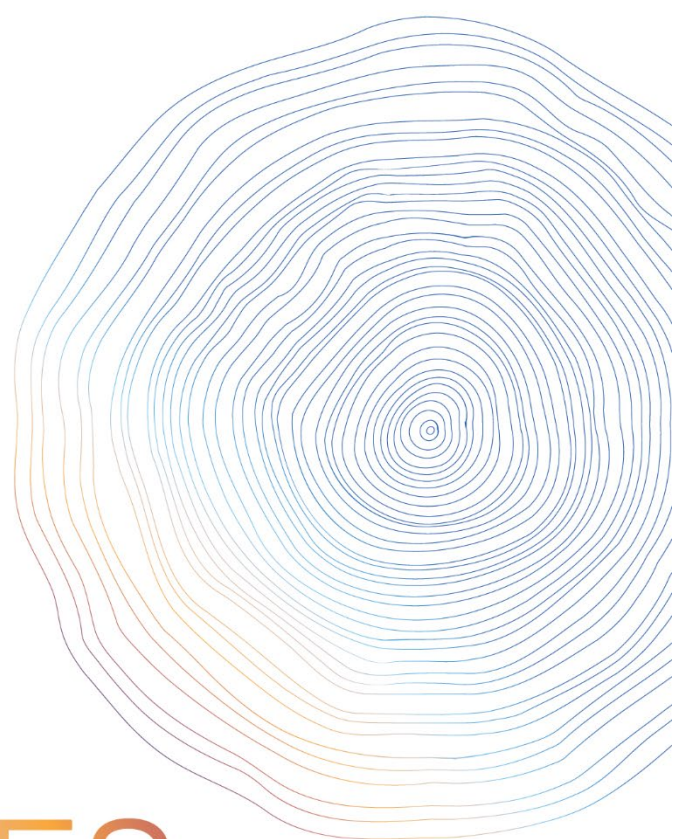


Background Paper PH-11

Disaster Risk Management in the Philippines



PHILIPPINES

COUNTRY CLIMATE AND DEVELOPMENT REPORT

Philippines CCDR Background Papers

PH-1	Climate Change Institutional Analysis
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PH-10	Social Impacts of Climate Change in High-Risk Areas of the Philippines
PH-11	Disaster Risk Management in the Philippines

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Acknowledgments

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Acronyms and Abbreviations

ASP	Adaptive Social Protection
BARMM	Bangsamoro Autonomous Region in Muslim Mindanao
CCAM-DRR	Cabinet Cluster on Climate Change Adaptation, Mitigation, and Disaster Risk Reduction
COA	Commission on Audit
DRF	Disaster risk finance
DRFI	Disaster Risk Finance and Insurance
DRM	Disaster Risk Management
DRRM	Disaster Risk Reduction and Management
GDP	Gross domestic product
GPPB	Government Procurement Policy Board
LDRRMF	Local Disaster Risk Reduction and Management Fund
LGC	Local Government Code
LGU	Local government unit
NGA	National Government Agency
ODA	Official Development Assistance
PHP	Philippine Peso
UNFCCC	United Nations Framework Convention on Climate Change
WSS	Water and sanitation service

Main messages

The Philippines is highly vulnerable to multiple hazards including tropical cyclones, floods, storm surges, droughts caused by El Niño, earthquakes, and volcanic eruptions. While the country has made significant efforts, there is still a need to continue enhancing its preparedness and resilience, particularly with climate change. The following key challenges need to be addressed: (1) fragmentation, lack of coordination, and insufficient capacity in implementing DRM programs are major challenges across all government agencies, especially during large-scale disasters, (2) lengthy process of conducting post-disaster needs assessments that further delays rehabilitation and recovery, (3) complex approval and disbursement processes of the National Disaster Risk Reduction and Management Fund, (4) challenging public procurement during emergencies due to a lack of basic guidelines on how to apply emergency procurement procedures, (5) lack of investment in resilient infrastructure due to limited resources and tight fiscal space, and need to strengthen social protection programs to support disaster response.

1 Disaster Risk Management in the Philippines

The Philippines is one of the most disaster-prone countries in the world because of its unique geography. The country currently ranks eighth as the most affected globally by extreme weather events, the second-highest among Asian countries.¹ Around 60 percent of the country's total land area and at least 74 percent of Filipinos are vulnerable to multiple hazards.² The most catastrophic of these hazards are tropical cyclones accompanied by strong winds, heavy rainfall, flooding, storm surges, droughts caused by El Niño, earthquakes, and volcanic eruptions.³ Among these, typhoons and climate-related events were the most frequent disasters recorded in the country. An average of 20 typhoons hit the Philippines each year. Moreover, the Philippines has recorded 18 destructive earthquakes in the last 40 years. The most recent destructive earthquakes took place in Cotabato and Davao Provinces in 2019. The Greater Metro Manila Area Risk Assessment study estimates that a magnitude 7.2 earthquake on the West Valley Fault, known as "The Big One" could result in an estimated 48,000 fatalities and USD48 billion in economic losses, with a catastrophic impact on government and business continuity and service provision.

Climate change has compounded the impacts of natural disasters. Over the past 10 years, the country has been experiencing very strong, expansive, and highly destructive typhoons almost every year (with wind strength of >170 kilometers per hour).⁴ This is due to the changing climate, which has influenced the intensity and patterns of these events. More intense rains now accompany even weaker typhoons which cause storm surges, heavy flooding, and landslides. Strong typhoons have had grave human, social, and economic costs to the country. In the last 10 years, these strong typhoons hit nine of 17 Philippine regions, affecting an average of five million people with 850 individual casualties each year. Most recently, the country was hit by Super Typhoon Odette (International Name: Rai) affecting 11 million people. It has recorded a combined cost of damage and loss amount of PHP211 billion and 69 billion, respectively while the estimated needs are reported at PHP391 billion.⁵ Typhoon Odette is considered to be more destructive than Super Typhoon Yolanda (International Name: Haiyan). Only four months after Super Typhoon Odette, the Philippines was hit again by Typhoon Agaton (International Name: Megi) affecting almost 3 million people from 9 regions and causing massive landslides in Leyte. The combined cost of damage to infrastructure, housing, and agriculture amount to PHP2.3 billion.⁶

The impact of COVID-19 is further exacerbating the country's risk from climate change and natural disasters. The measures implemented to contain and address the pandemic have significantly impacted the Government's overall fiscal balance, declining revenues, and increasing expenditures. The containment measures are impacting the poor and near-poor disproportionately who have limited incomes and assets to buffer themselves from adverse events, including natural disasters. As the Government focuses on strengthening the capacity of the healthcare system and protecting vulnerable households due to COVID-19 pandemic, the Philippines continues to suffer from various disasters. Since May 2020, the country has experienced typhoons, floods, earthquakes, and volcanic eruptions, and the pandemic has made it more difficult for the government to prepare for and effectively respond to these types of events.

¹ The World Risk Index (<http://weltrisikobericht.de/english/>) is calculated on a country-by-country basis based on exposure (threats of the population due to earthquakes, storms, floods, droughts, and sea-level rise) and vulnerability (societies' capacity to cope).

² GFDRR (Global Facility for Disaster Reduction and Recovery), and World Bank. 2011. "Climate Risk and Adaptation Country Profile: Philippines," World Bank, Washington DC.

³ The more recent devastating disasters include Typhoons Odette (December 2021) and Agaton (April 2022).

⁴ Office of Civil Defense 2022.

⁵ Task Team computation based on Post-Disaster Needs Assessment Reports submitted as of March 11, 2022.

⁶ NDRRMC Situational Report No. 15, April 29, 2022.

The economic costs of natural disasters are considerable. From 2010 to 2019, the total damages to agriculture, infrastructure, and private properties due to extreme events and natural disasters amounted to PHP463 billion (USD 9.2 billion), of which PHP290 billion (USD 5.8 billion) was in the agriculture sector alone.⁷ The Philippines catastrophe risk model estimates that the average losses of the country amount to PHP133.2 billion (USD2.6 billion) from typhoons and PHP43.5 billion (USD0.9 billion) from earthquakes each year. Economic losses can further increase in the coming years as the severity of disasters intensifies. It is estimated that the country incurs annual economic losses of 1.2 percent of GDP. In extreme events like Super Typhoon Yolanda (Haiyan) in 2013, losses can reach up to 4.6 percent of GDP. In terms of public finance, the Government spent an average of 0.6 percent of GDP, or PHP91.9 billion (USD1.9 billion) per year, on disaster-related response, recovery, and reconstruction activities between FY2015-2018.⁸

The poor disproportionately suffer from climate-related disasters in the Philippines. Around one million Filipinos across the country are impoverished by natural disasters every year. The poor are less able to cope with and recover from the impacts of climate-related disasters. They have limited labor skills, fewer assets, and have limited access to resources, credit and other financial support. As these events happen more frequently, the poor also recurrently experience the impact, such as wiping out their homes and assets and trapping them in a vicious cycle of poverty. In addition, the poor tend to live in low-lying risk-prone areas such as floodplains, riverbanks, steep slopes, and coastal areas that expose them to multiple hazards. Many of them reside in disaster-prone provinces on the eastern edge of the country. Many of the poor are also working in the agriculture and fishery sectors, which are highly vulnerable to climate change and natural disasters. In urban areas, many of the poor live in informal settlements that are located in disaster-prone locations and are characterized by inadequate basic public services, substandard and unsafe housing, blighted living conditions, and congestion.

Rapid and unmanaged urbanization has compounded the vulnerabilities of the country to natural disasters, climate change, and pandemics. The Philippines is now 52 percent urban. The high concentration of population and assets in cities is increasing the risks of natural hazards and climate change impacts. This is exacerbated by the fact that most Philippine cities are located near rivers or coastal areas, exposing them to both inland flooding and storm surges. Moreover, with the absence of proper land use, zoning, and development controls, many settlements are located in danger zones including riverbanks, coastlines, and landslide-prone locations. The magnitude of informality in Metro Manila (25 percent of the total metropolitan residents) and in other cities is also increasing the vulnerability of the poor to disasters as many of the informal settlements are located in danger zones and the quality of dwelling generally disregards minimum construction standards. The experiences of Tropical Storm Ondoy and Typhoon Pepeng in 2009 and the recent Typhoon Odette attest to the risks and magnitude of the impact that disasters bring to cities. Tropical Storm Ondoy and Typhoon Pepeng in 2009 largely affected Metro Manila and surrounding regions and resulted in USD4.4 billion in damages (equivalent to 2.7 percent of the country's GDP). Typhoon Odette (2021) also affected many cities in the Visayas region. Damage and loss are estimated at PHP281 billion (USD5.6 billion); higher than that of Typhoon Yolanda in 2013 at PHP1.3 billion. On housing alone, Typhoon Odette has damaged a total of two million units, doubling the housing damage during Typhoon Yolanda. These damages and losses could be dwarfed by the potential 7.2 magnitude earthquake, which would directly damage a third of Metro Manila.

⁷ <https://psa.gov.ph/content/damages-due-natural-extreme-events-and-disasters-amounted-PHP-463-billion>

⁸ World Bank Group (2020). Public Expenditure Review: Disaster Response and Rehabilitation in the Philippines.

The Philippines has reformed the way the country deals with disasters. It has shifted its approach from reactive to proactive risk management with a significant focus on preparedness and resilience. But more needs to be done. Key milestones include the enactment of the Climate Change Act in 2009 and the Disaster Risk Reduction and Management (DRRM) Act in 2010. The 2009 Climate Change Act mandated the mainstreaming of climate change, in synergy with disaster risk reduction into the national, sectoral, and local development policies, plans, and programs. The 2010 DRRM Act directed the shift from disaster response to disaster risk reduction and preparedness involving multi-sectoral coordination and active participation at the local level. It provides the legal and institutional foundation for strengthening the institutional capacity for DRM, mainstreaming disaster risk reduction into development planning, and managing its fiscal exposure to natural hazard impacts at the national, local, and sectoral levels. To operationalize the law, the Government developed the National DRRM Framework, which called for building safe, adaptive, and disaster-resilient Filipino communities towards sustainable development. Building on the National DRRM Framework, the Government prepared the National DRRM Plan 2011-2028, which identified key activities to strengthen the capacity of the government to build disaster resilience and implement measures to converge the NDRRM Plan with the National Climate Change Action Plan. The National DRRM Plan⁹ was updated in 2020 to consider the effects of the COVID-19 pandemic that further amplify the impact of climate change and natural disasters. It also incorporated lessons from the implementation of the National DRRM Plan over the past decade. Moreover, it strengthened its alignment with Ambisyon Natin 2040¹⁰ and the country's commitment to the Sendai Framework for Disaster Risk Reduction and Paris Agreement on Climate Change. New policy directions were identified in the National DRRM Plan, including the need to (i) make DRRM investments integral in the development, poverty reduction, fiscal stability, and sustainable economic growth; (ii) bridge the gap between science and technology and policy-making; (iii) invest and scale up local data collection; (iv) build resilient infrastructure and livelihoods; (v) invest in public health; (vi) prioritize building back better, (vii) ensure coherence in DRRM and climate change agenda; and (viii) reconfigure DRRM protocols and approaches to adapt to the new normal, among others.

The Government has continuously undertaken transformative reforms, investments, and other interventions. Significant reforms include the adoption of the (a) National Disaster Response Plan in 2014, a per-hazard response guide for all government agencies; (b) National Disaster Preparedness Plan in 2015, an overall preparedness protocol for local governments; (c) National Disaster Risk Finance Strategy in 2015, gradually building out the menu of risk financing instruments to minimize the cost and optimize the timing of the post-disaster response¹¹; and (d) Disaster Rehabilitation and Recovery Planning Guide in 2019, a guide to preparing the national government agencies and local government units (LGUs) for rehabilitation and recovery interventions.¹² At the sectoral level, the Government has invested in projects focused on resilient agriculture, tourism, infrastructure, and adaptive social protection (ASP), among others. But with the increasing frequency and magnitude of natural disasters, more must be done in building resilience across various sectors and at the local level.

⁹ Updated in 2020, NDRRM Plan 2020-2030

¹⁰ In 2016, the President approved Ambisyon Natin 2040 and mandated that the four Philippine Development Plans (PDP) prepared until 2040 should be anchored on the country's long-term vision. Ambisyon Natin 2040 specifically aims to increase per capita incomes by three-fold, end poverty, and promote a strongly rooted, comfortable, and secure life for all Filipinos by 2040. Achieving this vision would require building resilience and creating an environment where people can (i) improve their lives and well-being with stability and predictability; (ii) be protected from natural disasters, and other shocks that drive them to poverty; (iii) prepare and equip themselves to mitigate the impacts, recover faster, and rebuild better.

¹¹ DRF Instruments include annual budget allocations to the National Disaster Risk Reduction and Management Fund; local government catastrophe risk insurance program based on parametric insurance contract for quick payout to affected areas; contingent financing from Development Partners as pre-arranged loans that can be accessed in times of disasters and emergencies; and catastrophe-linked bonds (Cat Bond).

¹² World Bank. 2020. Philippines Economic Update, December 2020: Building a Resilient Recovery. World Bank, Washington, DC.

LGUs are at the forefront of service delivery, DRM, and climate change adaptation and mitigation. The enactment of Republic Act 7160, otherwise known as the Local Government Code (LGC) in 1991 shifted the country's approach to local development and service delivery. The LGC is complemented by the DRRM Act 10121, which empowers LGUs and respective communities to enforce disaster risk reduction and climate change adaptation (CCA-DRR) measures, establish a Local Disaster Risk Management Office, and five percent of their estimated revenue to be allocated to the Local Disaster Risk Reduction and Management Fund (LDRRMF). LGUs will play an increasingly vital role in CCA-DRR with the implementation of the Supreme Court Ruling on the Mandanas Case, which called for a significant increase of National Government fund transfers to LGUs beginning in 2022 and full devolution of functions identified in the 1991 Local Government Code and succeeding laws no later than 2024.

2 Key Challenges and Recommendations

The key challenges that need to be addressed and corresponding recommendations to further enhance the country's resilience to climate change, natural disasters, and pandemics are presented below.

Fragmentation, lack of coordination, and insufficient capacity in implementing DRM programs are major challenges across all government agencies, especially during large-scale disasters. As a result, response, risk reduction, and recovery projects often lack integration and cohesiveness. The recent major disasters revealed the weaknesses of the current institutional structure for DRM¹³: (i) the necessary authority, resources, and staff capacity are inadequate to efficiently mitigate the effects of adverse events and to address the rapidly evolving DRM challenges; (ii) institutions have limited coordination protocols, guidelines, and mechanisms to address the increasing magnitude and frequency of disasters; and (iii) there are overlapping functions and responsibilities, duplication of interventions, lack of communication, and incoherent policy application to disaster response, rehabilitation, and recovery. In dealing with multiple and successive large-scale disasters, the current institutional structure often resulted in confusion and delays among the institutions involved in response and recovery activities. Recommendations: (i) strengthen the institutional structure and arrangements for DRM to address the above challenges. Revisit the Government's proposal for a dedicated agency¹⁴ responsible for the management and implementation of DRM programs including the proposal to merge climate change agencies with DRM institutions; (ii) strengthen horizontal and vertical coordination mechanisms and clarify the roles of national, regional (including the Bangsamoro Autonomous Region in Muslim Mindanao BARMM), and local government authorities and other stakeholders prior to disasters¹⁵; and (iii) institutionalize pre-disaster response and recovery systems for national government agencies (NGAs) and LGUs to enhance their baseline data, establish coordination mechanisms, and identify needed interventions and financing options to speed up access to the NDRRMF), and other resources.

The conduct of post-disaster needs assessment continues to take a much longer time which further delays rehabilitation and recovery. The current protocols for conducting assessments need to be revisited. Recommendations: (i) simplify the guidelines and the actual conduct of the assessment using digital technology and good practices¹⁶; (ii) improve the capacity and modality to gather baseline data and to assess, record, and report the impact of disasters to inform planning and fiscal assessments; and (iii) use existing technology to capture damages/losses/needs for the preparation of recovery plans. Use an open platform that is linked to existing data systems such as National Asset Registry System and the Geospatial Information Management and Analysis Project for Hazards and Risk Assessment in the Philippines (GeoRiskPH) to share information with relevant agencies.

Complex approval and disbursement processes of the NDRRMF lead to substantial delays in disaster response and rehabilitation and recovery. Requests for funding from the NDRRMF often require complex documentation and evaluation by several agencies before they are approved by the Office of the President. This process could reach up to one year or more (against the prescribed

¹³ The NDRRMF is composed of 45 members from different implementing agencies that develop policies and coordinate the country's overall DRM agenda. It recommends to the Office of the President key policies and has access to the National DRRM Fund for the approval of the President of the Philippines. However, the implementation of DRM programs is still the responsibility of the line agencies subject to their mandates.

¹⁴ A single agency mandated to coordinate, plan, finance, implement, and monitor all DRM interventions should ensure that policies and programs across sectors are developed and implemented in a cohesive manner.

¹⁵ Define how a whole-of-society approach to DRM can be operationalized at the national, regional, and local levels.

¹⁶ With the use of technology and simplified methodology, the assessments for more recent large-scale disasters have been completed in 5-8 weeks including the preparation of disaster recovery framework and strategies.

timeline of 15-30 days). The budget allocations to the NDRRMF are not driven by expected needs or actual past spending. Instead, they are based on the allocation from the previous year or already known reconstruction costs. As a result, allocations are often insufficient, relying on replenishments and delaying immediate response activities. Recommendations: (i) rationalize the administration and use of NDRRMF and streamline existing policies to respond to evolving DRM needs and compounding shocks of climate change, pandemics, etc.; and (ii) link financing to pre-arranged disbursement mechanisms for more efficient disaster response and recovery. Explicitly link the NDRRMF to existing ASP and disaster response mechanisms¹⁷ to reduce delays.

With the tight fiscal space and implementation of the Mandanas Ruling, the National Government capacity to cover most disaster response costs would be affected. Clear and credible rules on which costs the National Government will shoulder and which fall on LGUs would improve financial planning for disaster preparedness and response. These would also enhance incentives for risk management and financial preparedness at all levels of government. Recommendation: Clarify cost-sharing between the National Government and LGUs on DRM-related activities.

Public procurement during emergencies has been challenging due to a lack of basic guidelines on how to apply emergency procurement procedures. Efficient and fast-tracked procurement is critical for enabling rapid disaster response. The Government Procurement Reform Act (RA No. 9184) provides a general framework for negotiated procurement or emergency procurement in times of crisis. However, the National Government and LGUs have been cautious in applying this mode of procurement without specific guidelines for fear of sanctions by the Commission on Audit (COA). In March 2020, the Government Procurement Policy Board (GPPB) issued guidelines to simplify the procurement process during a state of calamity due to the COVID-19 pandemic. A similar issuance is necessary for the procurement of disaster-related projects. Recommendations: Develop emergency procurement guidelines that: (i) simplify procurement of essential goods and services using an umbrella framework¹⁸ that facilitates quick implementation of disaster response and recovery projects; and (ii) allow the use of alternative procurement methods for disaster and public health emergency interventions. The guidelines would address delays in project delivery.

Lack of investment in resilient infrastructure due to limited resources and tight fiscal space. Given the increasing frequency and severity of disasters, public infrastructure, private and public buildings, and housing structures need to withstand extreme events. Damage to infrastructure¹⁹ due to extreme events over the period of 2010-2019 has been significant. In the same period, around 135,000 housing units were damaged each year. For extreme cases such as Typhoon Odette, damage to housing has reached two million units aside from damage on school buildings, health facilities, and tourism infrastructure.²⁰ The massive damage to structures can be a result of poor design, quality of materials, and construction methodology. Many of the structures are also situated in hazard-prone areas. Recommendations: (i) prioritize and invest in green and resilient infrastructure (including nature-based solutions) to reduce damages and losses that may be caused by future events – integrate resilience with environmental protection and improved service delivery; (ii) mobilize Official Development Assistance (ODA) investment projects to (a) speed up disaster recovery and reconstruction; and (b) prioritize resilient infrastructure

¹⁷ These include the Emergency Cash Transfer and National Community Driven Development Program-Disaster Response Operation Modality programs of the Department of Social Welfare and Development, or the emergency infrastructure maintenance and rehabilitation programs of the Department of Public Works and Highways.

¹⁸ Pre-arranged agreements and framework contracts entered pre-disaster.

¹⁹ Public infrastructure includes schools, hospitals, roads, bridges, public administrative buildings, among others.

²⁰ Typhoon Odette has severely affected major tourism destinations such as Cebu, Bohol, Palawan, Siargao, and Dumaguete. These destinations are the primary drivers for economic recovery from COVID-19. In 2019, tourism contributed 12.8 percent to GDP.

development for key sectors²¹ and geographic areas; (iii) strengthen land-use planning, zoning, and urban development regulations taking into account disaster and climate risks as well as spatial information; (iv) update and effectively implement building code and development guidelines; and (v) strengthen regulations²² and enhance designs and standards for strategic infrastructure assets, tourism infrastructure, and housing.

Climate finance can build on the National DRFI strategy adopted by the Philippine Government in 2015. The DRFI strategy aims to (i) maintain the sound fiscal health of the national government; (ii) develop sustainable financing mechanisms for LGUs, and (iii) reduce the impact of disasters on poor and vulnerable households while also shielding the near-poor from falling back into poverty. The Department of Finance (DOF) and the Bureau of Treasury are gradually building the menu of risk financing instruments that follows a risk-layering approach to minimize the cost and optimize the timing of the post-disaster response. Instruments include annual budget allocations to the NDRRMF; contingent financing from Development Partners as pre-arranged loans that can be accessed in times of financial crisis; and catastrophe-linked bonds (Cat Bond). Recommendation: Revisit the DRFI and consider including additional strategies and instruments to help address long-term climate risks.

Social protection programs need to be strengthened to support disaster response. The Government, through the Department of Social Welfare and Development (DSWD), has developed adaptive social protection programs (ASP) that are among the most advanced in Asia. These include the Emergency Cash Transfer (ECT) program to support vulnerable households and the National Community Driven Development Program – Disaster Response Operation Modality (NCDDP-DROM) for disaster-affected communities. Recommendation: (i) develop a clear ASP and disaster response strategy with an agreement in advance on standard operating procedures, eligible expenditures, and beneficiaries, amounts to be disbursed, triggers and approval processes for additional funding, and clear pre-established fund-flow arrangements; and (ii) link disaster financing to existing ASP and other disaster response mechanisms to reduce delays.

²¹ Sectors such as education, health, tourism, agriculture, transport, water, and energy. Geographic areas such as prime tourism destinations, most vulnerable provinces (eastern seaboard), primary and secondary cities, and priority regions and provinces for development. Currently, there are two DRM-related investment projects namely: Philippines Seismic Risk Reduction and Resilience Project (\$300 million) ongoing with DPWH and a Sustainable, Inclusive, and Resilient Tourism Project (\$150 million) under preparation with TIEZA, DOT, Bohol, Surigao del Norte, and Siquijor. The project is redesigned for Typhoon Odette Recovery in these 3 affected destinations. This is ready to be delivered pending NEDA-ICC Board.

²² Regulations for implementation of civil works and quality of construction materials.