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DRAFT

Disaster Risk Finance Country Diagnostic Note: Myanmar

Disaster Risk Financing & Insurance Program

SUPPORTED BY WORLD BANK GROUP

THE ROCKEFELLER FOUNDATION

GFDRR Global Facility for Disaster Reduction and Recovery

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Acknowledgements

This note has been prepared by a team of the World Bank Disaster Risk Financing and Insurance Program (DRFIP) led by Olivier Mahul (Disaster Risk Financing and Insurance Global Lead and Program Manager) and comprising Benedikt Signer (Financial Sector Specialist), Naomi Cooney (Financial Sector Specialist), Thu Hang Vu (Consultant), and Hideaki Hamada (Senior Financial Sector Specialist).

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ABBREVIATIONS

ASEAN	Association of Southeast Asian Nations
Cat DDO	Catastrophe Deferred Drawdown Option
CRW	Crisis Response Window
Cat DDO	Catastrophe Deferred Drawdown Option
DRF	disaster risk finance
DRM	disaster risk management
IDA	International Development Association
IRM	Immediate Response Mechanism
JICA	Japan International Cooperation Agency
NNDMC	National Natural Disaster Management Committee
RRD	Relief and Resettlement Department
UNFCCC	United Nations Framework Convention on Climate Change

CURRENCY EQUIVALENTS

(Exchange rate used as of July 2016)
Currency unit = K (Myanmar kyat)
US$1 = K 1170
Fiscal year = April 1–March 31

Executive Summary

Myanmar faces regular severe natural disasters. The country is exposed to floods, landslides, tropical cyclones, drought and earthquakes. In 2008, Cyclone Nargis devastated coastal communities, leading to the death of over 138,000 people. Catastrophic floods in 2015 floods and landslides are estimated to have caused production losses to the economy in 2015/16 of about 1.7 percent of the previous year's GDP. Approximately 70 percent of the country's population still depends on subsistence agriculture in rural areas, with their livelihoods at risk of flooding and drought.

Disasters in Myanmar drain government resources. The government does not currently have a strategy or policy in place to systematically manage the financial impact of natural disasters. Preliminary analysis estimates that the country on average experiences losses equivalent to 0.9 percent of GDP due to natural disasters every year. An analysis based on limited available historical data carried out for this note indicates that every year Myanmar faces average costs of US$9 million for just emergency response to floods alone.

Strengthening disaster risk finance (DRF) would help Myanmar systematically manage the financial impact of disasters and improve its post-disaster response financing capacity. The government has taken significant steps to increase its financial resilience, but Myanmar has limited financial capacity to respond to disaster events Overall, limited budgetary provision is made relative to the budgetary need for disaster-related expenditures. The government has established a National Disaster Management Fund and allocates a contingency budget for disaster relief and recovery. While only limited information is available on historical budget expenditures due to natural disasters, current disaster funds seem insufficient to cover even recurrent losses. Emergency response costs, particularly for floods, can cause significant short-term funding gaps and divert the use of public funds. In addition, the government remains severely exposed to more extreme events relying on international donor assistance for response, relief, and recovery, which is often unpredictable or reallocated from existing projects. This approach causes delays in government response and affects financing of development priorities. When major disaster costs remain unaddressed, they are absorbed by the affected populations, making the most vulnerable worse off.

A number of options to support ongoing DRF improvements and strengthen financial resilience in Myanmar are presented in this note for the government's consideration:

- Conduct a more in-depth assessment of public financial management of disasters.
- Establish policy priorities for disaster risk financing and insurance.
- Establish additional access to quick post-disaster resources for emergency response, especially for vulnerable and rural populations.
- To sustain emergency response, explore ways to develop a contingent financing mechanism that complements budgetary resources for rapid liquidity.
- Explore ways to utilize existing social protection systems as channels for the distribution of cash to affected communities.
- Explore public asset insurance.

1. Introduction

This note provides an overview of the current policies and instruments available to the government of Myanmar for the financial management of natural disasters. It is based on information available from publications on current post-disaster budget mobilization and execution procedures and on discussions with government officials.

Myanmar is exposed to a number of hazards. Rainfall-induced flooding is a recurring event across the country, and parts of the country are exposed to landslides and droughts. Its coastal regions are exposed to cyclones, storm surges, and tsunamis. Although earthquakes are rare, they present an extreme mortality risk for the country, in particular for Mandalay, Bago, and Yangon.

Myanmar's economic vulnerability and social vulnerability to disasters are the highest in the Association of Southeast Asian Nations (ASEAN) region (World Bank and GFDRR 2012). The annual expected loss as a percentage of GDP in Myanmar is 0.9 percent, compared to 0.8 percent (the Philippines and Vietnam) and 0.7 percent (Lao People's Democratic Republic and Cambodia) for the next four most vulnerable countries. Rural vulnerability is a particular concern in Myanmar; around 70 percent of the country's 51 million people reside in rural areas, and the subsistence agriculture they depend on for their livelihoods is increasingly subject to natural hazards such as floods and drought. The country has a per capita gross domestic product (GDP) of US$1,105, and the poverty rate is 37.5 percent, one of the highest in the region. Among ASEAN countries, Myanmar has the lowest life expectancy and the second-highest rate of infant and child mortality (World Bank 2014a).

The losses from disasters have high immediate and long-term impacts on people, livelihoods, the local and national economies, and the government budget. Over the past 25 years, Myanmar has suffered 24 disaster events (including earthquakes, floods, and storms) affecting more than 4 million people and causing US$4.7 billion in damages,1 with the devastating Cyclone Nargis alone leading to the death of over 138,000 people in 2008. Disasters disproportionately affect the poor, particularly women, children, elderly, people with disabilities, migrants, and marginalized groups. These vulnerable groups often live in places more exposed to hazard risks, partly because of environmental degradation from overexploitation of land, and have less ability to cope with and recover from disasters than better-off peers.

1. D. Guha-Sapir, R. Below, and Ph. Hoyois, EM-DAT: The CRED/OFDA International Disaster Database, Université Catholique de Louvain, Brussels, www.emdat.be, accessed August 20, 2015.

2. Economic and Fiscal Impact of Natural Disasters

2.1. Economic impact

A preliminary financial risk assessment for Myanmar estimated expected annual economic losses of over 0.9 percent of GDP (World Bank and GFDRR 2012). This is the highest relative to GDP in the ASEAN region. Of total annual economic losses from natural disasters, on average 89 percent are attributed to storms and 11 percent to earthquakes. Table 1 provides figures for the number of people affected by and damage costs of major disasters in Myanmar.

Table 1. Number of people affected and damage caused by selected disasters in Myanmar, 1990–2015

Disaster Type	Time period	Number of events	Total number of people affected	Total damage (US$ million
Flood	1991–2015	12	1,104,662	137
Storm	1991–2015	5	2,830,125	4,068
Earthquake	1991–2015	3	38,463	505
Landslide	1991–2015	1	145,000	

Source: D. Guha-Sapir, R. Below, and Ph. Hoyois, EM-DAT: The CRED/ OFDA International Disaster Database, Université Catholique de Louvain, Brussels, www.emdat.be, accessed August 20, 2015.
Note: Data are unscaled (not adjusted for GDP growth or population growth)

The government of Myanmar's annual expected fiscal burden arising as a consequence of natural disasters is estimated to be 2.5 percent of annual government expenditure (Word Bank and GFDRR 2012), which is the greatest in the ASEAN region. For example, the Ministry of Construction estimated that the government spends US$10–20 million on road rehabilitation after floods and landslides every year.

2.2. Fiscal impact

Disasters can increase a government's fiscal deficit by creating unexpected expenditure increases and reducing revenue. From a macroeconomic perspective, the 2015 floods and landslides are estimated to have caused production losses to the economy in 2015/16 of about 1.7 percent of the previous year's GDP. In addition, in the aftermath of the floods, the current account deficit was expected to increase to above 8 percent of GDP, and the fiscal deficit was projected at just under 5 percent of GDP (GoM 2015). A slight widening of the fiscal deficit, from 3.4 percent in FY2008 to 3.7 percent in FY2009, was partly attributed to disaster response spending following Cyclone Nargis in May 2008 (World Bank and GFDRR 2012).


IBRD 33452R2
MYANMAR
Hkakabo Razi (5,881 m)
Putao
Shingbwiyang
KACHIN
Myitkyina
Bhamo
Katha
SAGAING
Namhkam
Lashio
Hsipaw
Hakha
Chin Hills
CHIN
Sagaing
Mandalay
SHAN
Myingyan
Kengtung
MANDALAY
Taunggyi
Namsang
Meiktila
Sittwe
MAGWAY
NAY PYI TAW UNION TERR.
Magway
Pyinmana
Loikaw
RAKHINE
NAY PYI TAW
Aunglan
KAYAH
Sandoway
BAGO
Bay of Bengal
Bago
AYEYARWADY
KAYIN
Pathein
Yangon
Hpa-An
Pyapon
YANGON
Mawlamyine
MON
Mouths of the Ayeyawady
Ye
Davei
Andaman Sea
TANINTHARYI
Mergui
Gulf of Thailand
Mergui Archipelago
Kawthuang
To Jorhat
To Baoshan
To Lincang
To Bangkok
Chindwin
Ayeyawady
Salween
Arakan Yoma
Dawna Range
90°E
95°E
100°E
25°N
20°N
15°N
10°N
MYANMAR
CITIES AND TOWNS
STATE AND REGION CAPITALS
NATIONAL CAPITAL
RIVERS
MAIN ROADS
RAILROADS
STATE AND REGION BOUNDARIES
INTERNATIONAL BOUNDARIES
This map was produced by the Map Design Unit of The World Bank. The boundaries, colors, denominations and any other information shown on this map do not imply, on the part of The World Bank Group, any judgment on the legal status of any territory, or any endorsement or acceptance of such boundaries.
0 50 100 150 200 Kilometers
0 50 100 150 Miles
NOVEMBER 2015

2.2.1. Contingent Liability

The government pays a significant portion of post-disaster response costs, and these expenditures can be seen as a contingent liability—that is, as an obligation that may or may not come due, depending on whether particular events occur. (This is in contrast to a direct liability, which is an obligation whose outcome is predictable.) Very few countries currently measure and assess contingent liabilities related to natural disasters, and more work needs to be carried out with the government of Myanmar to assess the legal and institutional framework that determines the government's liabilities to natural disasters.

Contingent liabilities may be either explicit or implicit, as explained below.

Explicit contingent liability

Explicit liabilities are specific obligations created by law or contract that governments must settle. Explicit contingent liabilities are legal obligations for government to make payments only if particular events occur, e.g., if a natural disaster event occurs. Because most governments do not measure and report on contingent liabilities, their fiscal cost is invisible until they come due. Thus they can represent unplanned expenditure spikes and a drain on future government finances, complicating fiscal analysis and management.

The cost of **rehabilitation or reconstruction of public assets** presents a contingent liability for the government that should be assessed. This liability could be for the national/central government or for subnational governments, depending on ownership of assets and any government commitments to support post-disaster rehabilitation costs. Insurance of public assets can help reduce the contingent liability by exchanging uncertain future large payments for smaller premium payments that can be budgeted.

The World Bank has been able to obtain only limited information on the total exposure of public assets in Myanmar, and complete information is likely not available to the government. Estimates of the damages to assets from the 2015 floods and Cyclone Nargis in 2008 can be used as a proxy measurement of damages to public assets. They are included below.

Floods occur on an almost annual basis in Myanmar, but the country saw particularly severe flooding in July–September 2015. A preliminary estimate in the post-disaster needs assessment of floods and landslides (carried out by the government with the support of the World Bank, United Nations Development Programme, the European Union, and the Japan International Cooperation Agency [JICA]) indicated that recovery and reconstruction needs from the floods could amount to K 2.035 trillion (approximately US$1.7 billion) (GoM 2015). The estimated impacts on some specific sectors were as follows:

- In the *housing sector*, over 525,000 houses were affected; 39,000 were fully destroyed and more than 485,000 were damaged to different degrees. The housing sector was among the most seriously affected sectors, with an estimated K 508 billion in damages, based on estimates of housing replacement costs.
- Total damages to the *electricity sector* were estimated to be K 6,283 million, to the *water and sanitation sector* K 58,268 million, and to the *transport sector* K 84,688 million. In the *transport sector* alone, short-, medium-, and long-term recovery and reconstruction needs for roads and railway infrastructure were estimated at K 149,764 million.
- The estimated cost of recovery and reconstruction for the *agriculture, livestock, and fisheries subsectors* was K 395,577 million.
- In the *education sector*, over 213 schools were completely destroyed and 430 were structurally damaged. The total damage and loss for the education sector was estimated to be K 50,493 million.
- In the *health sector*, over 200 health facilities were completely destroyed, and others needed repair and reconstruction. The cost of reconstruction was estimated to be K 2,500 million. The cost of medicines, medical equipment, and furniture that were destroyed was estimated at over K 3,000 million.

Cyclone Nargis, which struck in 2008, ranks among the deadliest cyclones of all time, and was among the worst natural disasters in the history of Myanmar. Damages from the destruction of physical assets amounted to almost K 2,000 billion (GoM, ASEAN, and UN 2008). The estimated impacts on some specific sectors were as follows (GoM, ASEAN, and UN 2008):

- In the *housing sector*, an estimated 800,000 housing units were affected, 450,000 of which were fully destroyed and 350,000 were damaged. The total damage costs were estimated at around K 660 billion.
- Total damage to *public buildings* was estimated to be K 217 billion. Physical damages to the combined offices of the Ministry of General Administration (which houses several government departments) and the General Administration Department amounted to close to K 70 billion.
- Estimated damages in the *education sector* were K 115 billion and in the *health sector* were K 13 billion.
- Estimated damages were K 122 billion in *transport and communications*, K 8 billion in the *water sector*, K 15 billion in the *electricity sector*, and K 17 billion in the environment.
- Damages in the *productive sector* were estimated to be K 186 billion for agriculture, livestock, and fisheries; K 513 billion for industry; and K 37 billion for commerce.

Social protection systems represent another important source of explicit contingent liability.[2] The high impact of disasters on the poorest can have long-lasting consequences for human development. Quick post-shock assistance to vulnerable households is essential to protecting their welfare. Risk financing mechanisms can work together with established social protection systems to help reach the poorest and most vulnerable rapidly following disaster shocks. When a government establishes clear rules for providing disaster-affected households with additional support through an existing social protection system, this creates an explicit liability for the government. This liability can be integrated into the county's overall DRF strategy to ensure it is managed efficiently. Existing social protection systems in Myanmar can be reviewed to determine if they may be suitable mechanisms for transferring cash to affected populations after a disaster as a way to minimize the negative impact on welfare.

The Myanmar National Social Protection Strategic Plan (GoM 2014) was finalized in December 2014. The current social protection programs available in Myanmar include some limited contributory cash benefit programs, noncontributory cash benefits, and social services. These are provided by the public sector as well as international and nongovernmental organizations.

Implicit contingent liability

Implicit contingent liabilities represent moral obligations or burdens that, although not legally binding, are likely to be borne by governments because of public expectations or political pressures.

Implicit contingent liabilities include **post-disaster emergency response and recovery needs.** The government has to pay for emergency response such as search and rescue, emergency shelter, and food assistance. While a government usually has clear budget allocations for emergency services, the total expenditures incurred for all but small localized disasters usually far exceed these funds set aside. The 2015 post-floods and landslides needs assessment for Myanmar noted that by October 4, 2015—approximately two months following the onset of large-scale flooding—K 28.8 billion (approximately US$24.6 million) had been spent for flood response activities by the government, with over K 187 billion (US$160 million) committed to response activities (GoM 2015). Early recovery activities are equally important. For example, in the aftermath of Cyclone Nargis, the government provided loans to affected households for the purchase of seeds and agricultural tools.

Implicit contingent liabilities also include **post-disaster reconstruction response.** In the aftermath of Cyclone Nargis, the Myanmar Ministry of Forestry provided subsidized timber for reconstruction purposes at a price equivalent to less than 20 percent of its production cost. By late June 2008, the ministry had provided almost 102,000 cubic tons of timber at a direct cost to the government of US$16.8 million (GoM, ASEAN, and UN 2008).

2. More information on social protection and disaster risk management in Myanmar can be found in World Bank (2015).

2.2.2. Foregone revenues

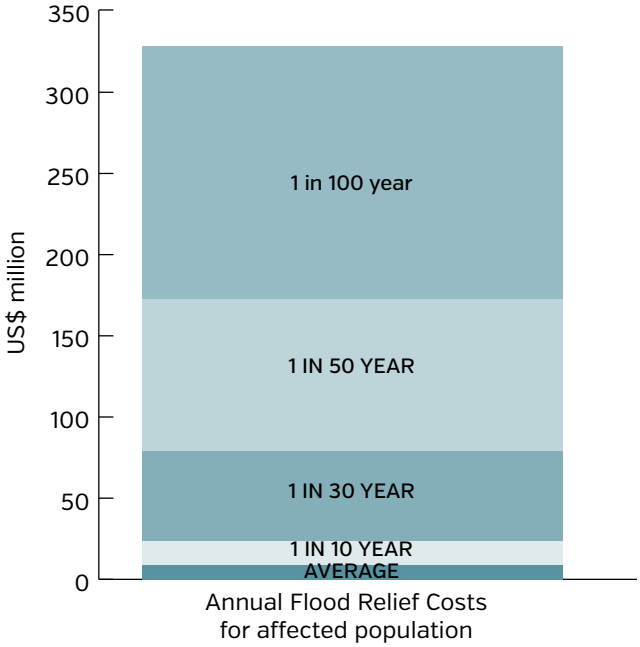
The post-disaster needs assessment for the 2015 floods and landslides estimated that production losses to the economy for 2015/16 amounted to K 1,081 billion, or about 1.7 percent of 2014/15 GDP. In value-added terms, the economic loss is estimated at K 609 billion, equivalent to around 1 percent of 2014/15 GDP. The large impact is driven by the effect of the floods on crop and fisheries production. Crops alone account for over 20 percent of GDP in Myanmar, and are therefore a strategic sector of the economy.

The value of losses (the reduction in economic activity) after Cyclone Nargis amounted to an estimated K 2,500 billion (GoM, ASEAN, and UN 2008). The estimated losses attributed to individual sectors were as follows: K 89 million to infrastructure; K 2.3 billion to the productive sector, of which K 1.5 billion was attributable to industry; K 7 million to social sectors (mainly health); and K 46 million to the environment.

2.2.3. Quantitative analysis

A preliminary analysis of historical data estimates emergency flood-response costs that the government could have to meet. The analysis looks at the number of people affected by floods historically and assumes that (i) all affected people receive emergency relief, and (ii) the total emergency response cost is US$80 per person (this is an initial estimate and will be further discussed with the government). Figure 1 shows that Myanmar could face annual average costs for emergency response of US$9 million, and there is a 3.3 percent probability (corresponding to a 1-in-30-year event) that the annual cost of emergency response could exceed US$56 million.[3]

Figure 1. Estimated post-flood emergency response and recovery needs



3. This preliminary assessment of emergency response and recovery needs is based on historical data for the total number of people affected by flood events since 1965 as reported in the EM-DAT database. While history is a good starting point for understanding the future, patterns do not always remain the same, so the emergency response and recovery needs estimated here should be interpreted with some caution.

3. Legal and Institutional Arrangements for Disaster Risk Management and Finance

Disaster risk management (DRM) in Myanmar is governed by the 2013 Natural Disaster Management Law and the 2015 Disaster Management Rules detailing the implementation of the law. Although the law does not prescribe specific responsibilities related to DRF, it did establish the National Disaster Management Fund. Spending and managing of the National Disaster Management Fund was further detailed in the 2015 financial regulations prepared in coordination with the Union Auditor General's Office.

Additional relevant laws that likely have a bearing on DRF include the Budget Law, Procurement Law, and other laws and regulations that determine how costs are shared between the national and subnational governments.

Cyclone Nargis significantly increased government's awareness of the need to plan and prepare for disasters, and of the need for prevention, mitigation, and community awareness activities. At the national level, the National Natural Disaster Management Committee (NNDMC) is the apex body for disaster management in the country. It has the authority to formulate disaster management policies, issue guidelines, and activate working committees. Dormant in normal times, these committees are activated on a case-by-case and needs basis to respond to medium- to large-scale disasters. At the subnational level, interdepartmental disaster management committees are chaired respectively by the chief minister at the state/region level, the district commissioner at the district level, and the township administrator at the township level. These subnational committees are also typically activated only after a disaster has happened. The Relief and Resettlement Department (RRD) under the Ministry of Social Welfare, Relief and Resettlement is responsible for coordinating DRM activities in the country. In spite of this mandate, however, limited financial and human resources, combined with limited interministerial convening power and limited presence below the state/region level, make it challenging for the department to perform its wide-ranging responsibilities and coordinate and influence the work of a number of line ministries (GoM 2015).

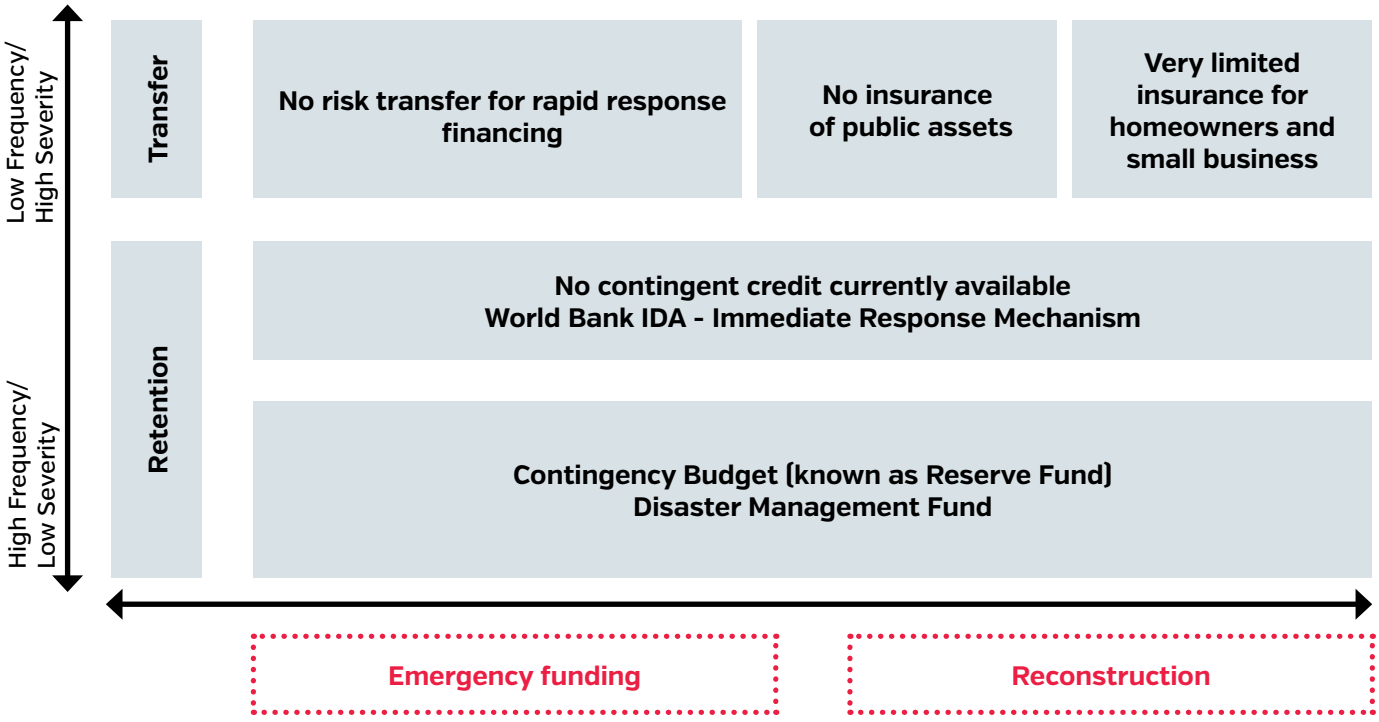
4. Public Financial Management of Natural Disasters

4.1. Mapping of disaster risk financing instruments

International experience has shown that governments ideally combine different instruments to protect against events of different frequency and severity. This approach is known as *risk layering* and ensures that cheaper sources of money (i.e., government reserves and contingency funds) are used first for high-frequency, low-severity events, and more expensive financial instruments (i.e., sovereign risk transfer or insurance) are used only in exceptional circumstances, for low-frequency, high-impact events.

Regional disaster risk insurance funds have enabled countries in other regions (including the Pacific and Caribbean) to access market-based risk transfer for severe disasters through parametric insurance (i.e., insurance whose payouts are made based on the occurrence of a pre-agreed triggering event). This enables governments to

Figure 2. Three-tiered risk-layering strategy available to government of Myanmar



secure immediate liquidity for response and early recovery following high-severity disasters. Insurance can provide cover against such extreme events through payouts, but this approach is not appropriate to protect against low-intensity events that recur regularly, since the higher insurance premiums would make it more costly. Instead, governments can consider using a dedicated contingency fund to retain this lowest layer of risk.

Figure 2 shows the risk-layering approach currently available to the Myanmar government; more detail on risk layering in general is in annex 1.

Myanmar does not currently have a strategy or policy in place to systematically manage the financial impact of natural disasters. Overall, limited budgetary provision is made relative to the budgetary need for disaster-related expenditures in Myanmar. The government has established a National Disaster Management Fund and allocates a contingency budget for disaster relief and recovery. But current disaster funds seem insufficient to cover even recurrent losses, and the government remains exposed to more extreme events, relying heavily on international donor assistance for response, relief, and recovery.

Anecdotal evidence shows the long-term impact of inadequate financing arrangements on post-disaster response in Myanmar, including humanitarian relief shortfalls and delays in reconstruction.

Table 2 provides a summary estimate of total resources available to the government for financing disaster response, recovery, and reconstruction. Further information on available instruments—both ex ante and ex post—is provided below.

Table 2. Financial instruments and amount of funds available for disaster response

Disaster risks	Financing source available	Amount of funds available
High-risk layer (e.g., major floods, major typhoons)	Donor assistance	Unpredictable and unreliable; e.g., 2010 total commitment of US$148 million (often in kind)
	Tax policy	Not currently used
	Sovereign risk transfer solutions	Not currently used
	External debt	- Central bank money creation and treasury securities issued in 2008 - US$65 million IDA IRM in 2015 - US$200 million IDA Emergency - Recovery Credit (including US$100 million IDA CRW) in 2016
Medium-risk layer (e.g., regional floods)	Contingent credit	Not currently available
Low-risk layer (e.g., localized floods, landslides)	Budget reallocation	Unclear
	Contingency budget	K 100 billion (approximately US$ 86 million). Maximum, not reserved for disasters only, budget line, cannot accumulate.
	Reserve funds	K 20 billion (approximately US$17 million). Can accrue over time.

Note: IDA = International Development Association; IRM = Immediate Response Mechanism; CRW = Crisis Response Window.

4.2. Ex ante disaster risk financing tools

4.2.1. Contingency budget

A national contingency budget of approximately US$85 million (K 100 billion) is managed by the President's Office, which includes support for disaster response among other uses. This is known as the Reserve Fund or President's Fund. This is an annual budget line and cannot accrue unspent resources.

The Relief and Resettlement Department's total budget allocation of US$2.9 million (in FY2012/13), along with the Fire Services Department's total budget of US$14.3 million (in FY2012/13) could also be considered in part as budget for disaster emergency response. RRD allocates 61 percent of its budget (US$1.8 million) for response efforts and 1.7 percent of its budget for disaster risk reduction, which includes awareness raising, institutional capacity building, strengthening of policy, and promotion of interagency and regional cooperation.

The Myanmar government has allocated funding of K 30.85 billion (US$26.4 million) for emergency relief efforts as of August 21, 2015; this amount includes K 22.8 billion from the President's Reserve Fund, K 926 million from the national government, and K 7.13 billion from local governments, the private sector, and civil society4.

4.2.2. Reserve funds (multi-year)

The National Disaster Management Fund was established according to Chapter 7 (Article 19) of the Natural Disaster Management Law, dated July 31, 2013, and signed by the president (GoM 2013). In the 2016 budget the government allocated K 20 billion to the National Disaster Management Fund. The fund can accumulate unspent resources over the years and is to be used to "carry out natural disaster activities," which include preparatory measures for disaster risk reduction, emergency response, and reconstruction and rehabilitation activities. A national committee is responsible for carrying out these activities. The fund's primary financial sources include an allocation from the Union (national) budget; contributions from foreign countries, international organizations, and local bodies; and accrued cash from the fund. Region or state natural disaster management funds have also been established under Article 20 of the law, by respective Natural Disaster Management Bodies.

4.2.3. Contingent credit

International partners such as the World Bank and JICA offer countries contingent credit for disaster recovery and reconstruction purposes, facilitating more rapid access to potentially significant financing sources. Myanmar does not currently have a contingent credit facility available for accessing additional funds in the event of a disaster. However, the World Bank's contingent credit line (Catastrophe Deferred Drawdown Option, or Cat DDO) will become available to low-income countries, including Myanmar, in July 2017.

4.2.4. Sovereign risk transfer solutions

Myanmar does not currently utilize any parametric insurance instruments that protect its budget against disaster impacts through accessing international financial markets.

The state-owned Myanma Insurance Company has provided catastrophe risk insurance for some high-value critical infrastructure public assets. In some specialized lines of business, where Myanma did not have the technical or financial capacity to provide insurance, the risk has been passed on to the international markets through a fronting arrangement, whereby Myanma issues the policy and cedes all the risk to international (re)insurers.

4.3. Ex post disaster risk financing tools

4.3.1. Budget reallocation

Given the low amount of dedicated funds for disaster response available, the government of Myanmar largely relies on post-disaster budget reallocations to finance response and rehabilitation. There are anecdotal examples of budget reallocations in kind in Myanmar, relating to the redeployment of government staff, vehicles, equipment, and supplies to support the humanitarian relief and early

4. Information provided by NNDMC in 2015

recovery efforts. For example, the Ministry of Education delivered textbooks and educational materials to schools in areas of the country affected by Cyclone Nargis (GoM, ASEAN, and UN 2008).

Post-disaster budget reallocations can result in significant opportunity costs from foregone planned expenditures and can derail progress toward national and sector development goals and objectives. Budget reallocations can also create uncertainty over annual resources available for government agencies as set out in the national budget.

4.3.2. External debt

The government can raise large funds for longer reconstruction through issuing international debt.

- *Central bank money creation and issue of treasury securities.* When the government faced an increased budget deficit in 2008, partially due to Cyclone Nargis, it relied on a combination of central bank money creation and the issuance of treasury securities to finance the deficit (World Bank and GFDRR 2012).
- *IRM and CRW under the IDA.* The World Bank International Development Association (IDA) launched its Immediate Response Mechanism (IRM) in 2011 to allow countries rapid access to a portion of their undisbursed IDA balances for immediate post-crisis financing needs. Once a country has taken specific required steps,[5] the IRM provides for pooling of uncommitted resources across projects to make available US$5 million or 5 percent of undisbursed funds soon after an emergency. Myanmar was the first country to trigger the IRM, reorienting US$65 million from ongoing IDA projects to support reconstruction and recovery efforts in the aftermath of the July–September 2105 floods and landslides. Ex post financing is also available through IDA's Crisis Response Window (CRW). This mechanism made US$100 million available to complement US$100 million from the country's national IDA envelope for a US$200 million flood and landslide recovery project.
- *Other external debt.* Other forms of external borrowing may be available, including from international development partners or capital markets.

4.3.3. Tax policy

There has been no reported use of tax policy in Myanmar as an instrument to raise additional revenue following disasters, or of tax deductions being offered as an incentive for donations to assist with financing the cost of disasters. The feasibility of using tax policy as an instrument to raise ex post disaster financing will depend on the current strength of the tax base and tax compliance levels.

4.3.4. Donor assistance

Between 1990 and 2010, donor assistance commitments to Myanmar for disaster financing totaled US$723 million.6 Of this aggregate amount, 96 percent was for emergency response uses. The principal donors over this time period included the European Communities (25 percent), United States (15 percent), United Kingdom (13 percent), Australia (8 percent), and Norway (8 percent).

Following Cyclone Nargis, total annual donor commitments for disaster financing to Myanmar increased, from US$34 million in 2007 to US$115 million in 2008 and US$137 million in 2009. Of the funds for Cyclone Nargis response, 25 percent came from the government of Myanmar and 75 percent came from bilateral and multilateral contributions.

Disaster assistance to the ASEAN region overall is likely to decline in the future as member states grow more economically prosperous. While Myanmar retains low-income-country status in the region (along with Lao PDR and Cambodia) and can continue to look to donor support in the event of a major catastrophe, this financing will likely become increasingly scarce. Donor assistance is also unlikely to support the government's response to less catastrophic but frequently recurring events. In any case, donor financing is highly unpredictable and does not allow the government to plan for a fast disaster response.

5. In order to access IRM funds, countries are required to (i) include IRM contingent emergency response components in selected IDA projects, and (ii) adopt an IRM Operations Manual, which forms a part of the Financing Agreement and needs to be reviewed by the Legal, Procurement, Disbursement, Financial Management, and Safeguards departments in the World Bank.

6. Global Facility for Disaster Reduction and Recovery, Disaster Aid Tracking database, http://gfdrr.aiddata.org/dashboard, accessed August 20, 2015.

5. Domestic Disaster Risk Insurance Markets

Myanmar has one of the least developed insurance markets among the ASEAN member states. Non-life insurance penetration was 0.04 percent of GDP in 2012. The insurance sector currently consists of only one state-owned company, but 12 new licenses have been granted in 2013, including for five local banks. Many foreign insurance companies and brokers have opened representative offices in the country, but have not yet received operating licenses.

Various donor-supported efforts are ongoing to explore establishing new agricultural crop or livestock insurance schemes in Myanmar, but the World Bank team did not find any existing large-scale schemes. In its May 2016 submission to the climate negotiations process for the UNFCCC (United Nations Framework Convention on Climate Change, the government of Myanmar cited as a priority the development of risk financing instruments and insurance schemes, such as index based weather insurance utilizing remote sensing, crop insurance systems, and climate-informed safety nets that use index-based insurance schemes.7

Reports issued following Cyclone Nargis indicated that very few homes were insured, and Myanma Insurance reported that only 360 factories (state-owned and private) were insured. For some specialized lines of business, Myanma does not have the technical or financial capacity to provide insurance. In these cases, the risk is passed on to the international markets through a fronting arrangement whereby Myanma issues the policy and cedes all the risk to international (re)insurers. Commercial assets in Myanmar are known to be insured in this way.

Micro insurance in Myanmar is still at a very early stage of development.

7. "Submission by Myanmar to UNFCCC Subsidiary Body for Scientific and Technological Advice 44 on Issues Related to Agriculture in Response to SBSTA Decision FCC/SBSTA/ 2014/L.14 May 2016," http://www4.unfccc.int/submissions/Lists/OSPSubmissionUpload/53_84_131082106487817781-Myanmar_agriculture%20SBSTA44.pdf.

6. Funding Gap Analysis

6.1. Short-term emergency response and recovery funding gap

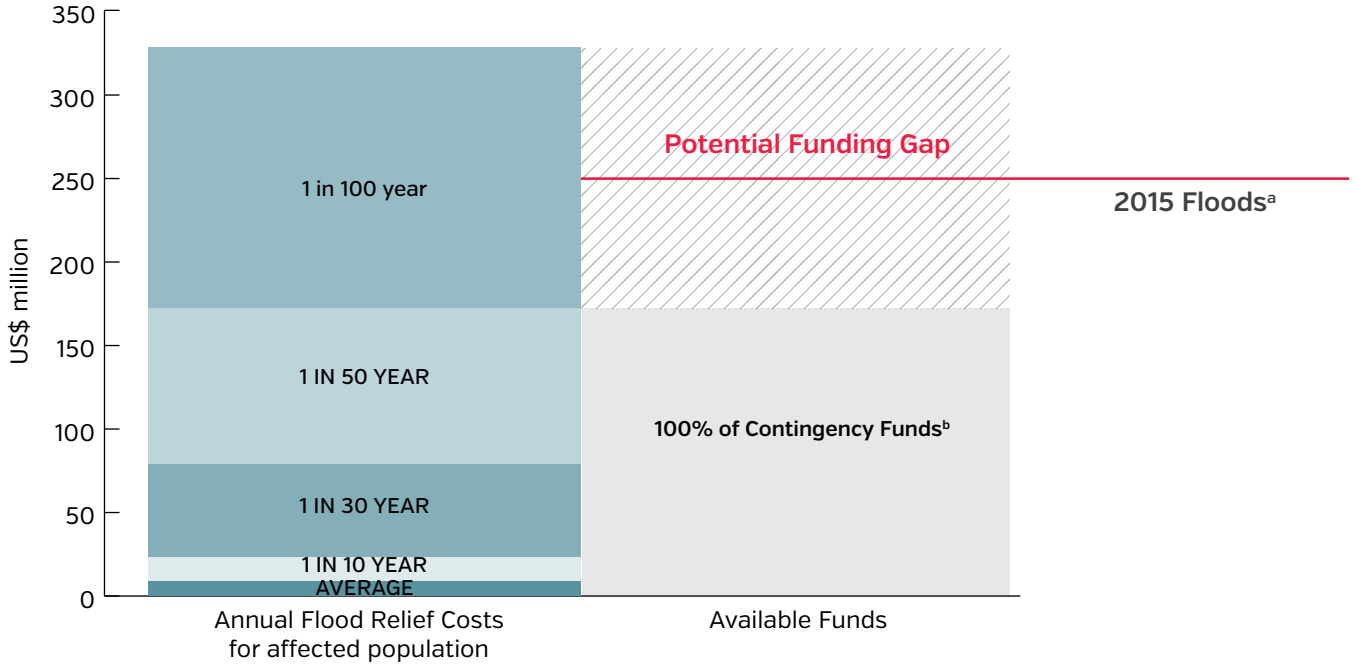
An assessment of the short-term emergency response and recovery funding gap has been completed by the Disaster Risk Financing and Insurance Program based on the assessment of the post-flood emergency response and recovery needs (as set out in section 2.2.3). This analysis shows that the emergency response cost of floods is greater than currently available resources, meaning there is a significant short-term funding gap.

Figure 3 compares estimated emergency relief costs for flood events of various severities to currently available financial resources. This comparison shows a significant funding gap for more extreme events. But even for more frequent less severe events the funding gap may be substantial if not all resources from the Reserve Fund (contingency budget) and the National Disaster Management Fund are available for disaster response.

6.2. Long-term reconstruction funding gap

There is limited information on the total exposure of public assets in Myanmar, and therefore a probabilistic assessment of the reconstruction gap is currently not available. Estimates of the reconstruction costs from the 2015 floods and Cyclone Nargis in 2008 are included in section 2.2.1. Total long-term reconstruction financing needs for the 2015 floods were estimated at K 2.035 trillion.

Figure 3. Funding gap for estimated short-term emergency response and recovery needs



a. Estimated emergency relief costs for the 2015 flood are US$128 million (based on 1.6 million people affected), resulting in an estimated funding gap of US$26 million.
b. A US$85 million contingency budget plus a US$17 million Disaster Management Fund is available, but these funds are not solely reserved for disasters.

7. Options for Consideration

Based on information compiled in this diagnostic note and on consultations with all relevant stakeholders, the government may want to elaborate its priorities in strengthening financial resilience in a comprehensive DRF strategy. This initial assessment identifies the following key gaps:

- Although RRD has the mandate for DRM, it is hampered by limited financial and human resources, limited interministerial convening power, and limited presence below the state/region level; these make it challenging for the department to perform its wide-ranging responsibilities and coordinate and influence the work of a number of line ministries.
- Myanmar does not currently have a strategy or policy in place to systematically manage the financial impact of natural disasters. Anecdotal evidence shows the long-term impact of inadequate financing arrangements for post-disaster response in Myanmar, including humanitarian relief challenges and delays in reconstruction.
- Current disaster funds seem insufficient to cover even recurrent losses, and the government remains exposed to more extreme events, relying heavily on international donor assistance for response, relief, and recovery.
- The World Bank has been able to obtain only limited information on the total exposure of public assets, and information available to the government is also likely incomplete. Thus a probabilistic assessment of the reconstruction gap is currently not available.

The government may want to consider the following options, which are based on the above findings, in drafting its DRF strategy:

1. **Conduct a more in-depth assessment of public financial management of disasters.** A particular focus could be on post-disaster budget allocation and information on post-disaster budget spending. This assessment could also identify problems with efficiency, transparency, and transfer of money to target beneficiaries.
2. **Establish policy priorities for disaster risk financing and insurance.** A comprehensive strategy with appropriate disaster risk financing and insurance products could help national and subnational governments respond more quickly, and would enable timely access and effective use of reconstruction and recovery funding.
3. **Establish additional access to quick post-disaster resources for emergency response, especially for vulnerable and rural populations.** Determine if quick access to cash for emergency response can be achieved with existing DRF instruments, and establish additional mechanisms if necessary to close the post-disaster funding gap.
4. **To sustain emergency response, explore ways to develop a contingent financing mechanism that complements budgetary resources for rapid liquidity.** This could be established as a regional facility, with support from donors, to reduce uncertainty of post-disaster financing and enable the government to better plan ahead.

5. **Explore ways to utilize existing social protection systems as networks for the distribution of cash to affected communities.** Social protection systems can be leveraged to rapidly reach affected beneficiaries by using existing targeting and disbursement mechanisms. Defining clear rules of post-disaster assistance through existing social protection schemes, and integrating the resulting liability in the country's overall DRF strategy, help the government to ensure sufficient funding for this cash-based response.

6. **Explore public asset insurance.** The government could consider developing a program for insuring public assets, such as public buildings, roads, and bridges. This could also encourage governments to invest in better risk information and risk reduction to reduce losses and lower the cost of insurance.

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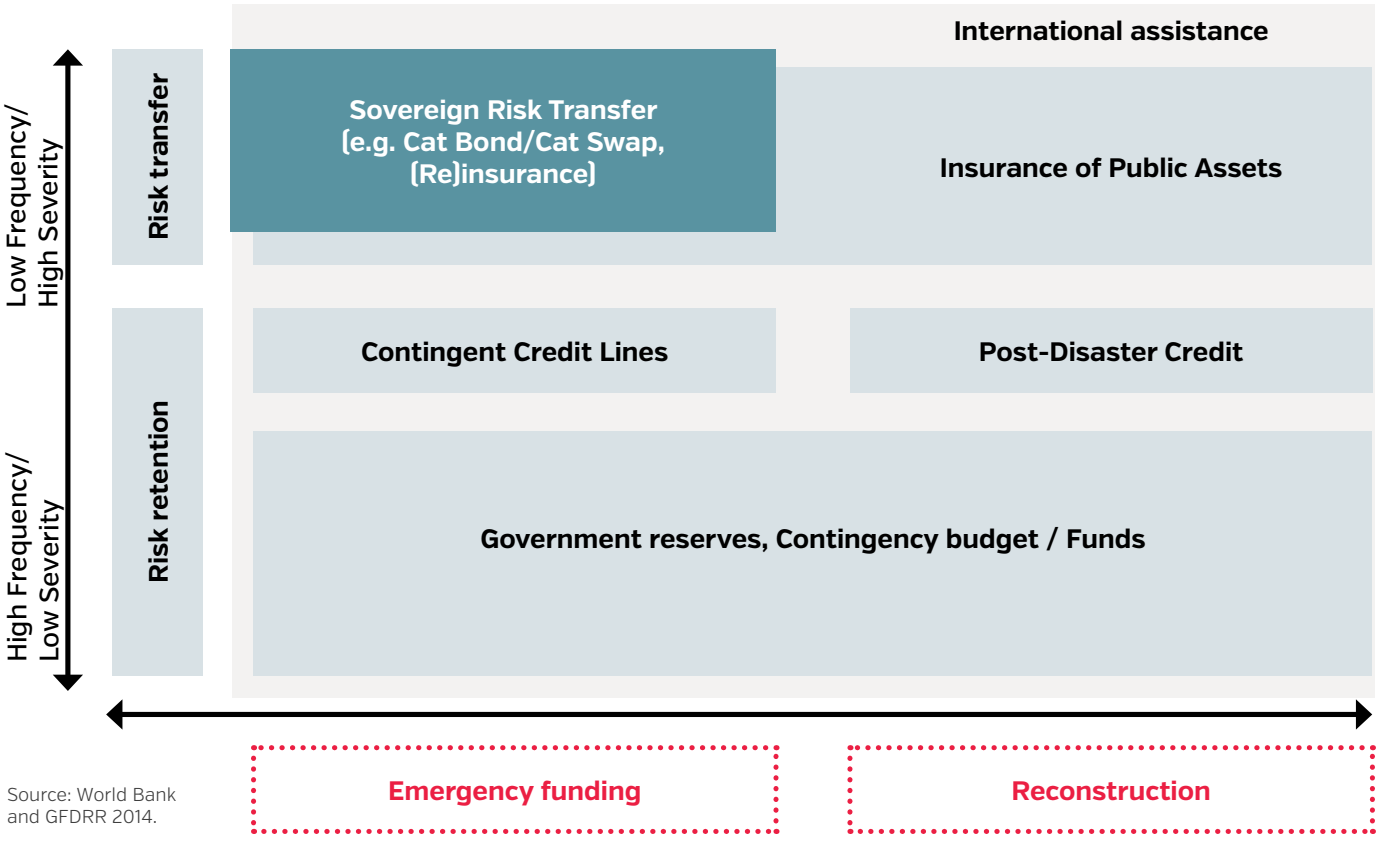
Annex 1. Risk-Layering Approach

International experience has shown that governments ideally combine different instruments to protect against events of different frequency and severity. Such *risk layering* ensures that cheaper sources of money are used first, with the most expensive instruments used only in exceptional circumstances. For example, insurance can provide cover against extreme events, but is not appropriate to protect against low-intensity events that recur regularly. For these latter events, the government could consider setting up a dedicated contingency fund to retain this lowest layer of risk.

A comprehensive financial protection strategy for the government generally brings together pre- and post-disaster financing instruments. As shown in figure A1.1, such instruments address the evolving needs for funds—from emergency response to long-term reconstruction—and are appropriate to the relative probability of events. For example, a government could decide to purchase more expensive risk transfer instruments—such as catastrophe bonds—to ensure immediate liquidity for emergency response to extreme events. But it may raise the much larger amounts needed for reconstruction through budget reallocations and borrowing.

Figure A1.1. Three-tiered risk-layering strategy for governments



Source: World Bank and GFDRR 2014.

Annex 2. DRF Framework

The World Bank Disaster Risk Financing and Insurance Program's experience of working with many countries around the world has informed the development of an operational framework for public financial management of natural disasters. The framework is a practical and comprehensive resource on good practices for governments seeking to establish and improve disaster risk financing and insurance activities (World Bank and GFDRR 2014).

The operational framework is a practical guide to support decision makers who look to strengthen their nation's financial resilience to natural disasters. Some short-term steps may address urgent problems while decision makers consider long-term and more comprehensive financial protection policies. For example, for a ministry of finance to use risk transfer, it may be necessary to change existing law, a step that may take several years to accomplish. Over time, a long-term strategy developed around various ongoing activities can help the government build a comprehensive approach to the financial management of disasters.

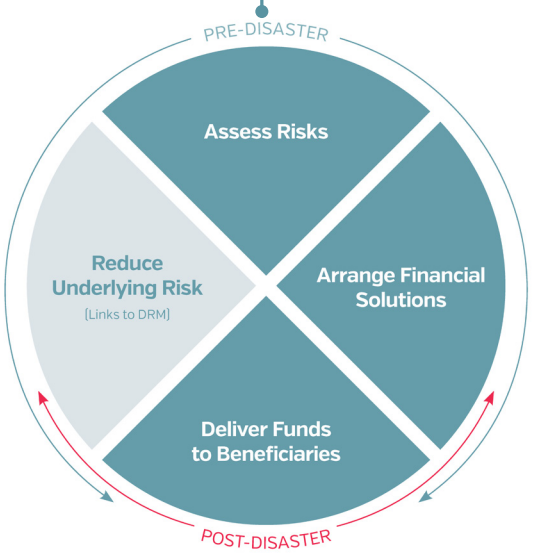
When implementing financial protection solutions, a government has to understand the risks it faces, consider where resources may be obtained following a disaster, and identify appropriate channels to ensure that those resources reach the intended beneficiaries without delay. Figure A2.1 shows core technical steps a government needs to take when implementing financial protection solutions.

Figure A2.1. Operational disaster risk financing and insurance framework: Core technical steps

Risk assessments for financial protection quantify potential disaster impacts based on historical and simulated data. This often requires investments in the necessary underlying hazard, exposure, and vulnerability data. This also includes building an effective interface between the policy maker and underlying technical models.

Sustainable financial protection requires reducing underlying drivers of this risk.

It complements risk reduction by managing residual risk which is not feasible or not cost effective to mitigate. It also creates incentives to invest in risk reduction and prevention by putting a price on risk and clarifying risk ownership.



Effective post disaster response and recovery relies on access to sufficient and timely resources following a disaster.

This includes:

[i] Arranging the required financial resources for the government to meet its contingent liabilities

[ii] Developing catastrophe risk and agricultural insurance markets, building on Public-Private Partnerships

[iii] Develop rules and arrange financing instruments for scalable social protection

Resources should reach beneficiaries in a timely, transparent, and accountable fashion. This requires effective administrative and legal systems for the appropriation and execution of funds for the government budget, insurance distribution and settlement [often through private channels], as well as social protection programs.

Source: World Bank and GFDRR 2014.