



DisasterNet Philippines

Scoping Study Report

HARVARD HUMANITARIAN INITIATIVE
RESILIENT COMMUNITIES PROGRAM

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I. Introduction

The Asia-Pacific region generally, and the Philippines in particular, are highly susceptible to natural disasters. Frequent exposure to typhoons and flooding, as well as volcanic activity and earthquakes necessitate high levels of disaster preparedness and a commitment to disaster risk reduction. The Philippines is home to over 100,000 million people, many of whom are impacted by natural disasters every year. In addition to disrupting peoples' everyday lives, natural disasters destroy property, disrupt economic production, reduce national output, exacerbate disparities in wealth, and hinder livelihoods, especially amongst marginalized communities and those living in informal settlements. To illustrate, the 2015 Global Assessment Report on Disaster Risk Reduction by the United Nations Office of Disaster Risk Reduction (UNISDR) estimates that the multi hazard average annual loss for the Philippines is \$7.893 million, which is equivalent to 69 per cent of social expenditure in the country.

The Philippines has developed robust laws and government capacity to respond to disasters. National government agencies, private sector consortia, research institutes and civil society organizations provide training and education for disaster responders, help build awareness of disaster risk reduction measures and improve the overall preparedness of Philippine society to natural disasters.

Despite very concrete advances in the science and practice of disaster risk reduction (DRR), and disaster preparedness, this scoping study revealed that there are opportunities to further improve disaster resilience. Changing weather patterns associated with global climate change have not only shifted weather patterns but have also created stronger typhoons. The unpredictability of storm paths, storm frequency and the increasing severity of storms limit the effectiveness of traditional disaster preparedness measures, and necessitate a review of existing practices and measures needed to adapt to a new climate.

Large numbers of informal settlements, coupled with the movement of people into areas highly vulnerable to flooding and other disasters, mean that large numbers of people are routinely impacted by disaster. While the Philippine national government has devoted significant resources to building disaster capacity, training government staff, and legislating comprehensive disaster management laws, there remain significant gaps in capacity to implement these laws, especially at the local government unit (LGU) level.

There is a range of gaps in disaster preparedness including uneven capacity at the local government and municipal levels, limited business continuity planning for small and medium enterprises, inconsistent levels of professional training of staff within various disaster management agencies, inadequate professional staffing levels at the local government level, insufficient dissemination and translation of scientific findings into policy and operational tools and underinsurance of industry and households.

To address some of these gaps, the Harvard Humanitarian Initiative has undertaken a three-year project in the Philippines termed DisasterNet. This project seeks to improve community-based resilience to natural disasters by supporting local government units and communities through applied research, education, and tools relevant to effective disaster preparedness and management. The first phase of this project was a scoping study undertaken in the Philippines from September 8 – 24, 2015. A team of researchers from the Harvard Humanitarian Initiative undertook the data collection for this study in Manila, Albay Province, and Iloilo City.

The purpose of the scoping study was to map government, community-based organizations, national and international non-governmental organizations, private sector initiatives, and research and academic institutions working on disaster preparedness and response.

The study further assessed disaster preparedness and response strategies and systems in Albay Province. Albay Province is the recipient of many awards in recognition of its high level of disaster preparedness and effective disaster management. One goal of the DisasterNet project is to capture effective disaster preparedness strategies and to provide educational tools that will enable the entire country to learn from the experiences of those areas that have devised successful preparedness measures.

The results of this scoping study will lay the foundation for a broader national or regional level survey that will identify the leading contributing factors that determine effective disaster preparedness measures and the antecedents of high measures of community-based disaster resilience. The survey will provide contextual data to understand disaster preparedness and resilience in the Philippines. The data will inform programs and policies to enhance preparedness and identify key (unprepared) vulnerable groups. HHI will further explore developing a disaster preparedness score that could be used to monitor household level preparedness over time.

The scoping study further identifies existing disaster management agencies, networks of leaders and agencies focused on preparedness activities (especially at the community level), and key opportunities for further professionalizing and training officials responsible for disaster response.

II. Methods

The scoping study relied on key stakeholder interviews and focus group discussions with disaster management professionals, community leaders, local government leaders, and academic and research institutions. Meetings took place between September 8 – 24, 2015 in Manila, Albay Province, and Iloilo City.

All meetings assessed the following:

1. Existing community-based preparedness measures and resources, provided by all sectors including government, civil society, private sector, and academia.
2. Identifying local focal points for national and international agencies to coordinate with during disaster response.
3. Mapping civil society organizations and private sector entities that operate in disaster prone areas and that focus on disaster risk reduction and management (DRRM).
4. Identifying key gaps in capacity to inform the development of a household level survey suited to a national preparedness mapping study.
5. Identifying research questions that disaster risk reduction and management actors in the country deem important and relevant.

A formal research partnership was established between the Harvard School of Public Health and the Ateneo de Manila University.

Research Questions

Some specific research questions that emerged from the meetings include:

- Understanding the role of informal, non-nationally registered disaster preparedness and response groups.
- Understanding the link between land tenure and disaster resilience. Exploring the impact decisions about no-build zones have on local economies and disaster preparedness practice.
- Understanding the role of local philanthropy, insurance, and the private sector in disaster preparedness and response.
- Understanding the practices associated with household level disaster preparedness.
- Understanding the role of local markets in incentivizing disaster preparedness measures.
- Understanding how the rapid expansion of new information technologies, mapping, and other information collection and analysis processes are impacting disaster preparedness and response.

Organizations Consulted

The DisasterNet team undertook a convenience sample of organizations and not a comprehensive sample of organizations involved in disaster resilience and disaster preparedness. This list therefore does not represent the full list of agencies working on preparedness and resilience in the Philippines, nor should it be interpreted to mean that the organizations we met with were more important than ones we were not able to meet with. The DisasterNet team intends to undertake a more comprehensive mapping study that will capture a much broader range of agencies.

a. Government of the Philippines:

- National Disaster Risk Reduction and Management Council (NDRRMC)
- Department of the Interior and Local Government (DILG)
- Department of Social Welfare and Development (DSWD)
- Office of Civil Defense (OCD)
- Department of Science and Technology (DOST): Nationwide Operational Assessment of Hazards (NOAH)
- Provincial Government of Albay
- Municipal Government of Santo Domingo
- Development Academy of the Philippines (DAP)
- Union of Local Authorities of the Philippines (ULAP)
- Local Government Academy (LGA)

b. Non-governmental Organization:

- Asia Foundation
- Catholic Relief Services
- Center for Disaster Preparedness
- International Federation of the Red Cross
- Philippines Red Cross
- Mercy Corps
- Action Against Hunger
- World Vision International
- Oscar M. Lopez Center for Climate Change Adaptation and Disaster Risk Management
- Christian Aid
- Plan International
- Oxfam
- Handicap International
- Disaster & Emergencies Preparedness Programme
- Cooperative for Assistance and Relief Everywhere (CARE)

c. Academia:

- Asian Institute of Management
- Ateneo de Manila University
- Manila Observatory
- University of the Philippines Visayas
- De La Salle University School of Economics

d. Private Sector:

- Philippine Disaster Recovery Foundation
- Corporate Network for Disaster Response
- Community Health Education Emergency Rescue Services (CHEERS)

e. International Agencies:

- Japan International Cooperation Agency
- United States Agency for International Development
- World Bank

f. United Nations:

- International Organization for Migration (IOM)
- United Nations Office of the Coordination of Humanitarian Affairs (UNOCHA)

g. Media

- Rappler

III. Findings

The Philippine Disaster Risk Reduction and Management Act of 2010 (Republic Act 10121), which lays down the institutional arrangements for how the whole spectrum from disaster prevention to recovery and rehabilitation is addressed in the country, is currently undergoing a mandatory review. Thus, the opportunity is present to link outcomes of the DisasterNet project and of this scoping review to some of the key issues raised in the mandatory review.

There was general consensus amongst the experts we met with that Philippine disaster risk reduction laws are strong, but that gaps remain in implementation. The key gaps that were mentioned by most of the stakeholders we met included:

1. The Office of Civil Defense is mandated to be the secretariat and main operating arm of the National Disaster Risk Reduction and Management Council, but it lacks the needed capacities and resources to realize its full mandate. It only has personnel down to the regional level, whereas most of the disaster risk reduction activities are done at the city / municipal and even barangay levels. Currently, OCD only has 269 positions and their estimate is they need 1,200 positions to be able to effectively carry out its mandate. This is the reason why some groups are pushing for the creation of a disaster management-focused department or authority.
2. LGUs are expected to be the integrators of DRR efforts at the community level, across all four pillars of disaster prevention & mitigation, preparedness, response, and recovery & rehabilitation. However, technical capacity, available resources, and access to needed information for planning, executing and monitoring DRR interventions at the local level vary widely. While there are models such as the Albay Provincial Government and the Bogo City Government in Cebu, they are exceptions and more effort must be taken to document and replicate these best practices. One report notes that more than 80 per cent of local governments are still at the beginning of implementing the “Listo” checklist for disaster preparedness from DILG, which is indicative of how underprepared the majority of the country is for disasters.
3. Many stakeholders emphasized that having a national land use plan is the “only permanent solution to the hazard problem.” Until now, the Philippine Congress has not passed a national land use plan. Local governments are mandated to prepare their own comprehensive land use plans, but most of these are outdated and not professionally prepared.

Given such an overall assessment, the following are specific findings that relate to the major gaps mentioned above:

A. Gaps in Capacity Building

Disaster management personnel in the Philippines, from the national to barangay levels, require capacity building interventions to build their competencies in disaster risk reduction and management. A number of academic and government institutions talked about professionalizing disaster management personnel. For example, DAP is running a program for local planners where DRR training is integrated, DILG provides online training modules via the Local Government Academy while it looks to create a Masters program for local disaster management officers, and OCD also offers a number of training modules for LGU officials.

In professionalizing disaster management personnel, building technical competencies for disaster financing should be given special attention. Per the law, LGUs are to allocate at least 5 per cent of their revenue as their Local Disaster Risk Reduction and Management Fund, where 30 per cent should be used as a Quick Response Fund when an actual disaster strikes and the remaining 70 per cent can be used for disaster prevention, mitigation, and preparedness activities. Many LGUs fail to strategically tap the Fund due to lack of knowledge on what the fund can be used for, whether it is only accessible in the wake of an actual disaster, and the extent LGUs can share funds with other LGUs. Additionally, 5 per cent of revenue is set only as a minimum but most LGUs default to that figure. LGUs largely lack the know-how to make a determination of how much to set aside for their calamity funds that is commensurate to the risks that they face.

While professionalizing the skills of disaster management personnel is important, capacity building should not focus just on technical aspects. The recognized best practices in the country share a strong sense of leadership that prioritizes disaster risk reduction and management and fosters “a culture of preparedness” in its localities. Stakeholders pointed to the importance of integrating leadership development modules in the capacity building efforts.

Related to the issue of capacity building for LGUs is the institutionalization of Local Disaster Risk Reduction and Management Officers (LDRRMOs), in a way that survives the short political cycle in the Philippines (political terms for governors and mayors are only for 3 years). Currently, most LDRRMOs are political appointees and/or have other assignments; normally, the Local Planning and Development Officers are designated as LDRRMOs.

It should also be noted that there is no clear and authoritative repository for DRR information and knowledge products. SURGE is maintaining the DRR Knowledge Center and OCHA also has its own repositories. However, the extent of their use and maintenance is unclear (this is further explored in Section E: Collaboration Challenges across Actors).

B. Challenges in Bringing Scientific Information to Local Communities

Hazard and vulnerability mapping are important inputs for community-based prevention, mitigation, and preparedness. There are efforts to provide these from the national government (such as the Geohazard Mapping of the Department of Environment and Natural Resources as well as the Project Nationwide Operational Assessment of Hazards or NOAH and the Rapid Earthquake Damage Assessment Software or REDAS of the Department of Science and Technology). However, more can be done to relay this scientific information in ways that can be readily understood and used by communities. Part of this is grounding the scientific information in accepted community values, customs and worldviews. For example, indigenous early warning systems can be used as entry-points for explaining the scientific information behind the effectiveness of these methods and for eventually introducing scientific knowledge to the community.

At the same time, some LGUs are doing their own mapping exercises and some civil society organizations facilitate community-based risk assessment and mapping exercises (including mapping where critical resources are). Opportunities exist for digitization and regular updating of these LGU- and/or community-prepared maps, better synchronizing these with national government-provided information, as well as training more LGUs to have the capacity to prepare and update their own hazard and vulnerability maps.

C. Dearth of Data

While there are some existing databases and data collection initiatives which could be tapped for useful information, those focusing on household level information are limited in number. The primary source of household level data for the Philippines is the 2010 National Census, from which trends can be established by comparing the 2007 and 2000 census data results. However, some interviewees expressed concern with

the accuracy of the reported census figures, suggesting there may be underreporting of vulnerable groups. Another nationwide household level database is the National Household Targeting System for Poverty Reduction, which is intended to inform government and policy-makers on whom and where the poor are in the Philippines. Aside from these, the other household level databases we identified tended to be locally specific such as a WHO database from the aftermath of Typhoon Haiyan, located specifically in the Haiyan corridor, and the I.M. PrepareD innovation from the Bogó City government. What is missing however is a complete national survey that maps disaster preparedness at the household level.

Other sources of information either aggregate information at the national level, such as the United Nations ESCAP (Economic and Social Commission for Asia and the Pacific) Statistical Database, which has a number of indicators on health, demographics, environment, and economy; or gather information at the city or municipal level such as the Greater Metro Manila Area (GMMA) Ready Project and the OCD Climate and Disaster Risk Index for LGUs. The Disaster Preparedness Audit maps disaster preparedness across scales from local, to regional and nation-wide; however, it does not capture household level information.

It appeared that alongside a general dearth of data generation at the household level, there is also a lack of analysis of existing data to inform policy and programs. For example, The Disaster Preparedness Audit is a checklist noting the absence or presence of DRR preparations at different scales (regional and local), but it has not been analyzed. We further found that it was unknown which provinces were lagging behind in terms of preparation, and may only become manifest during the next disaster. Significant amounts of potentially useful information are also only being reported anecdotally, lacking thorough verification. More can be done to document the process and nature of success stories such as Albay Province and Bogó City. Case studies of which would aid actors' ability to implement similar initiatives with success in other provinces.

D. Limits to Community-based Efforts

Key government agencies involved in DRR (such as the DILG), the LGUs and civil society agencies converge on integrating and targeting capacity building for DRR at the local level (city or municipality and even down to the barangay). As mandated by the law, each municipality should have a permanent DRRMO, which is currently implemented in less than 20 per cent of LGUs. One of the significant challenges in achieving this implementation is the overwhelming scale – more than 1,600 cities and municipalities and around 42,000 barangays.

The nature of disaster risk in the Philippines is that a typhoon, storm surge, earthquake or volcano is likely to affect multiple municipalities and even multiple provinces in one event. Therefore, more focus and harmonization of preparedness and response at an administrative level higher than the municipality is also needed. The more than 1,600 municipalities and cities will face different risks and have access to different resources. Building the DRRMO capacity in a systematic manner with such a huge number of units which vary in disaster risk and context is a challenge.

Civil society organizations need robust standards for assessing and benchmarking effective disaster governance and competencies. Operation Listo! is one such example which targets Mayors and provides a set of checklists of early preparations and minimum critical preparations. Standards for benchmarking and assessment will better inform and direct the capacity building agenda and targeted interventions of the different actors.

E. Collaboration Challenges across Actors

Efforts to convene and coordinate within sectors are evident but there is very little cross-sectoral collaboration among civil society, the private sector and the government. In theory, partnerships and synergy amongst different actors is promoted. Yet the practice reveals that this is still a long way to go. In one instance, an

NGO had been viewed as a “competitor” to the LGU. Certain organizations, such as the Center for Disaster Preparedness, are involved in training both NGOs and the government sector in various areas of community-based disaster risk management (CBDRM); however, more is needed to engender the type of cross-sector collaboration which will promote comprehensive disaster risk management.

Civil society organizations coordinate their advocacy and community-based DRRM activities through DRR-Net Phils. The International NGOs – Oxfam, Christian Aid, Plan International and Handicap International – coordinate their inclusive community-based disaster risk reduction projects under the network of SURGE (Scaling Up Resilience in Governance) as well as through the Philippine INGO Network or PINGON, which meets regularly with the Philippine Humanitarian Country Team. The private sector coordinates its activities primarily through the Philippine Disaster Recovery Foundation (PDRF), but also through the Corporate Network for Disaster Response (CNDR), the Philippine Business for Social Progress (PBSP) and the League of Corporate Foundations (LCF).

The Philippines has used shared central knowledge repositories and platforms in an attempt to coordinate efforts; however, their actual use by disaster preparation and response actors was limited and therefore their effectiveness was uncertain. One such knowledge repository/platform widely referred to is the ‘DRR Knowledge Centre,’ but UNOCHA also mentioned having their own repository. DRR Knowledge Centre is an online platform for Philippine Disaster Risk Reduction and Management maintained by SURGE (the consortium of international NGOs) and there are efforts to turn over its maintenance to the OCD. There was interest for a clear centralized repository for DRR information and knowledge products, used and of use to all actors, but also skepticism of whether it would be any more successful than current initiatives.

An overarching national platform for coordinating, strategizing and defining what the Philippines understands by ‘resiliency’ does not exist. The various actors have different conceptions of DRR, focusing on different dimensions of the disaster cycle. For example, some actors emphasize the importance of resilience in mitigation & prevention over preparedness, or preparedness over response & recovery. The approach to research and capacity building is also happening at different levels - barangay or LGU - in large part because different sectors have different perspectives of where DRRM will be most effective.

Finally, DRR initiatives focus on different target positions, including local chief executives, disaster risk reduction and management officers, barangay-based volunteers, and planning officers. Without a national platform to coordinate, strategize and lead how resilience building should look in the Philippines, the different actors and perspectives will continue to work in siloes.

F. Special Concerns: the private sector, informal settlements and environmental change

Private sector

The private sector from large, small and medium size enterprises (SMEs) down to microenterprises, called Sari Sari stores, provide and distribute the goods and services needed to meet the physical requirements of Filipino citizens. The DRRM Law includes active participation from the private sector in delivering the government’s DRR programme to the citizenry. However, our interviews revealed that amongst private sector representatives there was a general sentiment that very little policy was aimed at protecting the private sector itself during a calamity.

While larger corporations have the resources to invest in protecting themselves - through insurance, by building contingency plans for business continuity, and developing partnerships and agreements with other large corporations - the micro, small-medium enterprises severely lack any form of indemnity. Acting as key distributors of goods, if the business of micro-enterprises and SMEs is interrupted during a disaster, this has

knock-on upstream effects to larger corporations. Moreover, a loss on consumer spending is also a loss of tax revenue for the government, which, at such a critical time, takes on greater significance. The private sector therefore is interested in seeing more policy protecting their sector against disasters.

In the meantime, businesses have begun to organize themselves. The Philippines Disaster Recovery Foundation is the major umbrella organization for DRRM in the private sector, involved in a number of coordinating activities across businesses such as harmonizing protocols amongst companies, establishing Disaster Officers, and running Business Continuity Planning training sessions for SMEs. They have also started preparations for the “The Big One” (an earthquake) predicted to hit Metro Manila. Specifically, they are mapping business resources and establishing quadrant coordinators on food, health, transport and shelter in Metro Manila.

Informal settlements and poverty-disaster nexus

Disaster vulnerability is intrinsically linked to poverty. The poor have fewer resources to mitigate, prepare, cope and recover from a disaster. Poverty, in the form of internally-displaced peoples (IDPs) and informal settlements, is a major challenge in the Philippines with over 25 per cent of the population living below the poverty line. The challenge of informal settlers is not limited to Metro Manila, nevertheless the problem concentrates here with 4 million (30 per cent) of population living in informal housing. Informal settlements are a national challenge and one that will deepen as the urbanization trend continues. We found that as high as 30 per cent of the population of a barangay in Albay Province are informal settlers. The Manila Observatory has developed tools to track footprint of informal settlement growth in Metro Manila and along vulnerable coastal sites, but there remains a lack of household level data on these populations.

Poverty in the Philippines comes in many degrees of deprivation. The poor vs. non-poor dichotomy is unhelpfully simplistic, as it omits the different severities of poverty and the “near poor” households who could easily fall into poverty. There is limited data on very poor households and limited research on how these households behave during a disaster. There are indications that the very poor might be the first to evacuate and heed early warnings as they know they have little to lose and may gain from the state’s help; however, this is significantly under-researched.

The government, through the Department of Social Welfare and Development, is mandated to protect the citizens, and regarding disaster risk management, to particularly focus on IDPs and informal settlers. This has largely taken the form of resettling informal households located in disaster prone places, such as along major river banks or the coast. Resettlement, however, is having mixed success as people move back to the hazard prone locations because of the proximity to economic opportunities. Civil society organizations stressed that economic resilience and access to better livelihoods opportunities are integral to disaster resilience for the very poor and poor.

Environmental change, the changing nature of disaster risk

It was unclear to what extent underlying risk drivers of disasters such as environmental degradation are being focused on at the national level. In general, it appeared that underlying vulnerability research is not prioritized in the Philippines as the challenge of multiple drivers – such as overfishing, ocean acidification and climate change – is too overwhelming. Academics at the SURGE conference felt that the natural resources of the Philippines are often forgotten during disaster risk discussions – exemplified by the lack of a Comprehensive Water Use Plan - and that LGUs are lacking comprehensive information on their local natural resources/assets, and as such have no baseline data from which to inform their municipal development plan.

The pressures of the “New Normal” – more intense weather events, increasing small and medium disasters (known as extensive risk) and changing weather trajectories – are galvanizing the national governments

across Asia to “understand and develop more impact forecasts specifically for human life, finance and the economy” (APEC Conference). The omission of the environment, despite its significance, in the Hyogo Framework for Action (HFA), Sendai Declaration and other important international agreements, indicate that governments, including the Philippines, have yet to take the environment degradation-disaster risk interaction seriously.

IV. Analysis

In response to the findings that were discussed in the previous section, the following are key directions that the DisasterNet Project can pursue that will add value to the current landscape of DRR interventions in the Philippines.

1. Review of current modules and curriculum development on DRR

During the scoping trip, various resilience and disaster preparedness programs were identified. DisasterNet can contribute to these efforts by reviewing the current modules that are being used, providing feedback based on international standards and practices, and suggesting alternative learning methodologies drawing from the work of the Harvard Humanitarian Academy (including moving into online learning platforms). The DisasterNet team requested copies of the modules that are used in these different programs to begin the review process.

Additionally, DisasterNet will consult with training providers to develop new curriculum that can supplement existing programs designed to build organizational disaster preparedness capacity. Areas where curriculum development is critical include leadership development for disaster risk reduction and management, disaster financing, and hazard and vulnerability mapping. To do this, DisasterNet intends to sponsor and convene workshops among different CBDRM training providers to get to know about each other's work and develop shared modules for implementation in respective project sites.

Collaborative initiatives can be pursued with key academic institutions, such as the Ateneo School of Government, the Development Academy of the Philippines, and the Asian Institute of Management to do both module review and curriculum development.

2. Case development for best practice sites

As mentioned, best practices in DRR among LGUs exist, notably Albay for the provincial government level and Bogo in Cebu for the city government level. These best practices can be documented and turned into learning cases, which can supplement the materials that are used in existing capacity building interventions.

Aside from best practices among LGUs, it will also be instructive to identify and document best practices among civil society organizations, especially those that focus on community-based disaster risk reduction and management. Possible cases for this include the barangay-level mobilization of the Philippine Red Cross, the DRR Technical Programme of World Vision, which facilitates community-driven DRR interventions, and the Noah's Ark project, focused on building the capacities of communities for preparedness, of the Corporate Network for Disaster Response.

3. Piloting household-level data collection and analysis on community preparedness

Other than the datasets that have been mentioned above, there is little household-level data that is collected and analyzed specifically for informing DRR policy making and program planning. The absence of data collection tools, processes, and analytical frameworks thus provides an opportunity for DisasterNet to contribute meaningfully to the DRR work in the country.

Little is known about households' current capabilities and resilience to disaster. HHI and its partners in the Philippines seek to fill that gap with the general objective of building disaster resilient communities in the Philippines. To contribute to this objective, HHI proposes to undertake a detailed population-based assessment of households' preparedness. The survey will have three specific outputs:

1. **Survey Results:** Providing contextual data to understand disaster preparedness and resilience in the Philippines. The data will inform programs and policies to enhance preparedness and identify key (un-prepared) vulnerable groups.
2. **Disaster Preparedness Scores:** Based on the survey data, HHI will validate short assessment scales to measure general preparedness and preparedness for specific events (e.g. typhoons). The scales will be used to compute preparedness scores by geographic areas such as administrative zones or high risk / exposure areas. The scores will be used to compare households and communities, and monitor change over time.
3. **Small Area Preparedness and Vulnerability Estimates:** Preparedness survey data will be used to identify determinants of disaster preparedness. The resulting model will be combined with census data (pending access) to compute small area estimates of preparedness. This information will be combined with hazard risk maps and relevant indicators to develop vulnerability maps taking into account preparedness and other dimensions of social vulnerability.

These outputs will:

1. Increase the availability, usability and access to much needed data and measurement tools about community preparedness, risk and vulnerability relevant to integrators of disaster risk reduction (DRR) and climate change adaptation (CCA) work such as local government units;
2. Contribute to improving disaster preparedness generally in the Philippines by informing and improving policies and programs on DRR and CCA; and
3. Serve as baseline information from which future studies can build, including:
 - a. Preparedness programs evaluation
 - b. Preparedness monitoring through regular polls
 - c. 'High resolution' assessments of preparedness in highly vulnerable areas
 - d. Evaluation of the effects of preparedness on mitigating the impact of disasters and the effects of climate change.

DisasterNet can collaborate closely with academic institutions to develop the research tools, plan and execute the data collection process, and conduct the analysis on the results. This way, the capacity of local academic institutions is developed through the process.

Work in this aspect can begin by identifying a site, likely a province, where the household-level data collection and analysis methodology can be developed, piloted and evaluated, in partnership with appropriate local academic institutions. Lessons learned from the pilot can then inform proposals for replicating the process in other parts of the country.

V. Conclusion

The Philippines is a country disproportionately affected by natural disasters. Climate change is further exacerbating severe-weather related risks by changing weather patterns and increasing the severity of these events. While the country possesses a robust disaster management system, underlying disparities in wealth, large numbers of informal settlements, and the limited professionalization of disaster managers in under-resourced regions mean that significant gaps remain in disaster preparedness.

This scoping study highlighted some of the key gaps in disaster preparedness and current limits of disaster resilience strategies, including shortcomings in data (especially at the household level) needed to make informed policy decisions and to improve planning and operations. Disaster management officials with minimal professional training, limited collaboration among national players and local government units, and challenges in translating relevant scientific findings on disaster risk into actionable knowledge for local disaster risk reduction and management officials create obstacles to developing disaster-resilient communities.

The study underscores the need for expanded research into understanding the current level of preparedness of local governments to cope with severe weather related events. Improvements in data collection on disaster preparedness hold tremendous promise for informing national and local disaster policies. The study further highlights opportunities for building the evidence base around better dissemination of current best practices, the development of training programs designed to professionalize disaster managers, and the provision of research and education tools to increase the capacity of local organizations.