquakes and tsunamis, and droughts and forest fires. Although ASEAN countries are all at different stages of development, the impact of disasters on each can be immense. In order to build financial resilience to a wide range of disasters across the region, the World Bank has supported ASEAN leaders in establishing the Southeast Asia Disaster Risk Insurance Facility (SEADRIF).

SEADRIF is a regional platform that supports efforts by ASEAN countries to develop and implement disaster risk finance solutions before a disaster occurs. It is based on the principle that acting together enables countries to create more efficient financial solutions.

Its first product is flood risk pool insurance for Lao PDR, Myanmar, and Cambodia. Because it is unlikely that all three countries will suffer a simultaneous loss, pooling risk reduces the total amount of capital insurers are required to set aside. It also reduces transaction costs, which would be much higher if countries bought individual policies.

The participating countries will pay a contribution and obtain three years of coverage. In the case of a qualifying flood event, they will receive a payout from the risk pool. Each country's contribution is based on its risk profile and desired level of coverage. Donors contribute seed capital and funds to cover start-up and operating costs for the development and implementation of the regional catastrophe risk pool. The World Bank is providing Cambodia, Lao PDR, and Myanmar with technical assistance and analytical support in the preparation of this pool.

Source: Southeast Asia Disaster Risk Insurance Facility, "Protect the Greatest Home of All: Our Countries," https://www.seadrif.org/images/SEADRIF_Brochure_EN.pdf.

BOX 3.6: USE OF RISK LAYERING IN ADAPTING MALAWI'S SP PROGRAM

The Government of Malawi is developing a mechanism to scale up its Social Cash Transfer Program (SCTP) in response to weather-related shocks. This will include setting up ex ante financial instruments to cover the costs of scaling up the program for defined events. With support from the World Bank's Social Support for Resilient Livelihoods Project (SSRLP), the Government of Malawi is developing the following instruments:

- **Contingent financing instrument.** This instrument will provide the first layer of financing, in particular for small/medium scale-ups in response to localized shocks. Payouts will be informed by a primary hard trigger (remotely sensed drought indexes) and secondary soft trigger (IPC or similar) used to capture the impact of pre-agreed disasters.
- **Risk transfer instrument.** Insurance will be purchased to cover disaster risk associated with large-scale, infrequent events. Insurance payouts will be linked to conditions in districts covered by the scalability operations manual based on government-owned financial model, data, and triggers.

Source: World Bank, "Social Support for Resilient Livelihoods Project," <https://projects.worldbank.org/en/projects-operations/project-detail/P169198>.

Countries can use a combination of these three instrument types (budgetary instruments, contingent financing, market-based instruments) to develop a financing plan that ensures funds are available for response to both less and more severe disasters. A good example is offered by Malawi, whose financing plan is described in box 3.6. Similar financing plans have been developed in Afghanistan, Kenya, Senegal, and Uganda.

Note that the use of pre-arranged instruments does not altogether remove the need for ex post instruments, especially for major events in which pre-arranged instruments are unable to compensate all the losses suffered by the covered households. The two most common ex post instruments are budget reallocation and humanitarian assistance:

- **Budget reallocation** is often used by governments that lack a DRF strategy, which fund most of their response ex post. For example, after Tropical Cyclone Winston in 2016, Fiji financed relief and recovery activities through the social protection system by reallocating budgeted resources from lower-priority expenditures.
- **Humanitarian (or international) assistance** remains an important source of funding for scaling SP programs in response to disaster. Humanitarian funding has several advantages: it is normally very flexible and independent of government budgets; it does not have to be repaid; and it frees up other sources of potentially more expensive funding, such as loans or insurance that may incur interest charges or premiums. The main disadvantage is that it is only available ex post—that is, once a disaster event has hit. It is therefore inherently late and uncertain. Ideally this source of funding should be only a last resort in the event of extreme disasters that exhaust all pre-planned funding sources.

Unlike budget reallocation and humanitarian aid, ex ante DRF instruments improve governments' planning and smooth disaster-related expenditures over time. The nature and range of ex ante DRF instruments continues to grow as governments work with international financial institutions and the private sector to develop bespoke solutions. Each type of funding has advantages and disadvantages (see table 3.2), which is one of the key reasons why governments are advised to consider a suite of options rather than rely on a single source.

TABLE 3.2: COMPARISON OF RISK FINANCING INSTRUMENTS

Type of instrument	Advantages	Disadvantages	Best suited for
Ex ante			
Contingency/reserve fund	<ul style="list-style-type: none"> • Can be cheap, particularly for frequent shocks • Fast • Allows implementers to plan • Allows governments to learn from experiences of others, since approach has been used in many contexts 	<ul style="list-style-type: none"> • Requires fiscal discipline • High opportunity cost of funds, given high rates of return on other government investments • Can be hard to defend annual allocations 	<ul style="list-style-type: none"> • Low risk layer: frequent low-level events such as annual flooding or localized drought or conflict
Contingent credit	<ul style="list-style-type: none"> • Can be cheap, particularly for mid-frequency shocks • Fast, if conditions are met • Allows implementers to plan • Can incentivize proactive actions to reduce risk (e.g., CAT-DDO) 	<ul style="list-style-type: none"> • Has conditionality • Entails opportunity cost of loan • Adds to country's debt burden; must be repaid 	<ul style="list-style-type: none"> • Middle risk layer: higher magnitude events that occur less frequently but cause damage that exhausts the resources of national contingencies, such as widespread flooding or hurricanes
Market-based risk transfer instrument	<ul style="list-style-type: none"> • Leverages additional finance for infrequent events, making them more cost-efficient • Can be fast to disburse • Allows implementers to plan • Supports fiscal discipline • Promotes risk diversification 	<ul style="list-style-type: none"> • More expensive for frequent shocks • Can be vulnerable to criticism and "regret" • Can miss need • Requires a level playing field to negotiate • Entails trade-off between the cost of premiums and the frequency or scale of payout 	<ul style="list-style-type: none"> • High risk layer: extreme, less frequent events occurring less often than every 5–10 years, such as severe droughts, hurricanes, or earthquakes
Ex post			
Humanitarian assistance	<ul style="list-style-type: none"> • Flexible; can respond to need • Doesn't have to be repaid 	<ul style="list-style-type: none"> • Can be slow, so the hazard impact increases • Can be unreliable • Undermines planning 	<ul style="list-style-type: none"> • Only as a last resource
Other ex post instruments (e.g., budget reallocation)	<ul style="list-style-type: none"> • Offers lessons from experience, since approach has been used in many contexts 	<ul style="list-style-type: none"> • Can have negative impact on long-term development/investment programs • Can be expensive 	<ul style="list-style-type: none"> • Only as a last resource

Source: World Bank Disaster Risk Financing and Insurance Program.

Assessing the most appropriate combination of instruments to fund an ASP program will depend on a range of factors:

- **Frequency and scale of disaster:** The frequency and predictability of natural hazard events and the scale of impact when they hit is a big determinant of what type of instrument is appropriate. For events requiring frequent payment, the creation of a national contingency fund would be a reliable and cost-effective financing instrument. In situations where the primary disaster risks are not predicted to occur particularly frequently (say every 5 to 10 years), it is better to arrange contingent lines of credit, possibly combined with some form of risk transfer instrument.
- **Timeliness:** ASP cash payments are generally required as soon as possible—that is, they must be rapidly mobilized once a scale-up is triggered. This

means financing instruments such as contingent loans and insurance may need to be able to deliver resources to governments within days, not weeks or months.

- **Cost of capital:** Each form of funding incurs some form of cost, such as the opportunity cost of keeping government funds in a contingency fund (often unused), the cost of borrowing for a contingency loan, or the premium payments for insurance cover. It is useful for governments to consider the relative cost of each source of funding for each US\$1 of disaster response provided. The World Bank recently published a framework for evaluating the economic costs and benefits of different DRF instruments (Clarke, Mahul, et al. 2016). In Ethiopia the framework was used to examine various options for expanding the PSNP, comparing the cost and benefits of different illustrative risk financing strategies (Clarke, Coll-Black, et al. 2016).
- **Quality of risk information:** The first lesson on a DRF approach to ASP highlighted the need for pre-disaster analysis to understand the potential costs of disaster response in the short and long term. The quality of data and information available will determine the effectiveness with which risk finance and insurance instruments are triggered and used. Continuous high-quality data enable fine-tuning of such instruments and make them most cost-effective over time.
- **Fiscal constraints and discipline:** Paying for DRF instruments requires significant financial space and discipline by governments on an ongoing annual basis. Ultimately, political will is critical to ensure a DRF approach is implemented in practice. In low income countries with limited fiscal space, there is a strong onus to prioritize funding for regular SP programming above shock response. Not all governments have the financial capacity to set aside significant sums for contingency reserves or insurance premiums each year, given the related opportunity cost in times of very challenging fiscal constraints. Therefore, budget allocated for DRF needs to be realistic in relation to overall government resources. It is also the case that political instability may result in policy changes that undermine agreements and relationships with financial partners. For example, field researchers in Lesotho, Mali, and Pakistan were told of disaster contingency funds that had been set up but were standing empty (O'Brien et al. 2018). Situations like this cause DRF efforts to lose credibility, particularly when citizens are promised payments or benefits that fail to materialize in times of need (or at all).
- **Risk ownership:** It is important to understand who owns the risk associated with each and every financing instrument. In the absence of clear rules regarding who is liable for what share of costs, delays can occur in post-disaster response and recovery. Additionally, if liabilities turn out to be higher than predicted, it may not be clear who is responsible for additional costs (World Bank 2017).

3.3 Lesson 3: Put effective delivery mechanisms in place

How funding reaches beneficiaries is as important as securing funds in the first place. Having funds available in country is of limited benefit if they cannot be transferred to the disaster-affected communities when they are required. One of the reasons why there has been so much interest in the concept of ASP is that SP programs are very often the only government programs already regularly transferring cash (or in-kind benefits) to large numbers of households. Where these existing systems for delivering benefits in country are strong, there is the potential to “piggyback” on them in times of emergency. Given that the cost and time of developing ad hoc solutions in the aftermath of a shock can be prohibitive, this use of existing systems substantially increases the cost-effectiveness of a response (O’Brien et al. 2018)—for vertical and horizontal expansions of existing programs as well as for new programs that build on existing systems.

Effective delivery mechanisms should be designed to avoid the factors that can delay delivery of transfers. Well-functioning systems should take into account release of funds, payment mechanisms, coverage of SP programs and social registries, and reconciliation.

Release of funds

Delays in the delivery of disaster funding, even when such funding is available, can cause knock-on delays in beneficiaries’ receipt of transfers. It is crucial to have clear, pre-agreed procedures and protocols to transfer disaster response budgets to the ministries or departments operating the relevant SP program, but these are often lacking. In the Philippines, for example, despite the existence of contingency financing mechanisms for disaster response, there were administrative delays in releasing emergency funding to the department overseeing response to Typhoon Haiyan (O’Brien et al. 2018). Robust processes to approve and release funds across departments and down to local levels need to be in place before any shock hits.

Payment mechanisms

A key factor affecting the delivery of funds is the existence of effective payment systems. The challenges and opportunities of last-mile delivery to beneficiaries vary dramatically depending on the payment system adopted for routine SP programming. Countries use a range of modalities, including manual systems, electronic transfer to bank accounts, and new technologies such as mobile phones. Scaling up manual systems tends to increase costs linearly in line with the numbers assisted. Establishing electronic payment systems can also be very costly initially and will delay assistance if the infrastructure is set up during or in response to crisis. Nonetheless, e-payment systems are increasingly being introduced to channel private payments and remittances as well as SP payments.

Once established, automatic electronic payment systems provide a fast and very efficient mechanism to disburse cash for both regular and emergency programs. This makes a strong case for putting such systems in place before disasters, particularly in places that are chronically affected by shocks. In Kenya, for example, households that were not identified for regular cash transfer payments from the HSNP

were pre-enrolled and pre-allocated a bank card and account as part of the initial establishment of the program. This facilitated scale up to any proportion of households across the area. It also had the positive side effect of substantially increasing financial inclusion in the target area, as the share of households with bank accounts rose from negligible to over 90 percent.

It is also important to consider how robust any SP payment system is likely to be in the face of a severe shock. Some disaster events, such as earthquakes and hurricanes, may destroy roads and other key infrastructure and thus prevent the physical distribution of cash. Even electronic or mobile payment platforms may be affected if banks are destroyed or mobile communications disrupted. Nonetheless, mobile money does have advantages in terms of speed, accuracy in targeting, and flexibility, even in challenging environments.

Coverage of SP programs and social registries

The stronger the delivery mechanisms of existing SP programs, the higher the potential to piggyback on them in times of emergency. Using an existing system substantially increases the cost-effectiveness of a response. Broadly, vertical expansions to routine beneficiaries will be comparatively easy to implement in a timely and effective manner, as no (or few) new systems need to be set up (since recipients are already registered to receive transfers immediately). Horizontal expansions to new beneficiaries (who are not included in the existing program) can be much harder. Undertaking beneficiary registration and selection processes for any form of transfer in the immediate aftermath of a disaster can incur significant time and resources. The problem is exacerbated if routine SP beneficiaries are geographically or demographically different from those affected by a shock.

A well-maintained social registry, where a large proportion of a population have been enumerated before a crisis, can make it possible to introduce dynamic targeting for emergency response based on demographic, socioeconomic, and location information. Centralized or social registries with data on both actual and potential social assistance beneficiaries are being developed in several countries; see box 3.7 for the example of Brazil.

Reconciliation

When SP programs scale up for disasters the funding often comes from separate donors or budgets and therefore there are multiple different processes with respect to any reconciliation requirements, which can pose a challenge for

BOX 3.7: BRAZIL'S SOCIAL REGISTRY

In Brazil, individuals can register at any time in the Cadastro Unico administrative registry. The registry updates information at least every two years, meaning it is useful for capturing changes in circumstances. The registry includes households with a per capita income below half the national minimum wage, a threshold that is higher than the eligibility threshold of other social transfer programs, and that covers households who are not currently beneficiaries of social protection but are considered some of the most vulnerable to economic shocks or disasters. This feature ensures that the Bolsa Familia cash transfer scheme can be rapidly adjusted to include a new caseload when shocks occur.

Source: McCord 2013.

a timely response. In the reconciliation process for routine social protection payments, the amount paid to the payment provider (whether a private contractor or a government counterpart) is reconciled with the amount that the provider has actually disbursed to beneficiaries. If data management is electronic (e.g., via a program management information system), a reconciliation statistics report is drafted to identify who received payments and to look for possible inconsistencies (TRANSFORM 2017). When funding comes from separate budget envelopes (such as development and humanitarian partners) with different underlying financial procedures relating to source and flow of funds, delays may occur, since payments must be reconciled before funds for future payments will be released. Electronic records and transparent data collection and financial management systems can make a significant difference in this regard by speeding up the reconciliation processes.

4

Applying DRF
Lessons to
**COVID-19 ASP
RESPONSE**



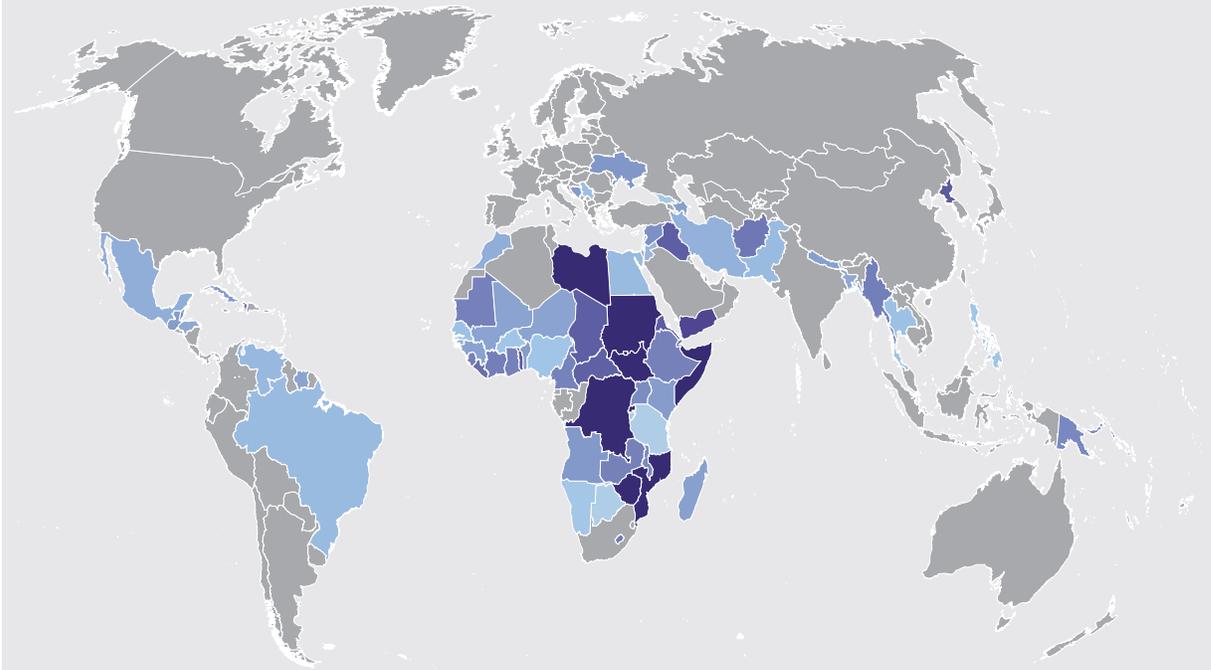
This section suggests how the DRF lessons discussed above can be applied to ASPs responding to the COVID-19 outbreak, and highlights several issues related to the design of such ASP mechanisms. The global health and financial shock from COVID-19 will have an impact on household welfare and most likely push more people into poverty and food insecurity. In recent months, the number of countries that have planned, introduced, or adapted social protection measures in response to COVID-19 has quadrupled, and the number of measures themselves has increased eightfold. As of July 2020, almost every country or territory had prepared or implemented some ASP measures in response to the pandemic (Gentilini et al. 2020).

Governments may find it tempting to deprioritize financial preparedness for future risks, given the costs associated with meeting existing needs; but the COVID-19 crisis has shown that better-prepared countries were able to act earlier and have so far fared better. The SP sector provides important lessons for managing future risks. Having an effective strategy for managing risk in place ensures that financial resources can be available when needed and at the lowest cost possible. It is important that governments not lose sight of the funding needed to respond to upcoming crises.

Lesson 1—understand the potential cost before the disaster—is highly applicable to the COVID-19 crisis. This crisis will not be a short-duration or acute disaster, but a chronic one that is generating relatively long-term impacts. It is also unlikely to be a one-off event, as experts expect future waves of infection to return to countries, even those where an initial impact was limited. To respond effectively, it will be necessary to understand the potential costs of the current crisis and any future COVID-19 crises—that is, the scale of the need or impact. As outlined in section 3.1, estimating these costs involves a systematic assessment of disaster risk and the vulnerability of affected populations. There are several notable issues here:

- It is important to understand what need or impact is being quantified for household SP support. Most of the economic impacts on households are not a direct result of the virus, as very few households have infected members who can no longer work. Instead, the major economic impacts arise as a result of the public health measures put in place (locally and transnationally) to control the spread. The economic downturn in many low-income countries is emerging as severe and widespread.
- The fiscal, economic, and health impact of COVID-19 could be further amplified by the impacts of future climatic disasters, which disproportionately impact the most vulnerable. When two or more risks interact, the potential collective effect—called compounding risk—can be greater than the sum of its parts. In many emerging and developing economies, the full economic and social effects of the crisis may not come for some time. Over this period,

FIGURE 4.1: SEASONAL RISK FACTORS COMPOUNDED BY COVID-19-DRIVEN ECONOMIC AND FISCAL VULNERABILITIES: GLOBAL HOT SPOTS



Source: World Bank Disaster Risk Financing and Insurance Program, using seasonal forecast data from UK Met Office. Note: Darker coloring denotes greater vulnerability.

countries may experience another form of shock (e.g., drought, floods, storms) that could interact with COVID-19 to worsen the impacts of the shock and cause their negative impacts to persist for longer durations. With government fiscal stimulus spending soaring and revenues falling, the fiscal capacity to absorb and respond to other shocks will be further restricted. By combining data on seasonal cycles, seasonal forecasts, and preexisting economic and financial vulnerabilities, it becomes possible to identify potential hot spots of risk over the coming 6–12 months (figure 4.1). For countries in such higher-risk regions, it will be more important than ever to monitor risks, revisit plans, and have financial protection in place.

- The data and analytics on the spread of COVID-19 were initially limited, though more data are becoming available over time. Data on the economic impact of the crisis are still limited, given the inherent time lag in getting economic data. In the face of this situation, the most important use of data and analytics is to work out the rules for any ASP response. Given the likely mismatch between need and resources, the priority is to develop models that help ensure any scaled assistance is targeted as effectively as possible.

Lesson 2—pre-plan the funding required to ensure a timely response—also has important implications for the COVID-19 crisis. Given the enormity and urgency of the crisis, there is huge pressure on governments to respond, and to fund the response with any available resources. In many cases, disaster response or contingency budgets established for other disasters (e.g., droughts or hurricanes) are likely to be repurposed for the COVID-19 crisis. Alternatively, and more commonly, scale-ups via any SP systems will be funded using ad hoc budget reallocations. In either case there is a good chance that funds (government and humanitarian) will be quickly exhausted by the crisis. Consequently, governments will need to develop or continually update disaster risk financing plans to ensure funding is available when the next disaster strikes.

A couple of other points are relevant here:

- Few countries are likely to have purchased sovereign pandemic insurance, but the inclusion of such insurance in any existing or emerging risk protection strategy is clearly worth examining for any future health crises. Given the rarity of pandemic events such as COVID-19, instruments such as contingent credit and risk transfer will likely be preferable to holding money aside in a fund due to high opportunity cost.
- Recognizing the chronic nature of the economic hardship likely to be created by the COVID-19 crisis and modeling the actual response required will assist governments in fiscal planning and realigning investment and also help them establish debt repayment priorities.

Finally, Lesson 3—put effective delivery mechanisms in place—poses particular challenges in light of the nature of the shock. One feature of the COVID-19 pandemic is that its economic impacts are being felt by populations (defined both geographically and demographically) that are not normally highly affected by climatic shocks such as drought—that is, urban dwellers and economically active working-age populations. Existing SP systems do not necessarily register or include these populations. In Kenya, the government’s National Safety Net Program (NSNP) has registered over 1 million beneficiaries; but less than 1 percent of these are registered in Nairobi, the initial epicenter of the nation’s COVID-19 crisis.

To register and enroll these newly affected populations warrants some innovative thinking. Collaboration with private and community sectors could prove highly efficient in expanding registries of potential SP beneficiaries. For example, in Ethiopia’s free-trade zones, some large employers have had to lay off thousands of workers due to drops in demand. It might be possible to use employers’ payrolls to transfer temporary SP payments to these individuals while COVID-19 affects production.

The widespread use of mobile phones and other digital technologies should also be considered as means to deliver assistance on the ground. In Kenya, key mobile network providers are able to identify where phone users live based on GIS tagging. Cash transfers via mobile phones could be made to individuals living in the poorest areas, where the economic impacts are known to be worst.

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