May 2023

Expanding community resilience programs to urban contexts: Key considerations for resilience measurement

A case study from Metro Manila, Philippines

The **Zurich Flood Resilience Alliance** is a multi-sectoral partnership which brings together community programmes, new research, shared knowledge, and evidence-based influencing to build community flood resilience in developed and developing countries.

We help people measure their resilience to floods and identify appropriate solutions before disaster strikes. Our vision is that floods should have no negative impact on people's ability to thrive.

To achieve this, we are working to increase funding for flood resilience; strengthen global, national and subnational policies; and improve flood resilience practice.

The world is becoming increasingly urbanized. Every week, approximately 1.4 million people are added to urban centers globally; an estimated two thirds of the world's population will live in cities by 2050. While cities provide access to opportunities, diverse industries, markets, and networks for their inhabitants, for many rural-to-urban migrants and city-dwellers, these opportunities will come with increased risk. Over the coming decades, the number of people exposed to hazards in urban settings is projected to grow because of where people live — on marginal land with limited access to city services — and due to the intensifying impacts of climate change.

As a result, humanitarian and development organizations are increasingly expanding their operations into urban areas. However, implementing relevant and impactful climate resilience and adaptation programs in urban communities requires a deep understanding of those communities and their resilience gaps, capacities and priorities. While there are many data tools that organizations use to inform and shape their programs, these tools

are often fundamentally built to understand *rural* or *semi-rural* communities. These tools can be applied in urban contexts, but they need to be adapted to account for and deconstruct the unique complexities — for example, increased diversity, density, and dynamics[1] — of urban environments that influence aspects of programs, initiatives, and interventions (see Table 1). In particular, tools, their application, and the resulting programs need to:

- Be inclusive of a higher number and diversity of stakeholders,
- Account for diverse and changing needs and vested interests, and
- Identify and address the increased interlinkages between the systems that people depend on.

Since 2019, the Philippine Red Cross (PRC) and the International Federation of Red Cross and Red Crescent Societies (IFRC) have been implementing a resilience program as a part of the Zurich Flood Resilience Alliance (the Alliance), focused on shifting from the traditional emphasis on post-event response and recovery to pre-event resilience. This program was designed based on the data the PRC collected via the Alliance's Flood Resilience Measurement for Communities (FRMC) framework and tool on community resilience gaps and opportunities. This case study shows how the PRC tailored the application of this approach to suit an urban context. Implementing the FRMC in Metro Manila and increasing access to resilience data has enabled the PRC to identify previously unidentified entry points for resilience building, to start building partnerships for resilience building beyond the traditional set of PRC partners, and to bring more detailed and rigorous evidence to community resilience programming.

The considerations the PRC and IFRC teams took into account when expanding their work to Metro Manila are specific to the resilience measurement framework and tool (i.e., the FRMC) they used. However, their approach to tailoring the framework and tool is applicable more broadly to development and humanitarian organizations expanding their work to urban centers.

Rush hour in Metro Manila, Philippines. © Jonathan Ulrich

[1]IFRC. *Building urban resilience: A guide for Red Cross and Red Crescent engagement and contribution. Outcome Report of the Partnership on Urban Disaster Risk reduction and Management.* 2017. https://www.ifrc.org/sites/default/files/1317300_GuidanceUrbanResilience_LR25b15d.pdf

Table 1
Urban characteristics, challenges, and implications for resilience building

Urban characteristics	Definition	Challenges	Implications for resilience building
Density	More people, buildings, infrastructure, systems, stakeholders, economic sectors, etc. in a given space.	• High population size and density influence how organizations engage with stakeholders	• Identify and connect with local authorities across multiple sectors as an entry point for engaging with communities.
Diversity	Increased variety of actors, infrastructure, communities, and livelihoods in a given space.	• The diversity of urban populations is a challenge for defining community boundaries; • The greater number and diversity of stakeholders means there are greater social, economic, demographic, and religious complexities in engaging stakeholders; and • Social, economic, demographic, and religious diversity creates differential vulnerabilities.	• Classify communities through socio-economic characteristics and needs rather than geographically; • Ensure that communication and stakeholder engagement plans encompass and speak to the diversity of stakeholders in the community, including their specific capacities and needs. This may require intercultural and/or multilingual communication and engagement skills; and • Leverage the diversity of economic opportunities to build alternative livelihoods and other resilient responses to sector-specific disaster impacts.
Dynamics	Continuous change of systems, economics, politics, landscapes, and people.	• Constantly changing stakeholders, including in-and-out migration in communities and staff turn-over in agencies and government, can result in loss of relationships and constrain program continuity; • Turnover in key stakeholders or decision-makers can strongly impact organizational access, jeopardizing program progress; and • Shifting socio-economic trends can change community priorities, disaster vulnerabilities, and community baselines.	• Relationship building needs to be a core, ongoing function at all levels of the work, with even greater effort in more dynamic environments; • Institutional relationships should be formalized to enable program continuity despite institutional change; • Organizations should strive to build multiple contacts within key department and agencies to ensure that work is not dependent on just a few individuals; and • Regular situational review of the community and their environment is needed to identify and respond to changing opportunities, priorities, and needs.
Interplay of density, diversity, and dynamics	Complex and interconnected systems, particularly critical systems (food, water, power, communications, transportation).	• Governance, including institutions, sectors, actors, and processes, is complex and interlinked.	• Consider how governance systems in and external to communities influence organizational processes and strategies.

A FLOOD RESILIENCE MEASUREMENT APPROACH TO FIT URBAN CONTEXTS: AN EXAMPLE FROM METRO MANILA

In 2019, the PRC and the IFRC started their Alliance program with a focus on building flood resilience in and with rural communities in the Province of Pangasinan (located on the northern end of the Philippines on the island of Luzon). In 2021, they extended their work to urban communities, working with 28 additional communities in highly flood-prone areas in Pateros and Pasig of Metro Manila.

The Alliance's approach to building flood resilience is grounded in a holistic understanding of resilience, developed via application of the FRMC framework. This framework builds up a picture of the community through exploration of various aspects of social, natural, financial, physical, and human capitals (the 5Cs, see Figure 1) that contribute to resilience. To build this holistic understanding, Alliance teams run the FRMC tool, a web-based data app which allows users to understand and generate evidence about the ways in which a community is already resilient to floods, and where resilience could be further built.

The FRMC is like many participatory measurement approaches used by organizations engaging around climate vulnerability, adaptation, and resilience, in that it seeks to develop a baseline understanding of community resilience by collating data and perspectives from a wide variety of stakeholders, including communities, local government, and sectoral experts.

Conducting the FRMC entails a study set-up, data collection, data analysis, results sharing, and an interventions design phase. The results are then shared back with key stakeholders to support validation of the results and prioritize the resilience projects and interventions that best align with community resilience needs. Beyond supporting program design, this process also helps to build broad stakeholder buy-in to the data and the resulting conclusions.

Like most existing, similar tools, the FRMC has most commonly been implemented with rural communities. Therefore, its application in Metro Manila required careful consideration of:
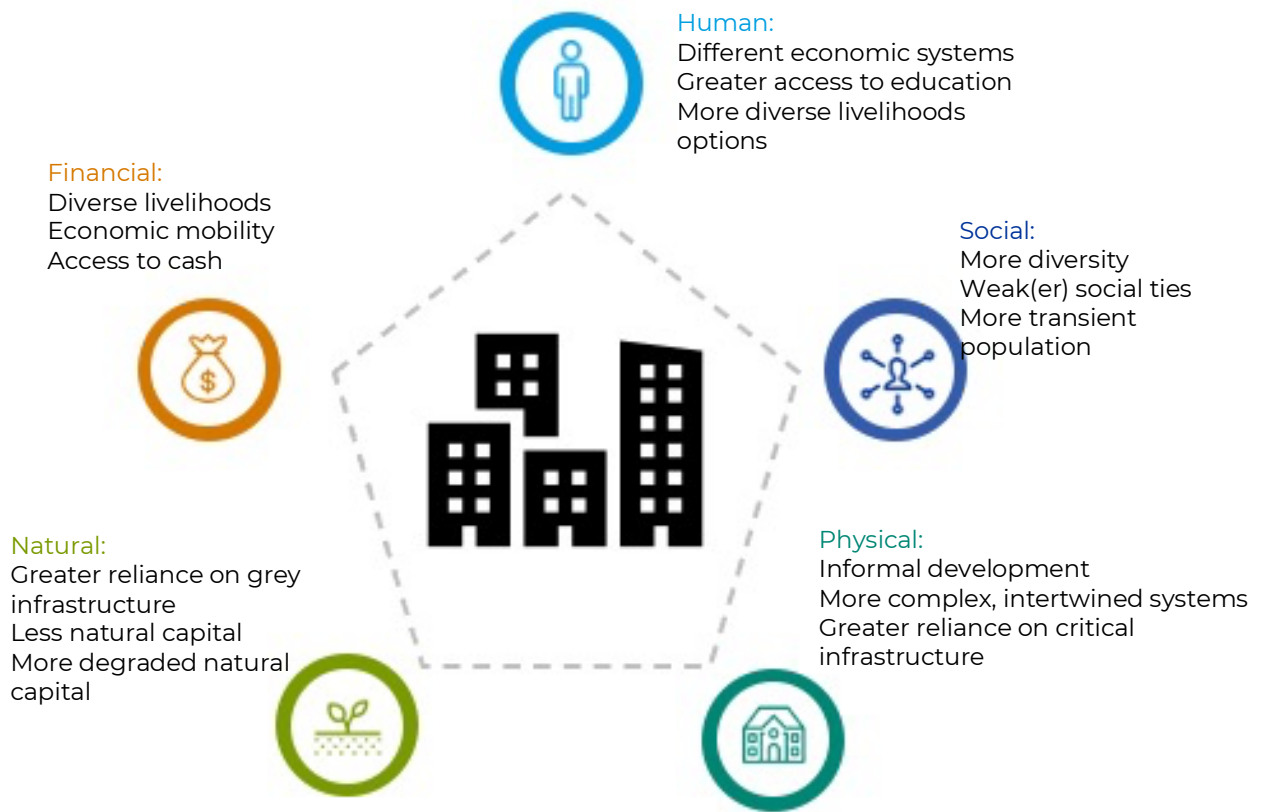
- Adaptations needed to make the tool's contents relevant in an urban area. For example, given the importance of the 5Cs in providing a holistic understanding of community resilience, the project team considered what each of the 5Cs meant in urban versus rural settings, and what was most relevant to explore (see Figure 1).
- How to operationalize the tool due to very different logistical challenges present in an urban area. Given the challenges posed by the density, diversity, and dynamics of urban centers for resilience work, the project team reconsidered how they collected the data, how they analyzed it, who they shared it with, how they shared it, etc.

Manila, Philippines. © Jonathan Ulrich

Figure 1
The 5 capitals as applied to urban contexts: Examples from Metro Manila

Human:
Different economic systems
Greater access to education
More diverse livelihoods options

Financial:
Diverse livelihoods
Economic mobility
Access to cash

Social:
More diversity
Weak(er) social ties
More transient population

Natural:
Greater reliance on grey infrastructure
Less natural capital
More degraded natural capital

Physical:
Informal development
More complex, intertwined systems
Greater reliance on critical infrastructure

Example from Metro Manila:
- Schools are more readily available — there are 3-4 schools per urban barangay (some barangays in rural communities lack even one)
- Barangays have libraries and computers, providing more access to information

Example from Metro Manila:
- Financial resources primarily from sources external to the community
- Finances affected by broader factors (e.g., national socio-political climate, inflation)
- Livelihoods more service-oriented and income based

Example from Metro Manila:
- Natural capital not prominent and strong
- Majority of natural landscapes converted from mangroves and beach forests into reclaimed urbanized areas

Example from Metro Manila:
- Diversity of residents with different cultures, value systems, principles, beliefs
- More transient residents
- Renters rather than home owners
- People living in the barangay and working in the city
- Very few social events that community members celebrate together

Example from Metro Manila:
- The built environment consists of high-rise buildings, commercial complexes, business districts, etc.
- Community reliance on complex and larger infrastructure such as drainage systems, electricity, water systems, telecommunications, and transportation systems
- Systems are often overburdened

OPERATIONALIZING RESILIENCE MEASUREMENT IN METRO MANILA

Below we provide a more detailed look at how the PRC and IFRC teams adapted both their underlying ways of working and the phases of the resilience measurement process — study set-up, data collection, data analysis, results sharing, and interventions design (Figure 2) — to accommodate the complexities and challenges of working in an urban environment.

Figure 2
The phases of a resilience measurement process

→ Study set-up
→ Data analysis
→ Interventions design
→ Data collection
→ Results sharing
→ Validation
→ Buy-in/ownership
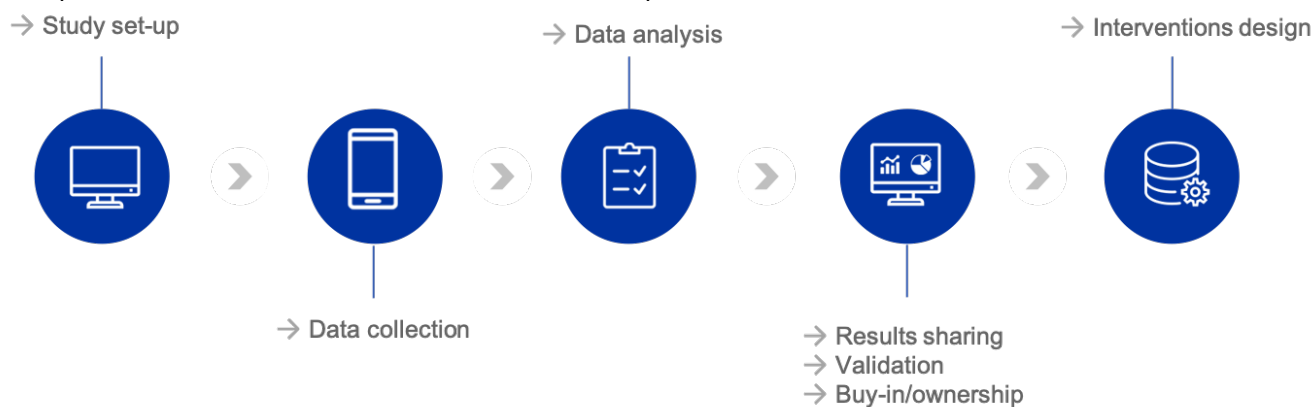
ADAPTING WAYS OF WORKING

Moving from rural to urban settings requires changes to how organizations and teams work, particularly in terms of the commitment and associated time and effort devoted to developing and maintaining relationships, and in the identification of what relationships need to be built. To address this, the PRC's work in Metro Manila is rooted in ongoing communication and consistent relationship building with communities and key stakeholders. These ongoing efforts are critical to each stage of the resilience measurement process, from study set-up through to program design and implementation, but has manifested in different ways as work has unfolded.

Working with city government officials and staff: From the outset, the project team recognized that engaging with local government and line departments would be a critical aspect of the work. However, given authorities' full schedules and competing demands for their attention, maintaining their engagement is difficult if they do not understand how a project informs their job. Thus, the PRC and IFRC teams divided engagement into different time periods, identifying the different groups and subgroups of stakeholders that would need to be either informed or actively engaged in each. This has required a longer term of engagement and different methods of convening. However, the PRC and IFRC teams noted that this method has encouraged buy-in and consistent engagement with key governmental stakeholders throughout the process. It has also helped to ensure the maintenance of relationships despite institutional change and staff turnover.

Setting up a process to work with urban diversity: The project team also identified that the diversity of the urban communities they were working with would require developing a communication plan that includes a range of methods and approaches for

engaging with communities and stakeholders across sub-groups, cultures, sectors, and levels. For example, to accommodate for the sheer number of stakeholders the project team wanted to engage and their preference for meetings and community activities to occur on weekends, the team divided community presentations across different dates and venues, holding a series of meetings rather than the single meeting that might suffice in a rural setting.

ADAPTING THE PHASES OF A RESILIENCE MEASUREMENT PROCESS

Study set-up

Defining the community: The size, density, and social, economic, demographic, and religious diversity of Metro Manila's population complicates how communities are defined. At project start, the project team identified seven barangays in the city of Pasig and municipality of Pateros to work with. These barangays are located along the Pasig River, which is part of the Pasig-Marikina-Laguna de Bay Basin, a major river basin affecting more than 14.3 million people. However, this focus left the team with both a large land area and population to work with; too large to easily run a resilience assessment.

To address this, the team assessed the demographic trends present within the barangays to narrow down and define a set of project communities. Drawing on secondary data for the seven selected barangays, the team identified four categories of communities — flood affected; informal settlers; micro, small, and medium enterprises; and vulnerable groups. Flooding has specific impacts for each category. For example, flooding might impact access to healthcare and transportation in ways that primarily impact vulnerable groups and informal settlers.

Planning for diversity: Because of the diversity of the communities, the PRC and IFRC teams drew on their extensive volunteer network to help with study design (e.g, which data sources — surveys, secondary data, key informant interviews etc., were best suited). In particular, they relied on volunteers who were familiar with the communities and had conducted prior meetings with community officials. This approach proved highly beneficial in terms of producing high quality data; however, incorporating a large number of perspectives and insights from a broad range of participants took more time, both to coordinate and to integrate the resulting input.

Household surveys in Pateros. © Philippine Red Cross

Data collection

Addressing logistical challenges: The project team started data collection by engaging with their key points of contact (local authorities) in each of the communities. Only once access to, and engagement with, the communities was in process did the project team strategize who should collect what data, which required building extra time and effort into their work plans. This differs from a rural setting where these steps can more often be run in parallel.

Allocating data collection tasks: Project staff carried out key informant interviews and secondary data research, relying on volunteers to carry out household surveys. This division of labor was needed especially for key informant interviews because the technical nature of the questions being asked required a higher level of knowledge and capacity.

Moreover, the schedules of key informants in an urban setting were more unpredictable. Instead of relying on scheduling, staff took a more ad hoc approach to interviewing, approaching key informants between commitments. It was also more strategic for fieldworkers to stay in the respective city/municipal halls for a day and conduct on-the-spot interviews.

In contrast, in a rural setting, the comparative simplicity of how financial, physical, and natural capitals function means that many people have a general understanding of, and can talk about these ideas. However, understanding these systems in an urban setting is far more complex, requiring more training to collect accurate data. In addition, rural communities have more defined schedules compared to participants from urban communities, impacting participation in the data gathering process.

Using volunteers to conduct household interviews: Given safety and security concerns, volunteers were trained on the specifics of the urban context (e.g., how to collect data in a large, dense, diverse, and potentially unsafe urban community) and conducted surveys in groups. However, this impacts data quality and confidence in the results.

Data analysis in Pasig. © Philippine Red Cross

Data analysis in Pateros. © Philippine Red Cross

Data analysis

Addressing density and diversity: Urban resilience data is detailed, broad, and diverse, which can complicate analysis. In this case, volunteers who collected data also had an in-depth knowledge of the communities and the data, so they were included in the data analysis. However, the analysis of resilience data also requires an understanding of resilience systems thinking. Consequently, the project team combined their experience with resilience systems thinking with the knowledge of the volunteers. This took time but built capacity for all involved, resulting in a deeper understanding of the data and greater confidence in the results.

Addressing interlinkages in resilience data: Part of the data analysis required the project team to consider how aspects of resilience are interlinked and their contribution to differential community vulnerabilities. Because communities had been divided into categories for data collection, the project team needed to re-integrate the data during analysis. They did this by not only looking at each individual element of resilience, but also at the interplay of those elements.

For instance, a common area for improvement for urban communities is first aid knowledge. Here, the team considered how the relative lack of first aid knowledge might be attributed to inadequate preparedness activities within the disaster risk management (DRM) cycle, and how increased first aid knowledge might enhance community wellbeing. Furthermore, the team analyzed the relationship between the level of first aid knowledge, insufficient prioritization in budgeting, and the absence of an Integrated Flood Management Plan within the communities' Disaster Risk Reduction and Management Plan.

The need for external technical backstopping: The project team had the skills to analyze data, but was also enabled by technical and knowledge backstopping from the IFRC and the Alliance. The value of external support for a team doing urban resilience data analysis for the first time is significant, saving time and enabling stronger results.

Results sharing

Timeline of results sharing with communities: Given the size of the communities and the limited space of facilities, sharing the results with communities and local stakeholders is an ongoing process spanning several weekends rather than a single event. The PRC and IFRC teams are coordinating with local government to present in each barangay with representatives from each community.

Innovative ways to share results: The team is sharing results through a "barangayan" or "community fair" approach. The half-day fair will be hosted by volunteers who are trained facilitators. To encourage attendance and participation, the fair includes interactive activities for community members and highlight various services provided by the PRC (e.g., first aid, disaster preparedness, hygiene etc.) in addition to sharing the results from the resilience study.

Intervention planning and design

Developing possible program activities: The complexity of urban systems complicates the design of interventions. Multiple departments and agencies may need to be considered and/or leveraged or integrated into the design process. The highly interconnected nature of urban infrastructure and systems means a systems-approach to intervention planning is desirable: interventions will ideally be considered on how they strengthen the system as a whole, not just address a single gap or opportunity. At the same time, project teams need to address a broad range of community interests, desires, and needs.

Prioritizing program activities: Although the intervention planning and design step is still in process, the PRC and IFRC teams are, for example, assessing how they might group a set of interventions based on resilience gaps found in the data and how communities prioritize interventions. They are also exploring equitable prioritization of interventions.

For example, in rural settings, interventions can focus on the whole barangay. However, this isn't feasible in the larger, more populous, and diverse urban barangays. For example, voting to prioritize interventions would not be representative of the community because the number of representatives is unbalanced. Consequently, the PRC and IFRC are working with their four community categories rather than the barangay as a whole.

Thinking beyond the community: One of the biggest differences between urban and rural settings is the opportunity to harness coalitions, networks, local government, and other institutions to achieve impact beyond what the program itself can deliver. The proximity to key policy processes and higher-level stakeholders in Metro Manila, for example, provides the team and communities with increased access to key decisionmakers to augment the program's visibility and highlight community needs and priorities with the right set of interventions. This could be leveraged to foster novel partnerships and support more effective advocacy and integrated programming — namely, programming which leverages community-based work to inform its advocacy — and to create pathways and spaces for initiatives and interventions that can effect change from local, to sub-national, to national scale.

Data analysis in Pateros © Philippine Red Cross

Manila, Philippines. © Jonathan Ulrich

CONCLUSION

Expanding resilience approaches to urban settings is more than adapting resilience tools to these settings. The PRC and IFRC team's approach to integrating urban considerations into their application of a resilience measurement approach and tool provides insight into the factors and processes other organizations and teams will want to consider when expanding work to urban settings.

Delivering impactful urban resilience programs is a challenge. It necessitates not only the adaptation of tools and approaches, but also changes in how organizations think and work. However, working in an urban setting also provides opportunity. Urban environments provide spaces for novel partnerships and coalitions and for collaboration across scales, industries, and sectors including academic, private, civil society, and communities. To effectively leverage these opportunities, humanitarian and development-focused organizations will need to shift away from a service provider approach to a greater focus on how teams can play a supporting, enabling, and

connecting role between communities and key institutions, systems, and actors. In our rapidly urbanizing world and faced with the simultaneous challenge of adapting to a changing climate, this work is becoming ever more vital, underscoring the importance of learning from current and ongoing IFRC and Red Cross Red Crescent work in urban centers.

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