Building Resilience of the Urban Poor

The Potential for Disaster Risk Financing Solutions Used by Microfinance Institutions

Climate change will increase poverty, particularly among the urban poor in emerging economies. Innovative financial solutions are needed to build climate resilience and enable the urban poor to rebuild their livelihood strategies immediately after a geophysical shock. To that end, microfinance institutions can use disaster risk financing solutions to rebuild their balance sheet immediately after a shock, which will spur recovery lending and access to financing.

Background

The urban poor are notably vulnerable to climate change and geophysical shocks.[1] Geophysical shocks push the working poor into poverty traps. Rapid urban growth places cities in low- and middle-income countries in a particularly difficult position given their limited resources to improve planning, infrastructure, and services to respond to geophysical shocks. The urban poor lack access to many basic services such as clean water, sanitation, good infrastructure, and safe-resilient housing.

This publication is the executive summary of Building Resilience of the Urban Poor: The Potential for Disaster Risk Financing Solutions Used by Microfinance Institutions, a Technical Assistance (TA) Consultant Report completed in June 2022 under TA 9513-REG: Advancing Inclusive and Resilient Urban Development Targeted at the Urban Poor.

[1] Geophysical hazards include extreme weather events, seismic events, and pandemics.

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Next to this backdrop, resilience against climate change will become increasingly difficult as the world faces increasing flooding events; more frequent and longer heat waves; and stronger tropical cyclones accompanied by stronger wind, more flooding, and sea surge (UNDP 2018).

The pandemic and climate change have added 100 million to the ranks of the world's extremely poor, and climate change will add another 68 million to 132 million by 2030 (World Bank 2020). Urban populations will comprise 68% of the world's population by 2050 (UN DESA 2018). In Asia and the Pacific, this means 3.3 billion people will live in urban areas. Countries like Bangladesh (40% urban) and Indonesia (57% urban) are experiencing this rapid growth while already experiencing a shift in poverty trends. For example, *The Jakarta Post* reported that urban poverty increased from 9.86 million in September 2019 to 11.16 million people in March 2020. This was a 13.2% increase as opposed to rural poverty which grew about 2.2% over the same time (Samir 2020). Geophysical shocks compound the increase in urban poverty in Asian countries like Bangladesh and Indonesia (Table 1).

Table 1. Geophysical Hazards in Indonesia and Bangladesh

Hazard	Indonesia	Bangladesh
Tsunami	9.7	8.2
Earthquake	8.9	9.2
Flood	8.1	10
Epidemic	7.0	7.6
Tropical Cyclone	6.1	6.9
Drought	3.4	4.7

Note: The highest risk is 10.
Source: Statista Risk Index (accessed 1 June 2022).

ACKNOWLEDGMENTS

This publication was prepared under the guidance of Josh Ling, climate change specialist and fund manager, Asia-Pacific Climate Finance Fund (ACliFF), and Arghya Sinha Roy, principal climate change specialist and team leader of regional technical assistance for Advancing Inclusive and Resilient Urban Development Targeted at the Urban Poor supported by the Urban Climate Change Resilience Trust Fund, Sustainable Development and Climate Change Department (SDCC), Asian Development Bank.

Jerry Skees developed the content of this publication taking into consideration the various projects implemented by GlobalAgRisk and Global Parametrics, which provided context and core material for this publication. Brigitte Balthasar, senior disaster and climate risk financing specialist, SDCC, reviewed this document and provided technical inputs.

Design and layout were made by Lowil Fred Espada.

Building Resilience Against Climate Change and Geophysical Shocks

Economic development supporting small and medium-sized enterprises contributes to the resilience of the poor and vulnerable, including in urban areas. Building resilience against the impacts of climate change and geophysical shocks is critical for economic development and poverty reduction. Microfinance institutions (MFIs) operating in countries like Bangladesh and Indonesia are well-positioned to be part of the solution (Khandker et al. 2016). Additionally, MFIs in the region have a good history of serving women. Recent studies for urban MFIs operating in Bangladesh show contributions to "savings, educational expenditure, and transportation expenditure," which increases labor mobility (Hossain and Wadood 2020). Additionally, there are improvements in "housing, utility usages, water and sanitation" all having the potential to increase resilience (Hossain and Wadood 2020). MFIs in Bangladesh and Indonesia by and large focus their lending in urban areas. Some of the MFIs are concentrated in a single urban area. These concentrations compound the problems created by a geophysical shock.

Climate change and geophysical shocks are creating an unresolved conundrum whereby the very financial institutions (MFIs) relied upon by the poor are also especially vulnerable to geophysical shocks, meaning that they are in a poor position to help their community when they are needed the most. The balance sheet of the MFIs suffers, which means that they cannot respond to the community—either through recovery lending or by offering other forms of response immediately after the shock. This is particularly true for smaller and geographically concentrated MFIs operating in urban areas. A key to resolving this conundrum must include ex ante financing to rebuild the balance sheet quickly. Disaster risk financing (DRF) solutions are designed to do that.

Efficient DRF solutions can be used to facilitate MFI recovery lending as an essential facet of building the resilience of the poor and vulnerable and, in turn, their communities. Successful investments immediately after extreme geophysical events that destroy productive assets would constitute an important risk mitigation strategy. Fresh experience with how a geophysical shock challenges the livelihood strategies of the poor can result in new and more resilient strategies.

Due to the highly correlated characteristic of geophysical shocks, many MFI clients are impacted at the same time. For clients with loans, their livelihood strategy is disrupted and they may lack the cash to service the loan payments. For clients having deposits in the MFI, the geophysical shock creates the conditions to withdraw savings. Thus, unlike deaths of clients that are largely independent and can be managed by the MFI with credit-life insurance, geophysical risk must be

Disaster risk financing solutions are designed to provide rapid financing to an MFI when there is a geophysical shock. They comprise a comprehensive approach using event-based products and statistical methods for risk analysis to predetermine the return period of a geophysical shock. Return period analysis for the risk exposure is used to organize efficient ex ante triggers using a risk layering approach for financing from reserves, contingent credit, and risk transfer. More infrequent events are more severe and require greater financing.

managed by diversifying risk via more sophisticated solutions that include accessing global capital markets for the risk-transfer component of DRF solutions.

MFIs have used DRF solutions to either expand lending into vulnerable regions or to pre-plan recovery lending programs. In Peru, Caja Nuestra Gente purchased an insurance product to cover climate risks corresponding to the El Niño-Southern Oscillation (ENSO)[2] with the explicit goal of expanding lending in the impacted regions (Collier 2020). VisionFund International (VFI) developed a more comprehensive DRF program called The African and Asian Resilience in Disaster Insurance Scheme (ARDIS) supporting balance sheet protection to spur recovery lending in 26 of the MFIs in their microfinance network as of 2021 (VisionFund 2021). Enabling Qapital as a microfinance investment vehicle has developed a "Climate Resilience Enhanced Debt" product that follow some of the structures used by VFI (Enabling Qapital n.d.). Both VFI and Enabling Qapital work with Global Parametrics on event-based risk transfer structures for geophysical shocks using the parametric structures to trigger internal reserves, options on contingent credit, and risk transfer flowing in as capital via subordinate debt.

A significant financial innovation is use of a single debt instrument to wrap normal credit with contingent credit and contingent capital together into one loan agreement. Contingent credit rebuilds liquidity and contingent capital flows with risk transfer (insurance-like) instruments that are treated as subordinate debt and can be quickly converted to capital under Basel. The risk transfer goes to the global capital markets (reinsurance and insurance-linked securities).

While the progress being made by programs like VFI and Enabling Qapital is promising, the novelty of these programs remains a serious impediment to their adoption. As with any innovation, it takes time and experience to gain traction. While a good case can be made that maintaining a strong balance sheet after a geophysical shock increases the likelihood that the MFI will continue to grow and that this alone may represent enough benefit to incur the cost of DRF solutions, the evidence will take years to build when this primary benefit is hidden and only can be experienced when there is an infrequent geophysical shock (e.g., a shock that occurs maybe every 25 or 50 years). Insurance markets for property and casualty losses fit this profile in developed countries where, without a combination of regulations and subsidies, the public good of development of insurance markets would be suboptimal. Certainly, without some stronger institutional support, DRF solutions that typically require scale for a one-off transaction will only be available to larger financial institutions— bypassing MFIs that are geographically concentrated in urban settings.

[2] The ENSO is a recurring climate pattern involving changes in the temperature of waters in the central and eastern tropical Pacific Ocean.

Efficient Disaster Risk Financing Solutions That Crowd in Private Capital

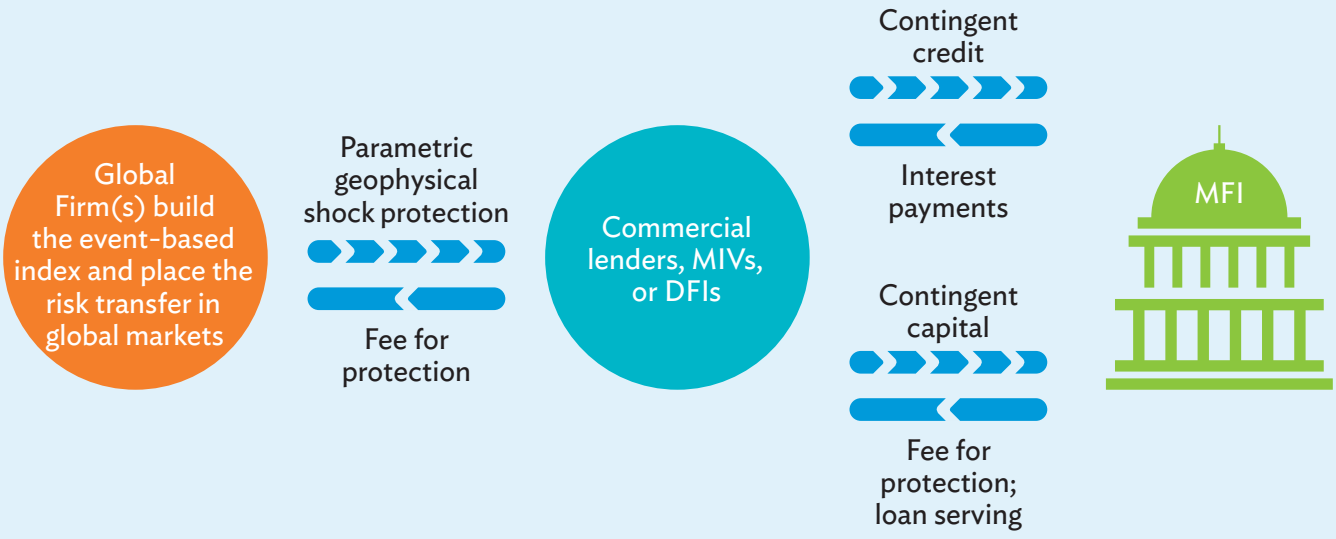
To implement efficient DRF solutions, three primary parties are needed. A commercial lender (private capital) will serve as the intermediary between the global risk transfer markets and the MFI using a debt agreement that has contingent credit and contingent capital as depicted in Figure 1.

This structure facilitates the following:

- **Parametric geophysical shock protection.** This is geophysical shock risk protection per tailored index; payouts are based solely on index trigger.
- **Contingent credit.** This is a senior loan at pre-agreed terms that can be drawn down at different amounts depending on the severity of the geophysical event as defined by the parametric index.
- **Contingent capital.** Tier 2 capital or Tier 1 capital at pre-agreed terms based on the severity of the geophysical shock as defined by the parametric index; possible mechanisms could include senior loan conversion to sub-debt, loan forgiveness, or distressed debt purchase. For the example presented in the succeeding paragraph, the focus is on Tier 2 capital via subordinated debt.

As an example, consider an MFI operating in an urban market in Bangladesh wishing to structure DRF solutions for tropical cyclones. The MFI has a loan portfolio of $100 million with an average non-performing loan (NPL) ratio of 5%.[3] They are very conservative and maintain a loan loss reserve of 100% of the average NPL or 5% times $100 million ($5 million). For this MFI, the commercial lender is willing to provide contingent credit only if the MFI maintains a capital adequacy ratio of 15.5%

Figure 1. Flow of Funds from Risk Transfer Firms and Commercial Lenders to Microfinance Institutions



DFI = development finance institution, MFI = microfinance institution, MIV = microfinance investment vehicle.
Source: Author.

Table 2. Example Structure for Contingent Credit and Contingent Capital

Tropical Cyclone	Loan Loss Reserve	Contingent Credit	Risk Transfer Contingent Capital Paid by MFI	Risk Transfer Paid by Commercial Bank
Category 1	Up to $5 million	$0	$0	$0
Category 2	Up to $5 million	$0	$0	$0
Category 3	Up to $5 million	Up to $4 million	$0.8 million	$0.8 million
Category 4	Up to $5 million	Up to $8million	$1.6 million	$1.6 million
Category 5	Up to $5 million	Up to $10 million	$2.0 million	$2.0 million

MFI = microfinance institution.
Source: Author.

(above the regulatory requirement) and if the MFI purchased risk transfer that will protect recovery loans that follow a shock for up to 20% the default rate. Recovery loans have been shown to perform as well as normal loans, meaning that the 20% default rate is highly conservative.

In this stylized case, the risk transfer amounts will be equally divided so that 50% of the payments go to the MFI in the form of subordinated debt that will be forgiven and counted as capital on the MFI balance sheet. The other 50% flow to the commercial lender to protect the contingent credit for the potential 20% default rate. The default rate crowds in the contingent credit (in this case at a ratio of 1 to 5). The structure appears in Table 2 where only the category of the tropical cyclone as it crosses into the zone of lending for the MFI is used to trigger the financing.

As a reminder, the loan loss reserve and contingent credit can be used at the discretion of the MFI. This means that the MFI can use any amount up to the maximum values matching the specific category of a tropical cyclone. However, the commercial lender may have some minimum requirements for use of the loan reserve as a condition for providing contingent credit. The commercial lender has a legal obligation to provide the amount of contingent credit requested from the MFI up to the amount that matches the shock and the level in Table 2.

The risk transfer is also a legal obligation from a global risk provider who must pay the full amount in each category. Of note, blending financing in this way also mitigates basis risk from the risk transfer contract. For example, if the risk transfer does not pay what is needed, there are two other forms of financing (reserves and contingent credit) that can be more fully used. If the needs are less than anticipated (i.e., risk transfer pays more than needed), the MFI would use less of the reserves and contingent credit.

The benefits from this DRF solution flow to the key stakeholders as follows:

- The commercial lender is securely increasing their lending when there is a shock.
- The MFI is getting access to contingent credit and contingent capital to quickly rebuild the balance sheet and continue business largely uninterrupted, meaning their growth continues.
- MFI clients benefit by using recovery lending to rebuild their livelihoods despite the geophysical shock.
- Society benefits by building resilience of the MFIs and their clients

Importantly, given the composition of MFI clients, most of these benefits will flow to women.

[3] Defined as loans that are greater than 30 days in arrears.

Public Investment in an Emergency Liquidity and Capital Fund

To accelerate the adoption of DRF solutions for MFIs in Bangladesh, Indonesia, and other markets of Asia and the Pacific, it is recommended that the Asian Development Bank create a dedicated facility to address what are likely the two largest obstacles to using DRF solutions:(i) reluctance to pay for largely untested DRF solutions and (ii) reluctance from commercial lenders to offer contingent credit. The challenge for any commercial lender offering contingent credit for shocks that happen infrequently is that, if not managed properly, they will have large amounts of idle capital. The commercial lender will need the services of the risk provider (e.g., a global reinsurer) to optimally manage a portfolio of contingent debt.

The facility could be named the Emergency Liquidity and Capital Fund (ELCF). Such a facility could be capitalized through support from the Asia-Pacific Climate Finance Fund[4] (ACliFF), other donors, or even a commercial lender, and would be managed as a microfinance investment vehicle that works across the region. The ELCF would be serviced by a risk-modeling firm with experience in evaluating event-based products. Numerous global companies can be utilized to build parametric structures and to place the risk in global markets. The ELCF would have a special purpose and strong governance to assure that the dedicated funds were being used to spur DRF solutions. Premium support would have a limited life and represent a large share of the use of funds in the early years but would be eliminated at a later stage (e.g., after 5 to 10 years). When the premium support is fully used, the ELCF would be a fully dedicated and sustainable fund providing contingent credit and supporting DRF solutions.

The respective management and governance structures would oversee how a commercial lender and MFIs obtain premium support for the risk transfer. The commercial lender and the MFI should pay some share even in the first year (e.g., 25%). However, these shares would increase over a defined period until the full cost is paid (e.g., 5 to 7 years). The core idea is that the commercial lender and the MFI follow structures such as those presented here where both are using the same structure in equal portions. In this type of structure, the risk transfer acts as a loan guarantee. In Table 2, the risk transfer crowds in contingent credit at a ratio of 1 to 5. The contingent credit is returnable capital with profits.

While the ELCF is an ambitious program, it should be viewed as a unique model to address the market failures slowing the adoption of DRF solutions as those presented in this paper. It would open the way for increasing liquidity (contingent credit) and capital (contingent capital) immediately when there is a geophysical shock. The ELCF also offers the best option for reaching smaller MFIs that have the greatest need for DRF solutions. The entire system would address the greater needs in making MFIs an essential agent in building resilience against climate change for the livelihoods of the poor, businesses, and communities—all of which lead to poverty reduction, economic growth, and conflict mitigation.

[4] ACliFF supports the development and implementation of financial risk management products that can help unlock capital for climate investments and improve resilience to the impact of climate change. ADB. Funds and Resources. Asia-Pacific Climate Finance Fund.

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Publication Stock No. ARM220453-2 DOI: http://dx.doi.org/10.22617/ARM220453-2 pubsmarketing@adb.org