



Analysis of Red Cross/Red Crescent Vulnerability and Capacity Assessments for African Cities

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1 Introduction

Between late 2013 and early 2014 the IFRC supported several African National Societies to conduct Vulnerability and Capacity Assessments (VCA) in urban communities. VCA reports were prepared for:

- Yaounde VI Subdivision, Yaounde, Cameroon
- Arada Sub-city (Woreda 4 and Woreda 5), Addis Ababa, Ethiopia
- Tomber Mort and Akekoi, Abidjan, Ivory Coast
- Lunga Lunga Informal Settlements, Nairobi, Kenya
- Commune de Guinaw Rails Nord, Dakar, Senegal
- Rufisque, Dakar, Senegal
- Hananasifu and Kigogo Mkwajuni Communities/Streets, Dar es Salaam, Tanzania
- Dzivarasekwa and Hatcliffe, Harare North District, Harare, Zimbabwe

This report discusses these 8 VCA reports as a body, emphasizing their strengths and suggesting strategies for further strengthening the VCA approach for urban engagement. In conducting this assessment, we also reviewed and incorporate thinking and approaches from:

- *Kampala Capital City Hazard and Risk Mapping Draft Report*
- *Strengthening the Resilience of People Living in Urban and Semi-urban Communities of Lilongwe City to Climate Related Disasters Vulnerability & Capacity Assessment (VCA)*
- *Guidance for Urban Resilience Programming, First Draft, American Red Cross*

These additional resources present opportunities for linking traditional VCA approaches with a systems thinking based approach that supports resilience building. The Guidance for Urban Resilience Programming does this directly. The Kampala Report is an excellent

example of how GIS mapping and secondary data can be assembled to support application or interpretation of the VCA in a complex urban context.

2 Common elements of the African VCAs

All the VCAs reviewed in this assessment made good use of the most commonly used VCA tools, especially tools 2-8.

1. RRS 2 Community baseline data
2. RRS 3 Semi-structured interview
3. RRS 4 Focus group discussion
4. RRS 5 Direct observation
5. RRS 6 Mapping
6. RRS 7 Transect walk
7. RRS 8 Seasonal calendar

These produced useful information about the basic situation in each of the areas chosen.

Some VCAs also applied less commonly used tools with good results. These were:

1. RRS 1 — Secondary Sources — Information from local health clinics and hospitals about common illnesses and their change over time provided additional depth to the analyses in Zimbabwe.
2. RRS 9 — Historical profile/historical visualization — Some of the VCAs went back decades in creating timelines for major events. This can be very useful information for structuring a dialogue about the rate and nature of change in the community. Ways to use this type of information are discussed further in Section 4.
3. RRS 11 — Livelihoods and coping strategies analysis — The Dakar VCAs used tools to create an overview of assets of the community. They adapted the asset approach for households (natural, physical, financial, human, social) to the community level.
4. RRS 13 — Assessing the capacity of people's organisations — Yaounde used a SWOT analysis of its own organization, and the two Dakar VCAs used the SWOT analysis at community level to diagnose assets and vulnerabilities.

3 Missing Elements

All eight of the VCAs analyzed are fine examples of Red Cross VCAs. Some of the analyzed VCAs bring in a larger range of stakeholders and some use tools that might not be applied in most rural settings. However, in an urban environment, this still leaves significant gaps.

In urban environments, residents' core needs are dependent on infrastructure and services provided by stakeholders outside the community. Shelter may be provided locally, but food, water, energy, employment, health services — all of these are provided and maintained by stakeholders outside the geographic boundaries of any given community. Working in urban environments requires an acknowledgement of and engagement with a much larger group of stakeholders and recognition that effective action may need to occur at multiple scales. This is discussed further in Section 6.

For the eight VCA analysed, these VCAs would be better adapted for urban application if they included:

1. Why these communities;
2. How these VCAs fit within the urban context;
3. Using the VCA as process, not just to obtain information;
4. Incorporating outside expertise and secondary information;
5. Wider dialogue with a much larger range of stakeholders; and
6. New tools.

3.1 Why these communities

None of the analyzed VCAs indicated why these particular communities were chosen for Disaster Risk Reduction interventions. Often National Societies have a good feel for where disasters strike, or which areas are simply more vulnerable to disasters. Basic familiarity with the area may be enough to put it on the list for consideration. Yet given how quickly cities change, and the interdependence of each part of the city on other parts, it is important to do a quick scan of the urban area overall to pick out which areas are likely to be vulnerable (while taking into account that vulnerability is not the same as poverty – often many other factors come in to play, though poverty makes them all worse of course). Some of the communities chosen for the VCAs were quite small – less than 10,000 people in cities with populations in multi-millions. So even if DRR interventions were a great success, the benefit overall to the urban area would be negligible without wider scaling.

Ideally, when an urban VCA and subsequent engagement is implemented, it will be done in a way that allows that community not only to accrue significant local benefit but also to serve as a example for a potentially much bigger engagement. In urban areas, there is significant potential to engage other players, including the municipal government, in scaling up successful projects as long as the initial target communities can clearly serve as representative of vulnerable communities city-wide.

3.2 Urban context

All of the analyzed VCAs addressed the communities they engaged as if they were free standing communities with little relationship to the urban area around them. There was no examination of which local problems have roots elsewhere, what urban systems local residents were dependent on for transport, employment, food, basic services, etc., which other areas of the city shared similar vulnerabilities, and which problems need solutions outside the community itself. In a rural environment, this approach can be reasonably successful. However, in an urban environment, community members are highly dependent on systems, people and resources located outside their community. If this dependency is overlooked, you will miss potential vulnerabilities and capacities, and in particular will often fail to identify root causes and solutions to vulnerabilities. A number of VCA tools are helpful here, if used in a wider perspective than just a neighborhood. RRS 12 — Institutional and social network analysis, for example, can analyze fairly quickly which agencies are responsible for which systems, and can help indicate who RCRC staff and volunteers need to approach. Using this tool with no adaptation, however, assumes that staff, volunteers, and community members know already who is responsible for their transport, water, energy, etc. In urban areas this can be complicated. ISET has adapted a tool developed by the Red Cross Red Crescent Climate Center to serve as a guide for what questions to ask about what systems affect people’s lives in the community. That tool, The Sector Planning Guide, is appended at the end of this document. It breaks down community resilience into three basic areas, and then goes sector by sector through the questions to ask about each one.

Other tools, such as RRS 6 — Mapping and RRS 11 — Livelihoods and coping strategies analysis are also useful in getting the broader context, if broader questions are asked. For producing a map, for example, the analysis is much more helpful if it goes beyond the physical boundaries of the community in question to take in the other parts of the city people depend on. The map could show where people work, how many routes there are in and out of the neighborhood, where does energy come from (whether electricity, gas, charcoal, etc.) and what threats there are to its supply, where does food come from and how do people get it, etc. For Livelihoods and coping strategies, many

VCAs noted that unemployment was high. Since that is such a common trait of cities, the analysis needs to go deeper and look more in depth at what informal economic activities people take part in, in what parts of the city. If there is a transportation strike, for example, can people still make money? Are there city regulations that make certain activities such as food vending illegal? In addition, many cities already have considerable data on wealth and income by neighborhood that RCRC staff can use. Several VCAs attempted to generate this data anew. Given how difficult it is to get good data on wealth and income due to its sensitivity, the data generated here is of dubious accuracy and value. Of far more interest and use are *how* people make a living, *what urban systems* they rely on to do so (transport into the city center, marketplaces, energy supply, etc.), and how vulnerable these livelihoods are to disruption.

3.3 VCA as process

All of the VCAs showed good community participation, and wide consultation with local authorities, religious leaders, other NGOs, etc. What was not evident was the degree to which the VCA process was part of a larger effort to mobilize communities, or if it was more simply an information gathering exercise. There is a spectrum of participation in the VCA process that is possible: on one end, the exercise can be a purely extractive research exercise that produces information for Red Cross/Red Crescent purposes; on the other end, the VCA can be part of a larger tool for sensitizing and mobilizing communities to take action. Further discussion of National Society experience with this process would be helpful in analyzing the VCAs.

Some VCAs documented how discussions with community groups took the data produced and indicated general program directions. None, however, really analyzed in any depth which actors needed to be involved in which interventions to solve which problems. In general, most left the impression of perennial urban problems – poor sanitation infrastructure, unemployment, crime -- beyond the reach of the Red Cross Red Crescent.

Further discussion with some RCRC staff showed that some VCA processes produced excellent urban programs, but that the information generated by the VCA was of marginal value. In these cases, staff reported that the process of doing the VCA ensured community ownership of the program. In these cases, engaging communities in good dialogue and problem solving would produce the same result without requiring the use of research techniques that are not actually necessary.

3.4 Incorporating outside expertise and secondary information

All of the VCAs used some secondary information, but for the most part it was fairly minimal. Most cities have significant amounts of available information, from government budget information to hydrological studies to urban plans. Even more valuable, all cities have people who are familiar with this background information and have ideas about what should be done with it. Government staff at all levels from local to national, university researchers, and private sector consulting and engineering firms all have access to large volumes of information, and can be guides to finding what is most useful in assessing vulnerability and capacity and identifying entry points for enacting positive change.

For example, many VCAs cited flood as a major hazard. Yet none made use of outside experts or information to determine what the causes of flood hazards from *outside* the communities were, or what institutions were responsible for mitigating these hazards. In Nairobi, for example, RCRC staff understood where the rainwater comes from outside the target community during flood events. But there was no consultation with government or private sector staff about the effect of rapid urbanization on altering the hazard in recent years, what further developments like road building or land development are taking place that will lead to more changes in flood patterns, and what process can be pursued to ensure that poor communities do not pay an inordinate price from urban development in increased flood risk.

The tool RRS 3 Semi-structured interview, is tailor made for this type of outside expertise. Brief interviews with university staff knowledgeable about urban issues, local government staff responsible for key functions, or even private sector firms who work in the city, especially on flooding issues, can reveal a wealth of information and ideas. These people are highly trained in these issues, are familiar with best practices in their fields, and have spent considerable time and money figuring out how they apply in the local context. In some cases you simply need to ask them what are the risks in the city, where are the most vulnerable people to those risks, and what do they think should be done about it. If that does not produce the results, the set of questions in the Sector Planning Guide at the end of this document can help guide your questions. The Sector Planning Guide is organized by the exposure or hazards in the city, the systems that are affected by that hazard, the people that work on it, and the cultural or legal issues that increase or decrease risk. For example, under Health, it suggests asking about

- the main health risks, such as epidemics
- what systems there are to deal with them, such as hospitals, clinics, etc.
- who works on those, and can be a possible partner in reducing the risk

- what cultural or legal issues might make some people more vulnerable than others to the same health hazard.

Using this guide, you may be able to have a useful discussion with a specialist even if it is not an area you know much about yet.

3.5 Wider dialogue

Outside experts can be helpful, but generally they don't know or understand the perspective of community residents. At the same time, in an urban area the local people the Red Cross is working with are dependent on multiple interconnected urban systems, but community members generally don't fully understand those systems or how to work with them. Consequently, the best results come from dialogue between local residents and outside experts, facilitated by Red Cross/Red Crescent staff. A well-facilitated discussion can open the eyes of both experts and residents to issues and solutions neither could have come up with on their own. These discussions ideally would be part of the VCA process, or could come afterwards. Coming afterwards, however, requires that both neighborhood members and outside experts agree on which information is both needed and useful to decide what to do. This need fades away if they generate the information together and agree as they go on what information is useful and valid and what is not.

The determination of what information is useful and how to use it raises another fundamental issue in how VCAs are done. For the most part, RCRC staff trained local volunteers in doing the VCA, and often included outsiders from government departments in the training. Yet the majority of the research work and dialogue was performed by volunteers. In rural areas, where the issues are familiar and well known, this may work. But in urban areas where systems overlap and interact at great distances, and the number of relevant players on any issue is very high, understanding all this is asking a lot of volunteers. For complex urban programming, RCRC staff may need to play a much deeper role in actually carrying out the VCAs.

One possible tool that staff could use is illustrated at the end of this document, the Analysis form for use with the Resilience Approach. This document is designed to take the information generated by the VCA and organize it according to resilience thinking, in a systematic way. Reorganizing information in this way can bring out which interventions can contribute most to building resilience, which is not always obvious from just looking at a neighborhood itself.

3.6 New tools

Many cities, consulting firms and other organizations are increasingly using GIS (Geographical Information Systems) software to combine data and geographical location information. The resulting GIS maps can be a great aid in rapidly scanning likely vulnerability across an entire urban area, and can point you to neighborhoods that may require further inquiry.

In addition to new external tools, the Red Cross could make better use of existing tools. For urban work, RRS12 — Institutional and social network analysis in particular should be much more actively and widely used. Many of the VCAs analyzed for this report pointed out that problems common to cities – poor drainage, unemployment, crime – required the intervention of government departments and other NGOs. However, few VCAs had more than a cursory list of who those players were or how they might intervene, and fewer still suggested a strategy by which the National Society could facilitate bringing in or improving the performance of these other agencies.

4 Opportunities presented by the existing VCAs

The eight VCAs analyzed for this report clearly identify core vulnerabilities in the engaged communities and opportunities to begin addressing those vulnerabilities. However, there are also unidentified opportunities to begin using the results from these VCAs more broadly, through advocacy and networking, to influence actions city-wide. Additional small steps that could be taken to further flesh out these VCAs and identify opportunities for action include:

- Develop maps that illustrate how the selected communities are representative of the metro area as a whole. This can be done using GIS or highlighting existing maps in whatever form they are available. The maps should include where similar communities are located and their approximate populations. If it is relatively easy, this could be combined with city-wide hazard maps such as flood maps, or maps of socio-economic indicators such as roofing type, piped water and sewage networks, or health services centers. This type of visual, city-wide information can not only help inform the Red Cross but can be used to great advantage in networking and advocacy.
- Consider who else in the city will be interested in the actions you plan in your target community — e.g. the municipal health or public works departments, city law enforcement, local or international NGOs. Begin making connections with those groups, understand their knowledge and perspective of the issues, and connect them to the community to understand the community perspective.

- Revisit the VCA action planning and develop specific information about who the actors are that can take action. This should include, for example, what level of government need to be engaged and which government offices or departments you should contact first. Similar mapping should be done with NGOs involved in your priority issues, whether they are working in the target community or not. Listing out this information in detail will make it easier to brainstorm contacts and have the conversations that can lead to potential partnerships. How can the Red Cross bring these relevant parties to the table to participate?
- Review the VCA data collection and analysis using systems thinking. (One possible method for organizing VCA data collection and analysis is described in Section 7.)

5 Adapting the VCA to Urban Areas

As you move forward with future urban VCAs, what can you do to strengthen the VCA process and the resulting VCA report to support action and advocacy? Listed below are eight possible additions to the VCA process that, particularly when applied in an urban environment, will strengthen engagement and output:

1. **Community selection** — prior to beginning your VCA, use existing city maps, your own GIS mapping, Google Earth, or paper maps to identify target communities that are representative of broader social/urban issues within your metropolitan area. If you already know what community you're going to work with, explore who else is working there, core issues, and how those issues are relevant at the city scale. A quick scan of secondary sources and a couple of discussions with experts in specific, relevant issue areas can provide significant background and useful thinking to bring to the community during engagement. As part of this activity, identify rare hazards and risks that community members may be unaware of, such as earthquake risk.
2. **Purpose of the VCA** — As you begin the VCA identify what you hope to achieve or initiate and then what evidence you will be looking for that the VCA has generated knowledge, thought or action. As the VCA progresses these elements can be captured for the VCA report. If you already know where you are going to work and what you are going to work on – perhaps due to previous experience, or because you are taking part in a larger program with other partners – ask yourself if you really need the information generated by a VCA, or if you need to engage the community to mobilize them for the effort. If it's the latter, you can

save the community and your volunteers and staff a lot of time by focusing on the mobilization and not generating a lot of information you won't use.

3. **Expand analysis beyond the geographic boundaries of the community** — As you begin engagement, use the standard VCA tools, but expand them to ask community members about how the urban area functions in their lives to support them. Where do community members work? How do they get there? If they're unemployed, what do they do all day and how do they get food? Try to describe what services this community provides to the city at large or what role this community plays in the larger urban area. Consult outside experts on these issues as well, since they will know things about how the city functions that neighborhood members can't.
4. **Consider adding a few additional tools to your VCA analysis** — For example, if you conduct an extensive historical analysis, use it as an opportunity to explore how the community has changed in the past and the rate of that change. Then, explore what this could mean for the future. If things continue as they have, what would the community look like in 10 or 20 years? How are development or changes in climate affecting risks? How are changing livelihoods and economic patterns changing, and what are the implications for the future? Once you have a picture of where you are, what has happened in the past to get you there, and what this might mean for the future, consider whether this is the future you want. Are there places they could take action to make the future look better? What help from outside the community would be needed to implement those actions?
5. **Adapt your methods to ensure community engagement** — In urban areas there are often difficulties in engaging participation due to differences in income level, standard of living, and lifestyle of urban compared to rural population. Unlike in rural areas, urban communities are often less cohesive, people often have to travel longer distances to work, and their lives are more strictly controlled by working hours, whether they are administrative employees or workers. To get community participation, VCA activities may have to occur in the evenings or on weekends. For many National Societies the question of how to engage communities in urban areas is a significant challenge. When you have found approaches that are successful for engaging community members, record these successes in the VCA reports so that others can learn from them. One interesting result of these eight VCAs is that the communities in question showed considerable cohesion, and most noted that there was a wealth of existing community organizations to work with. Many also were fairly stable in

populations. This can be reassuring, in that these communities were not the divided, disorganized communities with no common ties that we often assume city neighborhoods to be.

6. **Bring outside experts or stakeholders into the community** — While cities are complex, they also have many great resource people. Bring outside resource people into the community at some point during the VCA to both share information with community members and to learn from the community about what is important to them. This has the potential to generate new knowledge as previously unconnected bodies of knowledge and perspectives are combined. Also, consult additional secondary studies and/or experts on relevant topics to broaden your understanding of how community issues are relevant at the city scale. This can help to identify complicating factors or solutions that lie outside the community. This can also identify actors already engaged on issues of concern to the community and help pinpoint external stakeholders and opportunities for advocacy.
7. **Concluding the VCA, action planning and initiating interventions** — The end of the VCA marks the beginning of community action planning. In urban areas where there are linked systems and many similar communities, community action plans can lead to many different interventions some of which could be replicated in other parts of the city. To maximize the opportunities presented by the VCA, develop clear plans for follow-up from the beginning of the VCA process. As you develop action plans, build in ongoing monitoring of results and a strategy for sharing successes and for scaling up or replication in other communities. Ideally, in an urban environment scaling up or replicating should bring in additional players who have funding and other necessary resources and a mandate to work on the types of activities that were piloted.
8. **Scale up your outreach to external stakeholders** — As you begin to think about the implications of the VCA and follow-on actions, scale up your outreach to external stakeholders. In a rural environment, there may be very few external stakeholders, and communities may need to address things primarily on their own. In an urban environment, communities will only be able to address a small corner of their issues. The majority of challenges will require additional players if the challenges are to be addressed more systemically. Fortunately, in urban areas, those players probably exist and may well have funding and other resources to act if you can get their attention and help them understand why working with your community should be their priority. The good news here is that the RCRC may only need to bring these people together and enlist them in a

common effort. The reputation of the RCRC a neutral player allows the RCRC to convene various stakeholders to come together in dialogue, without being seen as partisan. In Kenya for example, the Nairobi Branch convened a Firefighters Forum to deal with the frequent fires in informal settlements. Bringing together community members, the Fire Brigade, the National Disaster Operations Centre, the National Youth Service, and others, the Nairobi Branch has been able to reduce the incidence of fire without mounting a huge program on its own. The Firefighters Forum uses the resources and expertise of a wide variety of organizations to solve a problem beyond the capacity of any individual organization.

These suggested adaptations to the VCA process are based in our observation that urban engagement involves navigating scale, complexity and resources in a different way than is necessary in a rural context. These suggestions are intended to engage the National Society at scales beyond just the community (scale) and to begin identifying the inter-related systems that are essential to an urban environment (complexity). By bringing forward questions of appropriate scale and facilitating dialogue between multiple stakeholders or experts, some of the broader systems at play can be identified. Once they are identified it is easier to develop strategies to engage in building capacity. In the following section we give more information about the issues of scale, complexity and resources in urban environments and why explicitly thinking in these terms can improve engagement and action.

6 Urban engagement and urban resilience

In the previous sections of this report we suggest actions to support the adaptation of VCAs to an urban context. These suggestions are based on our experience in many cities over many years. We have found that there are three key challenges in an urban area that require a different approach than that used in a rural one: scale, complexity and resources.

Increased scale: In urban environments, local problems like floods and epidemics are often caused by things happening far away, and so solutions must include action outside the community, at local, city, national or sometimes even international scales. This has implications for the number and types of people, organizations, departments and agencies that may need to be or are already involved. For example, urban flooding is often caused by changes upstream, including deforestation or changed dam management outside the city. So local measures can help some, but they can't solve the problem.

Increased complexity: Urban environments are far more complex than rural environments. Part of the appeal and draw of urban environments is the complexity. There are a larger range of livelihoods options, a larger range of available goods and services, and also a larger range of social, class, religious and ethnic diversity, a larger range of social expectations and norms, and a larger range of actors involved in mediating daily life. Within this complexity you will find a higher degree of class and ethnic stratification, faster movement of people and economic relationships, and a daily dependence on more complicated infrastructure systems. These systems are interlinked in cities, so there can be complex cascading failures as a result of a shock. For example, power outages in one part of the city could shut down petrol pumps, making transportation by car, bus and motorcycle difficult or impossible.

Differing resources: The scale and complexity of urban environments give rise to very different resource availability than is found in rural setting. This resource availability has advantages and disadvantages.

- Human and organizational resources, financial resources, and access to government decision makers are all greater in urban environments than in rural environments. Not only will resources within communities be more diverse, but access to and the ability to mobilize resources outside the community on behalf of RCRC projects are substantially greater.
- However, established relationships with neighbors and other actors across the city may be lower than that found in rural areas, and the lifespan of relationships may be much lower. More functions in the city must be paid for with cash – housing, transportation, food, etc. – since there may be fewer reciprocal relationships where people simply help each other out and less opportunity to simply grow or collect what you need.

In an urban area addressing these three concepts is critical to a program’s success. However, addressing complexity and scale isn’t easy. ISET-International has found that using a consistent framework to structure thinking and engagement is critical. The framework we’ve found most effective is a resilience framework. This framework is introduced in the Section 7 and in more detail in “Introduction to a new approach to Urban Resilience” written by ISET-International for the American Red Cross.

If an urban VCA is conducted in a way that assumes firm boundaries to a neighborhood and in effect imagines it as an isolated island separated from the rest of the city, then it is easy to overlook or be overwhelmed by how city-wide, regional, and national systems and policies impact the community. For example, in the case of a city neighborhood that frequently floods, common local interventions are to help people build up walls around

their homes, provide them with sandbags, elevate water points, install local drainage ditches and canals, and similar other measures to make life livable during floods. Yet none of these solutions actually address the root cause of flooding. These solutions help alleviate symptoms, but cannot in fact solve the problem. If we look for the root cause of the problem, we often find that new buildings or roads elsewhere in the city are now diverting water into or preventing flow out of this neighborhood, that upstream land-use changes are changing run-off patterns, or that dam managers upstream have changed how they are releasing water.

By looking beyond the physical boundaries of the community, we can begin to see how it is influenced by external factors and identify root causes of local challenges. Once root causes are identified, addressing them will often mean engaging with city government staff people, a public body such as the city council, or a public utility. The RCRC can help open dialogue with these decision makers, connect them with other NGOs and academics knowledgeable on the issues, and guide community leaders through the process of making their voices heard.

6.1 Urban resilience and how the RCRC works in cities

What does all this mean for how RCRC staff need to work in cities? It means that staff need to take their existing tools and methods and organize them in three new ways:

- Use systems thinking to analyze vulnerability,
- Build relationships outside the RCRC organization, and
- Learn throughout both of those processes.

Using systems thinking to analyze vulnerability and develop solutions means developing a structured way of looking at the factors contributing to vulnerability and where the entry points are to shift those factors. Engaging in systems thinking also means accepting complexity and uncertainty. Systems thinking is different from the “predict-and-prevent” mode of thinking; system thinking acknowledges that problems and solutions are not linear, and that any action takes place in a field of uncertainty. This means that predicting outcomes is a challenge and ongoing learning and questioning are important to building resilience. Systems thinking is also about using a conceptual framework that can be applied at multiple scales, a framework that applies equally when looking at the big picture and a local community. The framework ISET-International uses is described further in Section 7.

Building relationships outside the RCRC means networking and being flexible and adaptable around existing participatory processes. In an urban environment, networking

will need to be more extensive and systematic than in a rural environment, and engaging in participatory process will have different phases. Initial engagement and networking will focus on locating partners that can help the RCRC and the community understand vulnerability, its root causes, opportunities for addressing those causes, and the players that can help do that. The second phase will be building relationships with the players that have the skills and contacts to complement RCRC capacity and solve the problems at hand. A third phase could focus on encouraging organizations or departments with existing mandates to adopt identified solutions and apply them more generally city- or nation-wide. Throughout the project, networking should capitalize on existing relationship that the RCRC has with government and other humanitarian or development organizations, and use those existing relationships as stepping-stones to build new relationships. In our experience with cities, often the best place to begin building a network is just by getting a team of people together to brainstorm:

- What people, organizations or departments are involved or connected to this issue we want to address?
- Who do we know personally through our networks that work with these individuals or groups?
- How could we invite the participation of these people or departments?
- How can we best contact those we don't know?

Ongoing learning, and using learning to inform adaptation, is critical to resilience. For example, all too often in post-disaster situations, infrastructure, housing and services are rebuilt based on the initial design. Yet, if they failed and need to be rebuilt, then rebuilding them the same way leaves the same vulnerabilities in place. Ideally failure should be used as an opportunity to explore why things failed (learning) and what could be done to prevent future failure (adaptation). Then, armed with this knowledge, things can be built back better. Summarized quickly, this seems easy and obvious, but in the midst of a process it requires creative thinking and commitment. Project leaders have to be willing to learn from both the community and experts in their networks as well as facilitate learning for the community and other partners.

7 Using the Resilience Approach to understand vulnerability

Vulnerability occurs when fragile, inflexible infrastructure or ecosystems (e.g. slum housing) and / or marginalized or low capacity people or organizations (e.g. slum dwellers) are exposed to a shock or hazard change (e.g. flooding or HIV/AIDS), and their ability to shift strategies is limited by constraining legal and cultural norms (that is, the “rules,” e.g. lack of access to better housing due to residency or land ownership regulations). Resilience is high where *robust and flexible infrastructure and ecosystems*

can be *accessed by high capacity people* and where that access is *enabled by legal and cultural norms*.

These are the key elements of the Resilience Approach – ***infrastructure and ecosystems, people and organization, and legal and cultural norms***, and, for each, the degree to they are ***exposed*** to hazards. Within the Resilience Approach, building resilience means:

- Identifying the *exposure of infrastructure and ecosystems and people and organizations* to hazards;
- Identifying and strengthening *fragile infrastructure and ecosystems* by strengthening the characteristics that reduce their vulnerability to hazards;
- Strengthening the capacities of *people and organizations* to both access *infrastructure and ecosystems* and develop adaptive responses; and,
- Addressing the *legal and cultural norms* that constrain effective responses to *infrastructure and ecosystem* fragility or undermine the ability to build the capacity of *people and organizations*.

7.1.1 People and Organizations

People and Organizations includes individuals, households, communities, the private sector, businesses, and government entities; it includes everyone who makes decisions, the actors in society.



Resilient people and organizations are:

- Responsive — motivated and able to take timely action when required, including changes in organization structure.
- Resourceful —when people identify priority actions for adaptation, they can mobilize financial, human or other resources and implement those actions.
- Able to learn — they can identify and anticipate problems, and internalize lessons from past failure and feedback in system improvements.

7.1.2 Infrastructure, services and ecosystems

Infrastructure and ecosystems includes infrastructure, services, and functions such as water supply and wastewater treatment systems, roads, power lines, food distribution, health, education, finance and ecosystems such as agricultural land, parks, wetlands, fishing grounds.

These systems and services are designed and/or managed by people, but their performance depends on a multitude of factors that are difficult to manage, including human behavior and governing laws, policies and cultural context, which often lead to unintended side effects like pollution. Infrastructure, services and ecosystems



are *fragile* if they are easily disrupted or broken, though their basic functioning may look very stable.

For resilience, we want infrastructure, services and ecosystems that are:

- Flexible and diverse — able to deliver services under wide range of conditions or over a wide spatial distribution;
- Modular — made up of discrete but interacting parts such that one can function if another fails, or, with backup capacity or alternate delivery pathways; and,
- Designed to fail in predictable ways — if system components are overtaxed, they can fail safely without taking down the whole system.

Core or “critical” systems (water supply, food supply and the ecosystems that support these, as well as energy, transport, shelter and communications) are particularly essential. Their failure seriously jeopardizes human well-being in all affected areas, and precludes higher order economic activity until their function is restored.

7.1.3 Legal and Cultural Norms

Legal and Cultural Norms are the rules, laws, customs, social norms and conventions that guide, enable, and constrain people’s and organizations’ behavior. These social guidelines define the range of perceived possible responses or actions in a given situation, reduce uncertainty, maintain continuity of social patterns and social order, and make our interactions more stable and predictable.



Legal norms include government structures such as laws and policies; cultural norms include cultural/power aspects such as traditions, racial constructs, standards of dress or segregation, etc. Linking both sets of behavioral constraints under the same umbrella makes sense because they inform each other so strongly. Laws and policies generally evolve from social/cultural norms and structures of power like colonialism and patriarchy.

Legal and cultural norms link people and organizations with systems and services by constraining or enabling access by people to those systems and services. The attributes of resilient legal and cultural norms are:

- Accessible — rights and entitlements to use key resources or access urban systems are equitably distributed.
- Transparent, accountable and responsive — decision-making processes, particularly in relation to urban development and urban systems management, follow widely accepted principles of good governance.

- Informed — private households, businesses and other decision-making agents have ready access to accurate and meaningful information to enable judgments about risk and vulnerability and for assessing options.

7.1.4 Exposure

Exposure is the degree to which a system, service, person or organization is in a location prone to a particular hazard, such as floods, earthquakes, tsunamis, landslides, drought, civil conflict, or economic downturn.



One way to reduce vulnerability to disasters is to reduce exposure to the underlying hazard. However, this needs to be done in a way that preserves the resilience of infrastructure and ecosystems and people and organizations. For example, building dikes or sea walls can reduce exposure to flooding, but they must include safe-failure options. There is not a dike or seawall in existence that will not, at some point, be overtopped by floodwaters. Options that allow for failure to occur in safe ways, such as planned dike breaches that flood agricultural rather than residential or urban lands, is critical to building long-term resilience.

7.2 SECTOR PLANNING GUIDE: Systems Thinking for Resilience

How to Use It: This document is a checklist for asking the right questions about resilience in a variety of sectors. This checklist can help you figure out who you need to be talking to solve a community problem, and what secondary data is necessary to understand it well. You can use this as a pre-assessment tool to get a handle on what the situation is, or as a guide for discussion during the assessment process.

The Sector Planning Guide is organized by the

- **exposure** or hazards in the city,
- **systems** that are affected by that hazard,
- **people** that work on it,
- **cultural or legal issues** that increase or decrease risk.

For example, if you are trying to figure out what the situation is under Health, the Sector Planning Guide suggests asking about

- the main health risks, such as epidemics
- what systems there are to deal with them, such as hospitals, clinics, etc.
- who works on those, and can be a possible partner in reducing the risk
- what cultural or legal issues might make some people more vulnerable than others to the same health hazard.

Using this guide, you may be able to have a useful discussion with a specialist even if it is not an area you know much about yet.

A second example comes from the Health and Sanitation Sector. While you may not be an expert in this sector, the Guide prompts you what to ask about when you find a specialist in this area, and when you are with community members. (It is important to ask both – they will have different kinds of knowledge, both of which are important to solving problems.) So in the case of an informal settlement with no established city services, the Guide may help you discover things such as the following example.

Exposure – While there are disasters such as floods, the main problem is daily stress from the fact that the sanitation system itself does not function well, and preventable diseases are common as a result.

Systems – Since there is no city provided system, entrepreneurs have jumped in to provide improvised water pipes from elsewhere, bring in trucks of water for sale on a regular basis, or supply bottled water in local shops.

People and Organizations – Rather than the city water authority being in charge of the providing potable water, a diverse set of entrepreneurs run it, often in competition with the city and each other, and often against existing regulations.

Legal and Cultural Norms – This informal water system is different than those in formal settlements, where water is supplied by a central authority and billed by mail, and where maintenance and repairs is done by a visible and regulated authority. Certain ethnic groups may not be allowed to get water at the same places as others.

In this example, breaking down the water system in this way shows how the system actually works, rather than the way it is supposed to work on paper. This way of thinking suggests that some paths of intervention will be more likely to succeed than others.

Who to Talk To: The Guide can suggest who is worth talking to get a good analysis of the situation. In the example above about the potable water system, use of the Guide would suggest that while it is important to talk to the city water managers, it is also important to consult the entrepreneurs who are actually supplying the water. They will have perspectives on how the system works well and where it breaks down, and what interventions might improve it. You might also want to talk to local health care staff, to find out what the common water-borne diseases are, if they have a seasonal variation, and what interventions they can suggest to help deal with them.

Sector	Exposure	Systems	People and Organizations	Legal and Cultural Norms
Health	<input type="checkbox"/> Disease/epidemics – Outbreak frequency (chronic, ongoing, reoccurring)? Seasonal? Disaster- or hazard-related? Population(s) affected? Climate-sensitive? <input type="checkbox"/> Vector-borne diseases (pathogens) – Increase after disasters? Protection during a disaster? Time of year when most common? Preparation for higher risk seasons?	<input type="checkbox"/> Clinics/health centers/hospitals – Type? Quantity? Quality? Accessible? Affordable? Trusted? <input type="checkbox"/> Health Services – Types utilized (delivery, surgery, ambulance)? Available? Affordable? Quality? Trusted? <input type="checkbox"/> Medicines (e.g. vaccines) – Availability (in stock)? Affordable? Trusted? <input type="checkbox"/> Health supplies – Availability (first aid supplies, mosquito nets/coils, condoms, etc.)?	<input type="checkbox"/> Health staff (e.g. doctors, nurses) – Availability, locally and farther away? Qualified? Trusted? <input type="checkbox"/> How do people use services? <input type="checkbox"/> Are some people at more risk than others to certain health hazards?	<input type="checkbox"/> Does everyone have equal access? <input type="checkbox"/> Are some people at more risk than others to certain health hazards? Are differences due to ethnic, gender, class, legal differences?

Sector	Exposure	Systems	People and Organizations	Legal and Cultural Norms
Water and Sanitation	<ul style="list-style-type: none"> <input type="checkbox"/> Disasters – Types? Frequency (chronic, ongoing, reoccurring)? Seasonal? Climate-sensitive? <input type="checkbox"/> Stresses – Where is the water and sanitation system weak or vulnerable? Adequate for population growth? 	<ul style="list-style-type: none"> <input type="checkbox"/> Safe water – Availability? Accessibility? Quality? Storage? Treatment? Distribution? Quality & availability during/ following disasters? <input type="checkbox"/> Sources/points – Types? Accessibility? Quality & consistency? Covered & protected? Systems? Distribution? Protected from flooding? <input type="checkbox"/> Solid waste –How is it disposed of? Impacted by disasters? Removal service? Central collection point? <input type="checkbox"/> Latrines –Types utilized? Availability? Accessibility? Impacted by disasters? Can sanitation systems handle floods? <input type="checkbox"/> Storm water drainage – systems in place to prevent flooding? Extent? Connectivity? 	<ul style="list-style-type: none"> <input type="checkbox"/> Who is in charge of the potable water system? <input type="checkbox"/> Who handles solid waste? <input type="checkbox"/> Who builds the drainage system? Who maintains it? Is there flooding? <input type="checkbox"/> What coping mechanism do people use when potable water, solid waste or drainage systems fail? 	<ul style="list-style-type: none"> <input type="checkbox"/> Is the community potable water system the same as that used by neighboring communities? Why or why not? Is it better or worse? <input type="checkbox"/> Is the solid waste disposal system the same? <input type="checkbox"/> Is the drainage system the same? <input type="checkbox"/> Are there political, cultural or legal constraints on improving these systems? Accessibility? <input type="checkbox"/> Solid waste –Practices (disposal, collection)? Traditional excreta disposal practices?

Sector	Exposure	Systems	People and Organizations	Legal and Cultural Norms
Shelter and Buildings	<input type="checkbox"/> Disasters – Types? Frequency (chronic, ongoing, reoccurring)? Seasonal? Climate-sensitive? Are some groups of people affected more than others?	<input type="checkbox"/> Settlement – Safe location? Exposed to risk? <input type="checkbox"/> Infrastructure – Existing types (community buildings, facilities, structures, roads, etc.)? <input type="checkbox"/> Housing – Availability? Safety? Fuel sources utilized (for cooking, heating, etc.)? <input type="checkbox"/> Construction – Technologies? Quality? Safety? Traditional techniques? <input type="checkbox"/> Materials – Types? Availability? Affordability? <input type="checkbox"/> Repair – Ability to maintain & repair housing? To repair housing & infrastructure within a year following a disaster?	<input type="checkbox"/> Construction –Who builds the houses? Buildings? Who oversees what can be built where and how? <input type="checkbox"/> Repair – who repairs or improves houses? <input type="checkbox"/> Finance – who pays for housing? Are there loans? Savings schemes?	<input type="checkbox"/> Land (e.g. tenure) – Availability (for housing)? Tenure types? Tenure security? <input type="checkbox"/> Construction – Technologies? Quality? Safety? Traditional techniques? <input type="checkbox"/> Materials – Types? Availability? Affordability? <input type="checkbox"/> Housing –House tenure? Tenure Security? Risk/fear of eviction? Permanent or temporary? Adequate living space? Fuel sources (for cooking, heating, etc.) utilized?

Sector	Exposure	Systems	People and Organizations	Legal and Cultural Norms
Disaster Preparedness	<input type="checkbox"/> Disasters – Types? Frequency (chronic, ongoing, reoccurring)? Seasonal? Climate-sensitive? Populations, infrastructure, & services affected? <input type="checkbox"/> Hazards – Types? Population(s) affected? Impact on populations?	<input type="checkbox"/> Preparedness – Stockpiles? Is there a Response or emergency plan? <input type="checkbox"/> Response – Early warning system? Evacuation routes? Identified shelter(s)? Ambulance services? Fire & police departments? Reliability? Are there backups or alternatives? <input type="checkbox"/> Assistance – Available? Type(s) of disaster assistance provided. <input type="checkbox"/> Recovery – Debris & flood cleanup? Infrastructure repair? Asset recovery?	<input type="checkbox"/> Preparedness – Training (first aid, search & rescue)? Response/emergency plan? Clearly defined roles, and support and backup for emergency response teams? Community preparedness plans? Individuals, households, and business taking preparedness actions? <input type="checkbox"/> Response – Response Team(s)? Evacuation routes? Identified shelter(s)? Ambulance services? Fire & police departments? Reliability? Are there backups or alternatives? <input type="checkbox"/> Do different sectors communicate or cooperate with each other across systems (transport, communications, health care, etc.)? <input type="checkbox"/> Assistance – Disaster assistance provider(s)? <input type="checkbox"/> Recovery – Who does it? Public or private?	<input type="checkbox"/> Response – Are there rules about who can be evacuated by whom, such as women in purdah? Where they can live safely when there are social divisions? <input type="checkbox"/> Recovery – Legal restrictions on debris & flood cleanup? Infrastructure repair? Asset recovery? <input type="checkbox"/> Assistance - Accessible?

Sector	Exposure	Systems	People and Organizations	Legal and Cultural Norms
Assets/ Livelihoods	<input type="checkbox"/> Stresses – economic downturn, legal changes, disasters, business disaster (livestock illness, crop failure, asset destruction) <input type="checkbox"/> Shocks – natural or civil disaster, fire, floods, earthquake	<input type="checkbox"/> Economic activities (e.g. livelihoods) – Types utilized? Consistent or intermittent availability? Accessibility? Availability & accessibility during disasters? Alternatives? <input type="checkbox"/> Support systems – government or private sources of temporary economic support or disaster recovery? <input type="checkbox"/> Savings systems – are there systems for savings? Can money be retrieved in the event of disasters? <input type="checkbox"/> Markets/stores – Accessible? Affordable? Key supplies available (food, water, first aid items, condoms, soap, etc.)?	<input type="checkbox"/> Economic activities (e.g. livelihoods) –Skills needed? How diverse are people’s income sources? Do they have support systems (relatives, government programs, flexible employers, etc.)? <input type="checkbox"/> Remittances from other places? How far away? <input type="checkbox"/> Borrowing money – To meet basic needs (e.g. food, water, health services, education)? Other reasons? <input type="checkbox"/> Saving – Do people save or invest any money? If so, when & why? <input type="checkbox"/> Debt – Are the majority of people in debt? If so, why?	<input type="checkbox"/> Economic activities (e.g. livelihoods) – Gender-specific? Accessibility? Availability & accessibility during disasters? <input type="checkbox"/> Markets/stores – Accessible? Affordable? <input type="checkbox"/> Alternative livelihoods – are they socially acceptable – (Day labor? Informal market? Indentured labor? Drug selling? Sexual exploitation? Sex work?)

Sector	Exposure	Systems	People and Organizations	Legal and Cultural Norms
Ecosystems	<input type="checkbox"/> Drought <input type="checkbox"/> Floods <input type="checkbox"/> Fire <input type="checkbox"/> Disease <input type="checkbox"/> Agricultural pests <input type="checkbox"/> Overuse/ Overexploitation of resources <input type="checkbox"/> Population pressure/ urban growth <input type="checkbox"/> Pollution	<input type="checkbox"/> Forests – healthy? Fire prone? Do they continue to conserve soil and water <input type="checkbox"/> Fisheries – stable? Productive? Sustainable <input type="checkbox"/> Soils – maintained? Productive? <input type="checkbox"/> Water – stable, increasing or decreasing groundwater and surface water? Polluted? Reliable irrigation? Reliable rainfall? Expected effects from climate change? <input type="checkbox"/> Urban waterways and drainage – Important sources of daily water? Clear of debris? Able to handle floodwaters?	<input type="checkbox"/> Who manages the important ecosystems? – Locally, nationally? Have sufficient resources? <input type="checkbox"/> Resource conflict – are there unresolved conflicts over resources? <input type="checkbox"/> Authorities – do government authorities have jurisdiction over the ecosystems they depend on?	<input type="checkbox"/> Ecosystem services – Access for different groups? Conflict resolution mechanisms?

7.3 Analysis form for use with the Resilience Approach

This sheet is a resource to help structure your community assessments both at the city-wide and VCA levels. It poses questions and organizes recorded data in terms of the four resilience approach elements. This helps to track the vulnerability of a city, or of a community within the city, and supports systems thinking about the responses in terms of the resilience approach. Organizing the information in this way simplifies the more complex urban relationships and the various scales at which you need to take action. This Information Form can be combined with the Sector Planning Guide in Section 6.3 to implement a detailed pre-assessment or community assessment.

Start by identifying the issue or theme of primary concern (i.e. Flooding, road accidents, fresh water supply etc.)

Theme of Primary Concern: _____

	Locally/ within the Community	On a larger scale? (e.g., district or citywide, regionally, nationally)
Which systems are primarily affected by this concern (water, health, transport, etc.)?		
Who are the people and organizations involved? Who depends on the system? Who is responsible for building or installing the system? Who is responsible for maintaining the system?		

What laws or cultural rules make it better or worse?		
How do people deal with this concern now?		
What resources or ideas do you have to address this concern?		