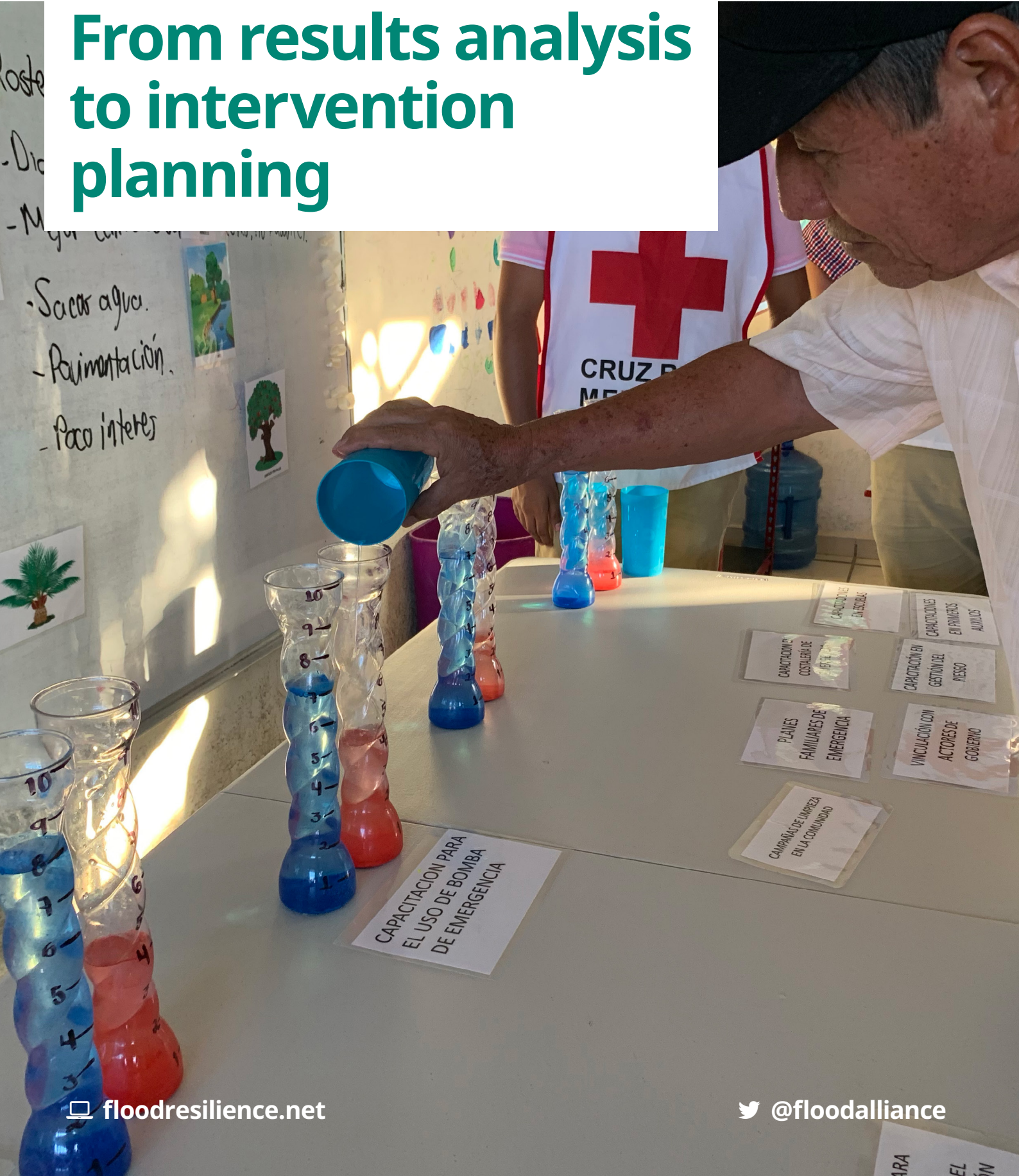




The Climate Resilience
Measurement for
Communities (CRMC)

From results analysis to intervention planning



About this document

Resilience is critical for communities prone to climate-related hazards such as flooding or heatwaves; these disaster events literally wash away development gains.

However, devoting limited funding to responding and rebuilding after disasters is unrealistic and inefficient. Instead, building ex ante resilience should be part of development. This means doing development in a way that avoids the creation of new risk, reduces existing risk, and ensures that initiatives targeting climate-related hazards and associated risks have co-benefits for development.

The Climate Resilience Measurement for Communities (CRMC) approach contributes to achieving this goal: it provides up-to-date information to inform decision-making and helps to identify the possible areas for intervention thanks to discussions among communities and stakeholders, with the support of practitioners.

Discussing the results of the CRMC with the community should empower them to take ownership of their resilience path, identify what resilience means to the community members, and ultimately what they need to do to get there. This is more important than finding an 'optimal intervention; without community ownership, interventions will not be sustainable beyond the life of the project.

It is also essential to think carefully about what results to share with the community and different stakeholder groups, and in what form; it is of little help to talk only about weaknesses and areas that have a lot of room for improvement.

That is why this guidance aims to help practitioners to analyse CRMC results, along with other information, as well as share and discuss results with communities and other relevant stakeholders. This analysis will help us to better understand the community's strengths and weaknesses regarding resilience to one or several hazards as measured by the CRMC, and identify, prioritize, and plan possible interventions through a participatory process with the community and relevant stakeholders which in turn may influence the resilience to one or several hazards at a time.

It is important to keep in mind that CRMC results are just one source of information to consider when deciding on interventions – other important considerations are community priorities and vision of development, historic experiences, hazard exposure and vulnerability, available funding, available expertise, and local stakeholder priorities, among others.

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To learn more about the CRMC and find out how it can add value to your programs, please email us here: info@floodresilience.net

Measuring climate resilience at community level

Why climate hazards?

As our planet warms and weather patterns change, we are seeing more frequent and intense floods, heatwaves and wildfires. The disruption caused by these events can devastate homes, disrupt communication networks and displace people. Heatwaves are one of the deadliest climate events. Without action on climate resilience, the position will get worse because of:

- Increasing population, urbanization, and economic development in hazard-prone areas.
- Increasing loss of life and economic and insured losses due to climate hazards.
- Increasingly interconnected and interdependent climate risks.

With climate disasters increasingly impacting communities around the world, the need for community resilience has never been greater.

Why resilience?

We find: Every US\$1 invested in prevention saves \$5 in future losses.¹

But: Only 13 per cent of aid spending goes into pre-event resilience and risk reduction; 87 per cent goes to post-event relief.²

We define disaster resilience as the ability of a system, community, or society to pursue its social, ecological, and economic development and growth objectives, while managing its disaster risk over time in a mutually reinforcing way.³

Why measure?

Measurement enables us to assess and demonstrate the real impact of improvements. Since there was no global framework available to do this, the Zurich Flood Resilience Alliance originally developed a consistent [Flood Resilience Measurement Framework](#) and the tools to implement this framework, which now has progressed to the [Climate Resilience Measurement for Communities \(CRMC\) framework](#) and associated tools.

And, if we have a measurement framework and data, we can contribute to the evidence on how to define resilience. In turn, this will help to increase social, political, and financial investment in building resilience to climate-related hazards.

Why focus on communities?

While acknowledging that national and global drivers play a significant (and essential) part in building resilience, we have chosen to focus on the community level. This is the level where impacts from climate related hazard events are felt most immediately and where much action on enhancing resilience can be taken. It is also the level where we can demonstrate a tangible impact on people's lives, creating best practices in the field that can help us shape and influence policy at a higher level.

In partnership with:

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- 1 Mechler, R., Czajkowski, J., Kunreuther, H., Michel-Kerjan, E., Botzen, W., Keating, A., McQuistan, C., Cooper, N., and O'Donnell, I. (2014) *Making Communities More Flood Resilient: The Role of Cost-Benefit Analysis and Other Decision-Support Tools in Disaster Risk Reduction*, White Paper, Zurich Flood Resilience Alliance.
- 2 Kellett, J. and Caravani, A. (2013) *Financing Disaster Risk Reduction: A 20-Year Story of International Aid*, London: ODI; Washington, DC: Global Facility for Disaster Reduction and Recovery at the World Bank.
- 3 Keating, A., Campbell, K., Mechler, R., Magnuszewski, P., Mochizuki, J., Liu, W., Szoenyi, M., and McQuistan, C. (2017) 'Disaster resilience: what it is and how it can engender a meaningful change in development policy', *Development Policy Review* 35(1): 65-91 <<http://dx.doi.org/10.1111/dpr.12201>>.

The Climate Resilience Measurement for Communities

The Climate Resilience Measurement for Communities (CRMC) comprises two parts: the Alliance's conceptual **framework**⁴ for measuring resilience to a set of climate-related hazards, and an associated tool for implementing the framework in practice.

The second component of the CRMC – the **tool** – is a practical hybrid software application comprising an online web-based platform for setting up and analysing the process and a smartphone or tablet-based app that can be used offline in the field for data collection.

In this publication we guide you through steps **9 'Analysing the results' and 10 'Sharing the results' of the CRMC process.**

The CRMC process is often part of a wider community disaster risk reduction and/or development programme and does not stand alone. Certain parts of the process such as project setup and community engagement are meant in the wider sense of the community project, and not just about implementing the measurement using the tool.




After the flood, Lima, Peru. © Fidel Carrillo

⁴ For more information on the conceptual framework, please see the FRMC overview: <https://www.floodresilience.net/resources/item/the-flood-resilience-measurement-for-communities-frmc>


The CRMC process




The CRMC tool




- Set up measurement activities.
- Select data collection methods.
- Assign them to fieldworkers' smartphones.




- Collect data based on assigned methods.
- Store the data offline.
- Send the data to the web application when the job is completed.



- Consolidate all data for the assessment.
- Assign grades using the assessment methodology.



- Visualize and analyse the measurement results.
- Access guidance on how to interpret the results.



- Store the resilience measurement results for comprehensive analysis and validation.



Content of the guidance

The CRMC results analysis and intervention planning consists of two stages. In the first stage, the analysis is done internally by the practitioner team, to better understand the results, define the best way(s) to and prepare to share them with the community and other stakeholders. In the second stage, results are then shared with the community and relevant stakeholders and used to develop an action plan.



In the first stage, the analysis is done internally by the practitioner team, to better understand the results and think about the best way(s) to present and discuss them with the community and other stakeholders. This first stage also includes a pre-mapping of possible interventions and a pre-mapping of criteria to prioritize interventions. In the second stage, we suggest activities with communities and relevant stakeholders to discuss the results, identify interventions, start planning implementation, etc.

Note that these steps, although presented linearly, are not linear in practice. Designing and prioritizing interventions is an iterative process and will be a key part of your community programming work. It is likely that you will keep coming back to the CRMC results, discussing them with the community, and exploring new ideas for interventions.

You will also likely reprioritize previously designed ideas, and conduct pre-feasibility studies as your local context changes, you build new relationships and partnerships, and new information becomes available.

Interpreting CRMC results to inform interventions planning

Definitions and general tips

The CRMC is a decision-**support** tool, which means it provides one set of inputs into the wider process of designing resilience-building interventions and development work.

An intervention is an activity or group of activities that builds community resilience to climate-related hazards. It can be a piece of **hardware** (e.g. a platform for poultry to take refuge on or building well-shaded areas); a **technique** (e.g. digital risk mapping); a **tool** (e.g. an online app); a **method or approach** (e.g. developing community disaster risk management committees); a **system** (e.g. an early warning system); or **infrastructure** (e.g. a multi-purpose shelter or biodyke or a replanted city area for reduced heat island effects).

An intervention is not every interaction that the practitioner has with the community (e.g. a workshop, a meeting, or a training session). If trainings are delivered as part of a long-term strategy, for example on first aid or specific types of livelihoods, then this can be considered an intervention as long as it is targeting a specific source (or sources) of resilience.

Most interventions will be related to more than one of the sources of resilience, even touch upon more than one theme or capital, or be relevant for more than one hazard for example. More than one intervention may be necessary to successfully enhance the communities' resilience. If you have used the CRMC for flood and heatwave hazards simultaneously, you need to think about interventions that synergize between the two hazards. If you have used the CRMC for a single hazard only, you need at least to respect the 'Action without harm' (see later in this guide).

Examples: A reforestation initiative may not work without addressing the root cause of deforestation (which may be energy access or a financial purpose) or supporting the community (social and human capital) how to maintain their natural capital. An initiative to

create more shaded, cooler places in an urban heat-island area needs to review how and where people live and how urban planning is conducted. What is important to remember is that social and human aspects are just as important as physical, financial, and natural ones.

The CRMC results – which can be viewed in the data cockpit (see the CRMC: User Guide for more information on how to use the data cockpit)⁵ – can be explored to identify the community's most critical resilience needs, and opportunities. This is done by looking at areas of strength and weakness, the interactions that exist between them, and thinking about where opportunities lie for addressing issues of concern to the community.

In doing this, be careful not to confuse all high grades and scores as opportunities and all low grades and scores as needs. Not every strength is an opportunity, nor is every weakness a need. Sometimes a low grade is not a need because the community does not want to prioritize this, or not feasible because it is not possible to increase it in this context, for example natural capital in a highly urban area. Low grades may be ignored if it is simply not possible to address them, or if they do not seem relevant to this community's resilience capacity. Sometimes it may also make more sense to focus on improving on a B or C grade than a D grade. This is because D grades may be due to entrenched issues that cannot be addressed by the project, but C grades indicate that something rudimentary is already in place that could be built upon. That is why the interactions between strengths and weaknesses in the context of a particular community will make different aspects an opportunity or a need. Strengths and weaknesses can be viewed by hazard, according to the different lenses, or at source level.

⁵ For more information on the how to use the data cockpit, please refer to the User manual available from within the CRMC tool in the Release notes

Exploring strengths and weaknesses in a number of different ways makes it possible to get a full picture of a community's resilience profile to one or several of the climate-related hazards.

It is important to explore the results across all the lenses, even the ones your team might not be as familiar with, in order to build capacity.

For example, in Phase I of the Alliance, this process helped organizations that had always focused on preparedness to implement innovative interventions on prospective risk reduction (avoiding risk creation), such as advocating for the need to consider flood risk when doing development planning.

Similarly, it helped organizations that had focused on building protection infrastructure to include human and social capital elements in their interventions, ensuring that they had better uptake and sustainability within the community.



Knowledge exchange between teams from the Mexican Red Cross and Plan International to define the best ways to use the CRMC tool © Plan International

Example of leveraging strengths to address weaknesses

In Phase I of the Zurich Flood Resilience Alliance (ZFRA), Concern Worldwide applied the FRMC in an area of rural Afghanistan. Almost all the residents of this cluster of 12 communities were poor or very poor farmers, practising unsustainable cultivation on marginal land vulnerable to extreme weather.

When exploring the FRMC results by capital, the Concern team noted that while the majority of social, financial, physical, and natural capital sources were graded D, human capital fared marginally better, with 44 per cent of sources being graded C.

When exploring the FRMC results by the disaster risk management (DRM) cycle, the Concern Worldwide team noted a particular weakness in regard to corrective risk reduction.

The team knew that the lack of flood mitigation infrastructure protecting roads was causing the community to be cut off during floods, and that this was a major problem in the community.

The Concern team combined these two results to inform their intervention design. **Relatively strong human capital was leveraged to address the weakness in corrective risk reduction**

The final intervention (after consultation with the community) put in place small-scale flood risk reduction infrastructure. These strategies are managed by community disaster management committees and use locally sourced materials and existing community knowledge to ensure the sustainability of the intervention beyond the life of the project.

In summary, when analysing FRMC results, these general principles need to be considered:

- 1.** The CRMC does not generate interventions; it highlights opportunities and critical issues that need exploring by the community before any intervention is agreed.
- 2.** Information generated through the CRMC process is not by itself enough to fully understand the community. Results need to be complemented with information from other participatory tools such as vulnerability and capacity assessments (VCAs), transit walks, and participatory risk mapping.
- 3.** The CRMC promotes systems thinking: sources should not be looked at in isolation, lenses should be used as much as possible, and connections between hazards (when doing multi-hazard measurement) be explored.
- 4.** Organizations can address a range of different scores and grades (A, B, C, D) emerging from the CRMC results and should explore interconnections between them. (For example, how can existing strengths be used to improve some weaknesses?)
- 5.** It might not be possible or relevant to address all the low scores or grades of a community.
- 6.** The CRMC analysis and planning is an iterative process and is not linear.
- 7.** The CRMC can be used to compare two points in time in the same community but should not be used to compare communities with each other.
- 8.** The CRMC is a decision-support tool with decisions regarding intervention prioritization and planning taken with the community.

The following questions will guide you to make sure that you think about each of these principles during the CRMC results analysis:

- a.** How will CRMC results be used to identify issues that affect community resilience for one or several hazards?
- b.** What other sources of information (VCAs, risk maps, etc.) could help you to select resilience entry points or prioritize interventions?
- c.** Which sources/capitals/context/Rs/themes/DRM cycle elements can be (directly or indirectly) impacted by action in other sources/capitals/context/Rs/themes/DRM cycle elements?
- d.** Are there sources with B, C, and D grades that can be improved by leveraging sources with A and B grades? For example using human capital – people and their skills – to improve natural capital, by planting trees to stabilize the riverbank or improve a water source. Again note that sources and interventions do not map 1:1, more than one intervention may be required to improve a sources, and vice-versa.
- e.** Are there sources that you will not be able to move/improve the grades of? For example, something for which there is currently no entry point (i.e. it requires governance and the government is dysfunctional).
- f.** Which sources would you like to focus on? Why? (Do not focus only on sources with C and D grades). What sources (capitals/context/Rs/themes/DRM cycle elements) do you think the community will prioritize? (If you are doing this exercise before talking with the community). Do not get trapped in the problem of circular thinking (see box on page 8).

Questions to ask while conducting a quick pre-feasibility study for interventions:

- a.** Based on community resources and your organization's resources, which interventions are feasible? Are there interventions where you see a particular opportunity to engage? That is, there is political will, you believe you could get additional donor funding, or there is another organization you could collaborate with, etc.
- b.** Are there partnerships you could put in place with other organizations that would allow you to consider other interventions?
- c.** Could any of the interventions you have focused on result in negative impacts?
- d.** How confident is the organization in pre-identifying the intervention that it would be the right intervention to address the overlying resilience issue? What criteria and evidence is used to support this?

The problem of circular thinking

‘When we try to measure what is important, we make important what it is that we measure’ (Levine, 2014)⁶. ‘The most significant weakness of an inductive method to resilience measurement is the circular logic of such an approach: “If we define *a priori* the variables that lead to system resilience, then our conclusions will be largely driven by our initial selection of variables” (Cumming et al, 2005).⁷

The problem of circular reasoning is that you may believe that a source of resilience is important simply because it is in the CRMC and you have measured it. You then implement interventions to build this source (or sources), measure again, and believe you have built resilience. However, will this source really make a difference when the flood or heatwave event comes? We can only truly know this after an event. However, what you can do to avoid this problem is to be critical about the sources of resilience. Ask yourself whether, from all the information you have from the community, you think building this source of resilience will actually make a difference when the disaster event comes.

Similarly, just because something is not in the CRMC that does not mean it is not important. There may be something very important for flood resilience in this community that the CRMC has not captured. This is one reason why you are encouraged to look at the lenses as well as the sources and other available information – you might be able to build flood resilience by doing something that does not directly target particular sources, but was highlighted by a lens-level analysis or by another source of information such as VCAs

⁶ Levine, S. (2014) ‘Assessing resilience: why quantification misses the point’, *HPG Working Paper*, Overseas Development Institute, London, UK, <https://odi.org/en/publications/assessing-resilience-why-quantification-misses-the-point>

⁷ Cumming, G. S., Barnes, G., Perz, S., Schmink, M., Sieving, K. E., Southworth, J., Binford, M., Hold, R. D., Stickler, C. and Van Holt, T. (2005) ‘An Exploratory Framework for the Empirical Measurement of Resilience’, *Ecosystems*, 8: 975–987.



FRMC result sharing workshop in Hatibandha, Bangladesh © Md. Ohidul Islam, Concern Worldwide

Suggested stages and steps to analyse results and plan interventions

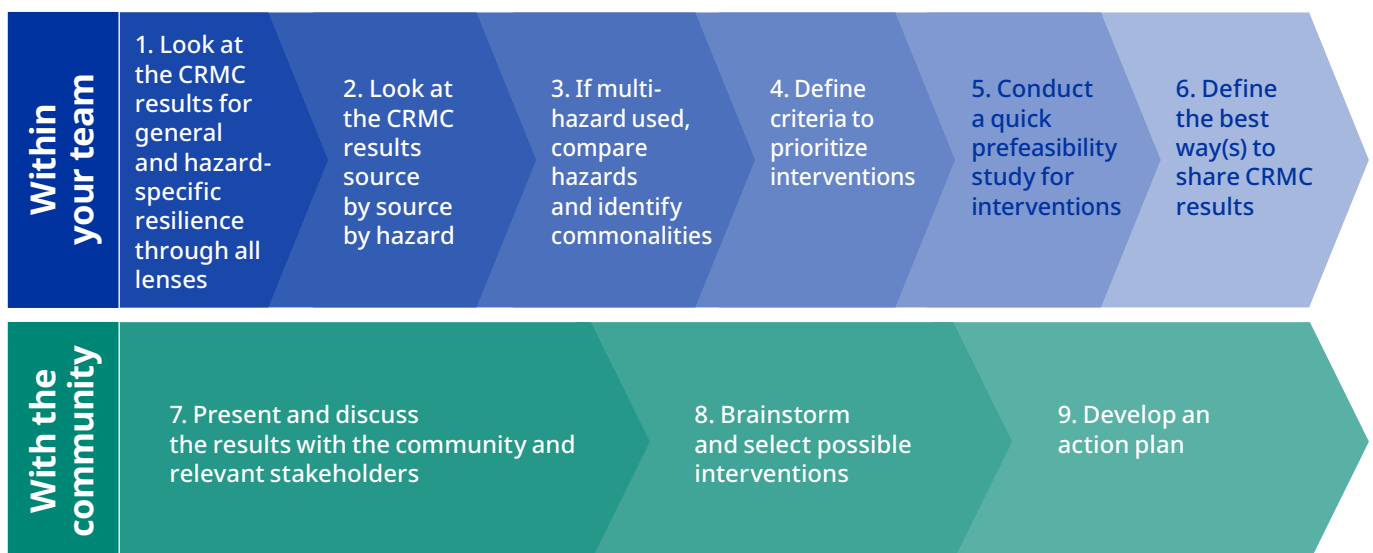
The following sections offer a series of activities to guide you step by step from the CRMC results analysis to intervention planning. The steps are divided into two main stages: the first stage is done internally by the practitioner team, while the second stage involves the community and relevant stakeholders.

Stage 1: Activities among country team members

The overall objective of the activities among team members is to prepare to work with the community. Team members should not reach agreement about interventions without involving the community.

The activities among team members aim to:

- Understand the CRMC results (*Steps 1 – 3*).
- Define criteria to prioritize interventions (*Step 4*).
- Pre-map possible interventions, to inform the community about the range of possibilities they have to improve their resilience (*Step 5*).
- Pre-map capacities (both internal and external) to implement these interventions (*Step 5*).
- Define the best way(s) to share CRMC results with the community and relevant stakeholders (*Step 6*): What do you want to share? With whom? And how?



Results should first be explored at the level of an individual community because the CRMC is specific to an individual community, and each community will want to see their own results. Based on your community proximity, you may also want to explore results for a group of communities, for example several communities within the same river basin, along the same stretch of coast, or in the same urban area.

This is because what happens upstream will impact communities downstream, or what happens in one area of the city may happen in another one, too. It may be possible to develop one intervention that will benefit multiple communities in the same area, or benefit multiple hazards. This guidance does not specifically discuss results aggregation for a group of communities.

Step 1: Look at the CRMC results through all lenses

Look at the CRMC results through the different lenses, to keep the richness of the tool and so as not to analyse the sources in isolation. The data cockpit is a useful tool to do so (Figure 1).

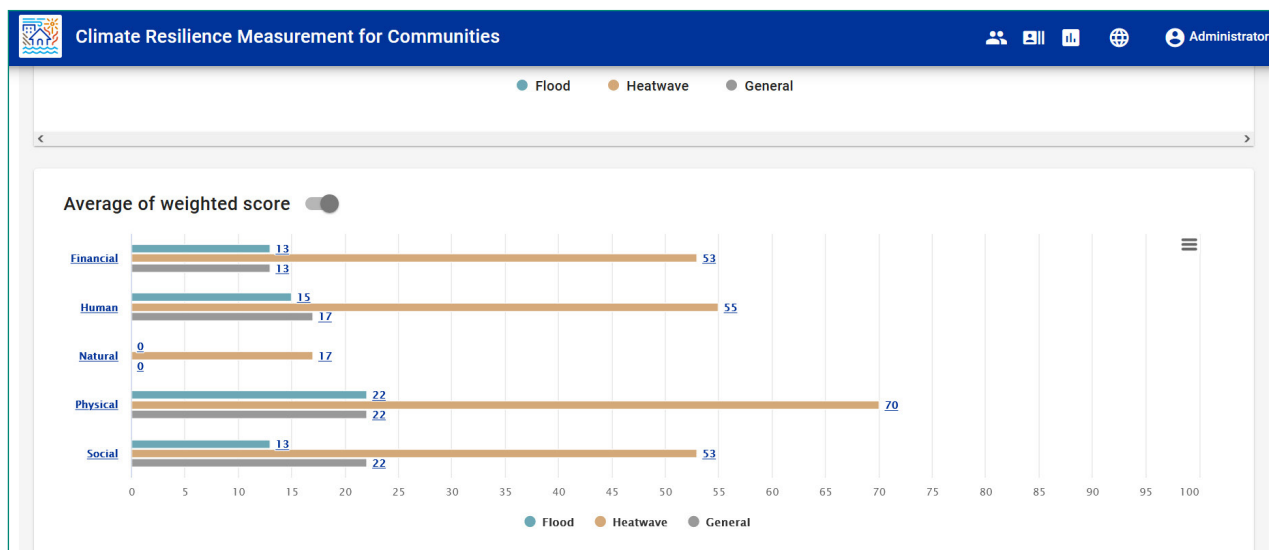
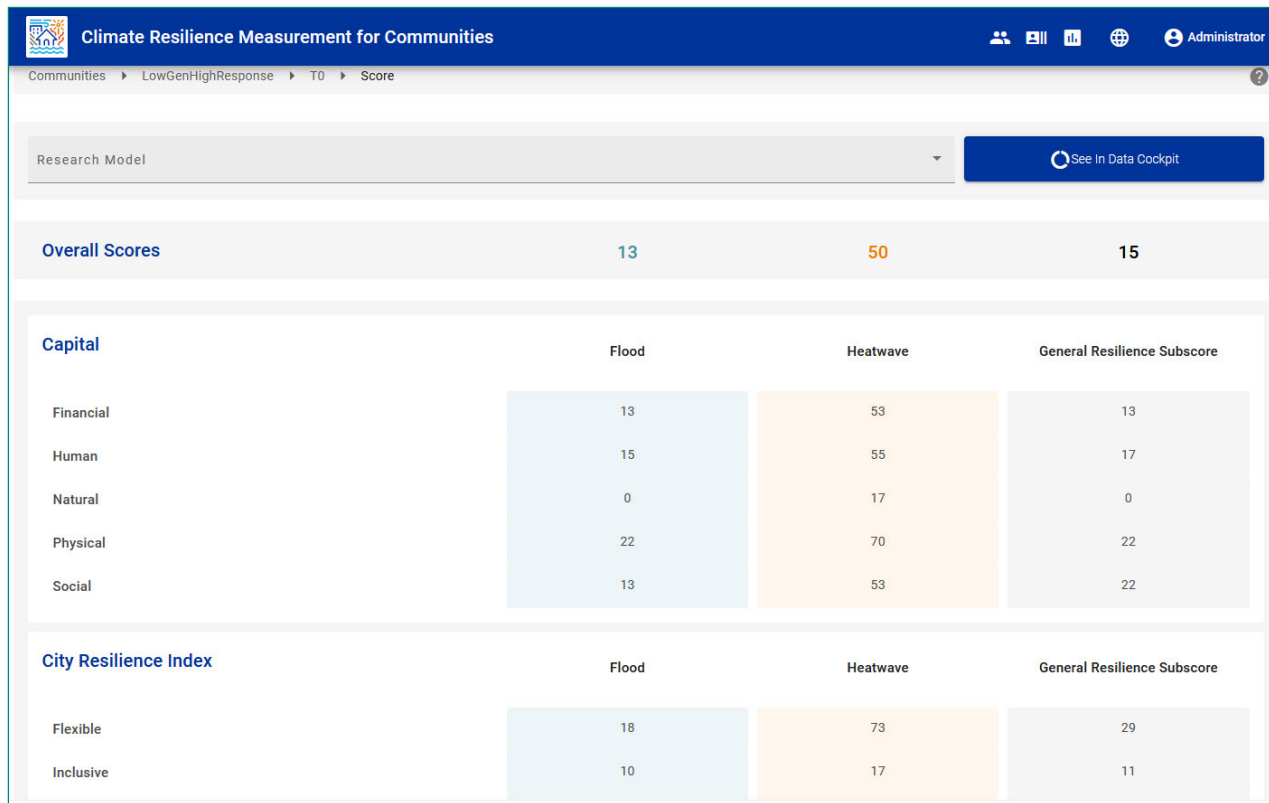


Figure 1 Data cockpit output according to the five capitals from one community for general, flood and heatwave resilience scores in a multi-hazard context

Activity sheet (You can subdivide this sheet for the general, flood and heatwave aspects, or do one hazard per sheet):

Using the graphs from the data cockpit, look across the different lenses and quickly scan for areas of opportunities/strengths (higher average scores) and weaknesses (lower average scores).

Name of lens that is being used:	5 capitals	Context	DRM cycle	4Rs	7 themes	Resilient Cities Network resilience characteristics
According to this lens, what seem to be the opportunities/ strengths of this community?						
According to this lens, what seem to be the needs/ weaknesses of this community?						
Do you agree/disagree with the results? Explain why.						
What do you think could be the reason for these results? Think also about the interconnection between the different items of the lens that you are using (e.g. financial and human, for the 'Capital' lens), interconnections between hazards, and about gender-age- inequity- disability (GAID) disaggregation.						
<p>General question: what other existing information should inform the design and prioritization of interventions? (e.g. VCAs, previous post-disaster needs assessment, CRMC exercises (see Annex 2), risk maps, existing community development plans, etc.)</p>						
<p>General question: based on the CRMC process so far, do you have any initial ideas for interventions?</p>						

Step 2: Look at the CRMC results at the source level

Look at the source level to understand why a specific aspect of a lens is performing well or not. Use the data export function of the tool to download grades (and question answers) into Excel (Figure 2).

The screenshot shows the 'Data Export' interface. At the top, there's a header with the logo and 'Climate Resilience Measurement for Communities'. Below that is a navigation bar with icons for users, a calendar, a list, a globe, and a user profile labeled 'Administrator'. The main content area has a 'Data Export' title and a filter section with dropdowns for 'Timeline', 'Community', 'Country', 'Organization', 'Study Type', and 'Study Status' (set to 'COMPLETED'). There are also date range selectors for 'Select study start date r...' and 'Select study end date ra...'. Below the filters are three buttons: 'Download Studies', 'Download Grading Results', and 'Download Grading Evaluation'. A table lists study data with columns for Study, Community, Start Date, End Date, Country, Organization, Study Type, and Study State. The table contains five rows of data, all with 'COMPLETED' status. At the bottom, there are links for 'Release notes 3.1' and 'Privacy policy'.

Study	Community	Start Date	End Date	Country	Organization	Study Type	Study State
T0	15 de Mayo	2022-03-19	2022-12-06	Mexico	Red Cross	NORMAL	COMPLETED
T0	Boca Juniors	2022-04-25	2022-04-25	Mexico	Red Cross	NORMAL	COMPLETED
T1	Colombia demo	2022-07-05	2022-07-05	Mexico	Red Cross	NORMAL	COMPLETED
T0	Colombia demo	2022-06-24	2022-06-24	Mexico	Red Cross	NORMAL	COMPLETED
T0	Compartir	2022-07-06	2022-07-06	Mexico	Red Cross	NORMAL	COMPLETED

Figure 2 The data export screen allows you to download the grading of the sources of communities

First look at all sources graded D (needs/weaknesses) and A (opportunities/strengths). From there identify what your D sources have in common (or whether the same strengths and weaknesses appear across hazards) and think about what interventions might address some of these issues. Then think about what your A sources have in common and think about how these might be leveraged to achieve these interventions.

Next look at C and B grades – these are the sources where the community has some capacity already that could potentially be strengthened. For example, if a community has flood evacuation plans in place, but they are not inclusive of marginalized community members, then they would likely be graded C or B.

An intervention here would work with existing structures to improve the response plans and eventually bring the grade up to B or A. Similarly, if a community has some development planning in place that does not consider flood risk, working with existing planning groups to incorporate flood resilience could be a powerful and extremely efficient intervention.

i Remember that some sources will have low grades (Cs and Ds) because of entrenched issues that cannot be addressed directly in your programme.

Activity sheet:

1. Print the 'Resilience sources' (available in Annex 1), cut them out, and mark them with A-B-C-D depending on their grade.
2. Look at all sources graded D: what do they have in common? Do we see some trends for possible interventions?
3. Look at all sources graded A: what do they have in common? How could they be leveraged to support interventions?
4. Look at all sources graded B and C: what do they have in common?
5. If you have a sub-set of sources you are beginning to focus on as possible entry points for an intervention, look at them using the Excel spreadsheet ('The grading export' spreadsheet) that illustrates which capital/context/Rs/themes/resilience characteristics/ DRM cycle phase each of those sources falls in. Are there ways to address two or more of those sources with one intervention?

Alternatively, use the FRMC exercises:

'The Wheel' to visualize the sources in a snapshot and show how sources present opportunities to improve or are fragile and at risk of deteriorating. This exercise may be used to narrow down the CRMC results into a subset of key sources to focus on.

'Mapping' to prompt conversation about how assets and vulnerabilities are linked in a system and how strong sources can be leveraged to improve weak sources (see Annex 2 for a short description of these exercises).



FRMC results' sharing and discussing with the government officials from the municipal civil protection commission in La Libertad, El Salvador © Plan International

Step 3: If multi-hazard used, compare hazards and identify commonalities

Compare the scores and results between hazards (in case you have used the CRMC for more than one hazard in the baseline (or other t-line) study). First, go back to the activity sheet from the previous step. Are there any particular thoughts on connections between hazards that you already noted down?

If this has not come up in the previous step, you may consciously review the results of the activity sheet again with a multi-hazard approach in mind. As a second step, review the different hazards side-by-side in the data cockpit when analyzing the results in the tool, and consider where similarities in strengths and weaknesses appear. Third, you may want to use the source-layer to spot similarities in strengths and weaknesses at the source specific level. This step should prioritize the hazard-specific sources where the source meaning is the same for either hazard, the definition is very similar, but the grading assesses each hazard specifically. Here, you may identify that in one source, the grading for one hazard is strong but weak for the other, or you may find that strengths and weaknesses are somewhat parallel for all the hazards.

Step 4: Define criteria to prioritize interventions

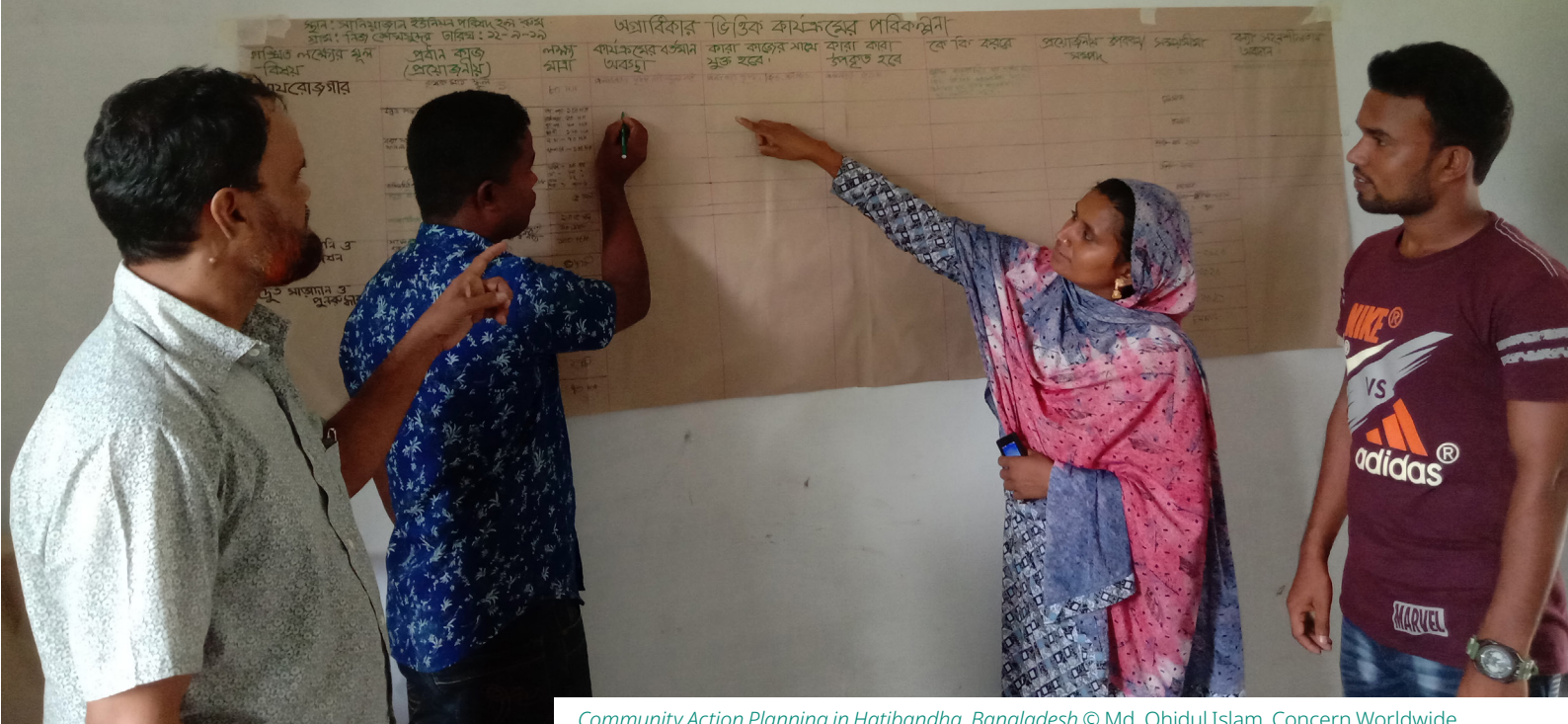
Prioritizing interventions needs to be based on a set of criteria that are defined by organizational staff and key stakeholders, particularly communities. These criteria may include level of urgency, groups targeted/benefiting, and willingness of key stakeholders. Suggested criteria are listed below. Defining criteria and prioritizing interventions is an iterative process, and therefore a process you will keep engaging with. For example, you may decide a shelter-related intervention is of higher priority than originally thought because local government has taken a new interest in housing. Or, priorities may shift in the aftermath of a disaster event. Or, you may also find that not only is sheltering identified as weak for both flood and heatwaves, but that a

combined shelter has a high cost-benefit ratio addressing both hazards.

In this step, you need to list criteria that might be useful for prioritizing interventions with the community and stakeholders.

Core criteria that should be part of every list include:

1. Relevance – level of urgency/needs in the community that the intervention could solve is it the right thing to do?
2. Equity and inclusion – benefit for those who need it the most.
3. Efficiency – will the benefits of the intervention exceed its costs?
4. Effectiveness – can the expected results be achieved?
5. Sustainability – the life expectancy of the intervention beyond the programme: will it last long enough to be worth the effort?
6. Impact – the possibility of replication/scale-up in other communities/areas or the impact on more than one hazard or aspect of resilience.
7. 'Action without harm': check whether the intervention may inadvertently create more risks (or if it is impossible to avoid all harm, are potential negative impacts limited, worth the risks, and compensated for?)
8. Co-benefits – for other hazards, sources of resilience, for other communities, supporting the community's socioeconomic development, etc.
9. Willingness and availability of the community to implement the intervention, and to take charge of the intervention's management and maintenance, potentially over the long term.
10. Availability of financial or material resources for implementation of the intervention, from your organization, from the community, and/or from other actors.



Community Action Planning in Hatibandha, Bangladesh © Md. Ohidul Islam, Concern Worldwide

11. Availability of technical expertise for implementation of the intervention, from your organization, community, and/or other actors, or the opportunity and willingness to learn and innovate while implementing the intervention.
12. Time required to implement the intervention and see its impact – can it be implemented in a reasonable amount of time/before people lose interest? Will the benefits from the intervention be seen soon enough to maintain people’s interest and commitment?

Think with your team:

- Can you think of any other criteria that should be included?
- Do some criteria look more critical than others? If yes, which one(s), and why?

i About criterion 7, ‘Action without harm’: some interventions, particularly those designed to protect people and assets from the hazard (e.g. flood water), can actually incentivize people to increase exposure (i.e. to locate in the flood plain because they believe they are safe). This would create more risk if and when there is a major event.

Step 5: Conduct a quick pre-feasibility study for interventions

For this pre-feasibility study, think about these three aspects:

1. Review possible interventions – for flood, you might want to review literature (such as the Flood Portal, and especially the ‘Solutions Finder’: <https://floodresilience.net/solutions>) for ideas of interventions that you might not have thought of.
2. Explore your internal capacities: what resources (human, time, material, and financial) could you directly contribute to support the intervention?
3. Explore external capacities: who (external stakeholders) might help the community to implement interventions? What form(s) could this support take (e.g. technical expertise, unskilled labour, funds)?

Alternatively, use the CRMC exercise ‘Voting’ to prompt a conversation about what various stakeholders will want to prioritize, based on the level of urgency and your organizational capacity, as well as the community and other stakeholders’ capacity (see Annex 2).

Step 6: Define the best way(s) to share CRMC results externally

Before sharing the results, think about what should be shared externally and with whom. Think also about how you should share the results, depending on your audience.

Activity sheets with your team:

a) First, think about what should be presented and discussed with the community and other stakeholders. The activity sheet below will help your team to ponder pros and cons of different items that could be shared with the community.

WHAT should we present?			
Methods	Possible pros	Possible cons	What would be the pros and cons of this method in your community?
Presenting all the lenses	<ul style="list-style-type: none"> Comprehensive analysis 	<ul style="list-style-type: none"> Time-consuming Some lenses might be complicated to explain easily Can get lost in the details 	
Presenting only one or some lenses	<ul style="list-style-type: none"> Possibility of choosing the lenses that are easier to understand 	<ul style="list-style-type: none"> Risk of bias Loss of the richness of the tool 	
Do not present the lenses, only the sources	<ul style="list-style-type: none"> Sources are likely to be easier to understand than lenses 	<ul style="list-style-type: none"> Loss of the richness of the tool Risk of giving only a 'list' of grades 	
Present all the sources	<ul style="list-style-type: none"> Comprehensive Allows system analysis 	<ul style="list-style-type: none"> Time-consuming 	
Present only the sources that you have pre-identified	<ul style="list-style-type: none"> Might be easier to 'digest' for the community 	<ul style="list-style-type: none"> Risk of bias because the analysis will not be comprehensive Risk of influencing the community with your own priorities 	
Present all the results with a written report	<ul style="list-style-type: none"> The report can stay in the community as one of its key documents Possibility of including all lenses and all sources quite easily 	<ul style="list-style-type: none"> Risk of different communities comparing scores and grading Risk of misinterpretation, especially with 'numbers' Risk that the information will only be accessible to a few people in the community 	
Present hazard by hazard	<ul style="list-style-type: none"> Might be technically easier to handle and result in specific, tangible discussions 	<ul style="list-style-type: none"> Risks missing out on overarching resilience aspects 	
Add other methods that you may think of			

b) Think also about who should participate in the CRMC results presentation and discussion.

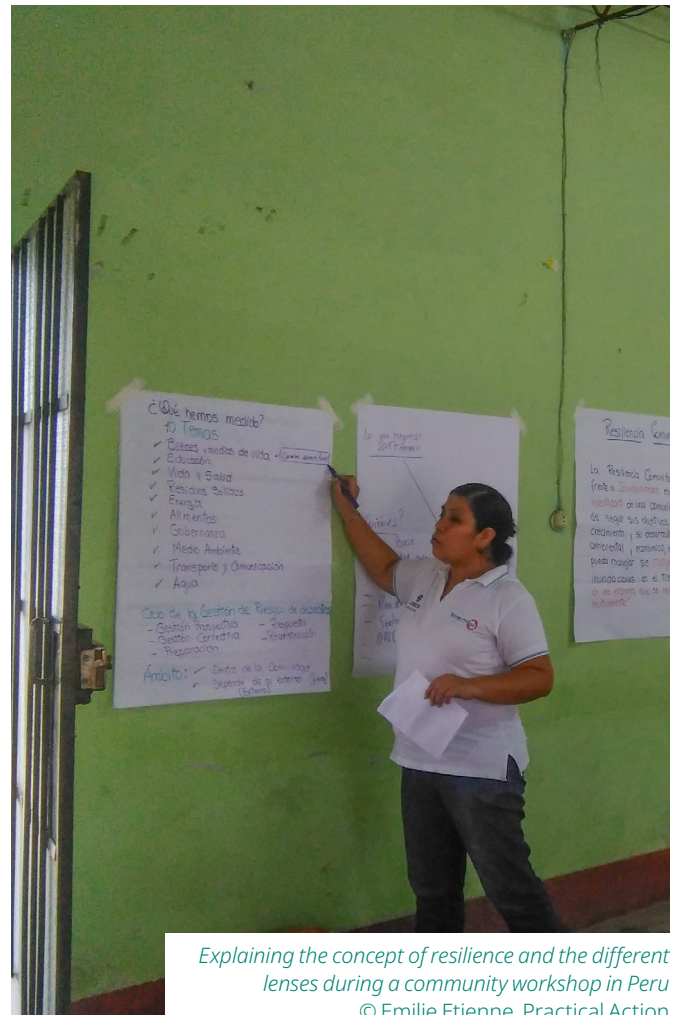
WHO should participate in the results discussion?			
Methods	Possible pros	Possible cons	What would be the pros and cons of this method in your community?
The whole community	<ul style="list-style-type: none"> • Would help to build consensus at the community level and empower community members 	<ul style="list-style-type: none"> • Time-consuming, might be difficult to present enough detail • Some participants might not feel confident about expressing their views, such as marginalized groups (women, people with lower education level, etc.) 	
Only community leaders	<ul style="list-style-type: none"> • Easier to present to a small group. Community leaders are likely to have a higher education level and thus more easily understand the results 	<ul style="list-style-type: none"> • Community leaders might not represent effectively all the needs of the community (for example: young people, people with disabilities, women) 	
Several presentations with different groups (e.g. women, farmers)	<ul style="list-style-type: none"> • Would help to gather the voices of vulnerable people and empower them 	<ul style="list-style-type: none"> • Time-consuming as you need to present the results several times • More difficult to build consensus at the community level 	
With the community and the local authority	<ul style="list-style-type: none"> • Would help to involve the local authority in the process 	<ul style="list-style-type: none"> • Risk of bias if the local authority influences the interpretation of results 	
Hazard-specific expert groups	<ul style="list-style-type: none"> • Leads to tangible solutions experts are familiar in 	<ul style="list-style-type: none"> • Miss out on joint benefits across hazards or fail to tackle overarching resilience 	
Add other methods that you may think of			

c) Lastly, how can you present and share the results? For example:

- An alternative, participatory approach: the CRMC exercises (1 Wheel; 2 Voting; 3 Mapping) can be used to present the results to the community and/or carried out together with the community and other stakeholders as a means of facilitating a multi-stakeholder dialogue and co-ownership of the intervention planning process (see Annex 2).
- A written report with all the information that can be handed to the community and other relevant stakeholders.
- A video projector to show results from the data cockpit as graphs.
- Flipcharts (see photos below).



Presenting sources or resilience during a community workshop in Nepal
© Madhab Uprety, Practical Action



Explaining the concept of resilience and the different lenses during a community workshop in Peru
© Emilie Etienne, Practical Action

Stage 2: Activities with the communities and stakeholders

The overall objective of the activities with communities and stakeholders is to share and discuss CRMC results with them, in order to define, prioritize, and plan possible interventions.

The activities with the communities and stakeholders aim to:

- Present and discuss CRMC results with the community and stakeholders, to reach a common understanding of strengths and weaknesses regarding flood resilience (*Step 7*).
- Brainstorm possible interventions (*Step 8*).
- Select the interventions that are likely to have the greatest impact and that are feasible (*Step 8*), based on the preliminary list of criteria (*Step 4*) and informed by the pre-feasibility study (*Step 5*) that you discussed within your team.
- Plan the implementation of those interventions (*Step 9*).

These activities should be implemented through one or several workshops with the community and relevant stakeholders.



Step 7: Present and discuss the results externally

Based on *Step 6* where you defined what is best to share, with whom, and how, you can now implement the results presentation. If you are not sure which approach would work best in your context, we suggest a presentation in two parts:

a) Present the results with one or more lenses: you can present the results with the different graphs that appear in the data cockpit (Figure 3).

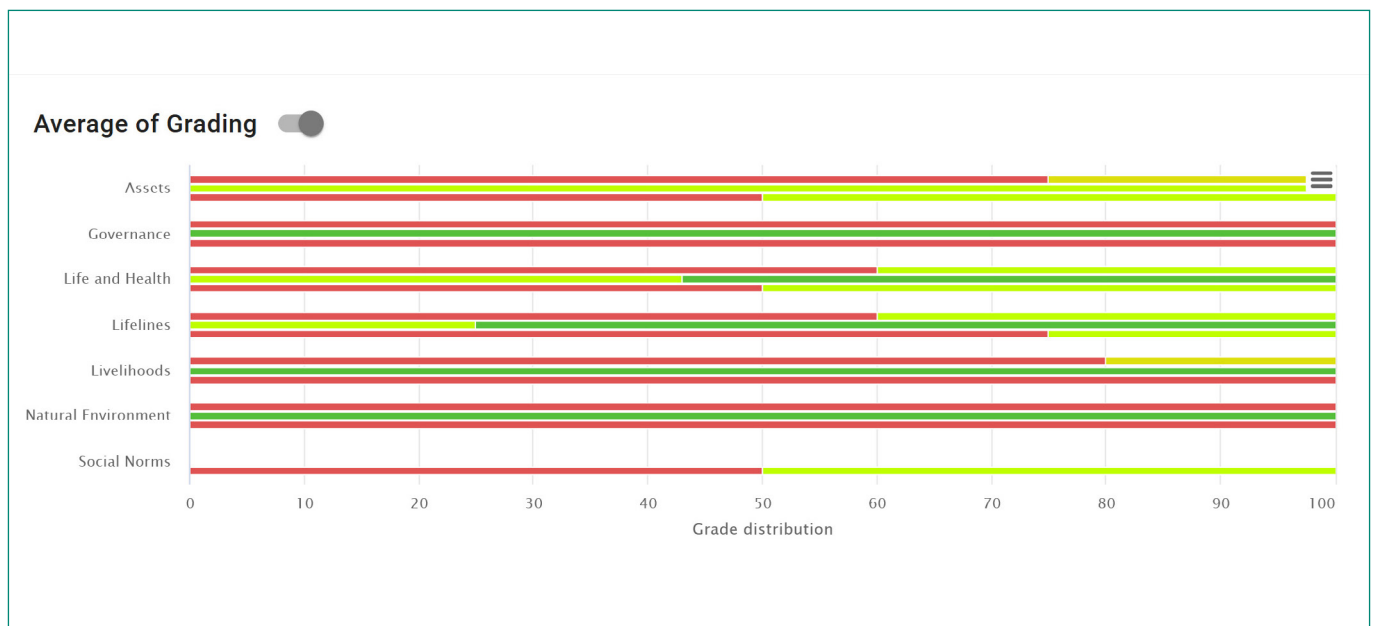


Figure 3 Distribution of the grades for the 7 themes in one community with multi-hazard grading. Top line in each theme: Flood. Middle line: Heatwave. Bottom line: General (is shown interactively in the tool using the mouse-over functionality).

Discuss the results with the community and stakeholders:

- Do they agree/disagree with the results? Why?
- What do they think could be the reason for this result?

It is helpful to have the data export handy in case communities ask questions about the individual sources or the answers that the sources' grading is based upon.

i Note: CRMC 'scores' are relevant only within the context of each community. Different communities should not compare their 'scores' with each other – it is no more relevant than saying the person with a headache is better or worse than the person with a sore throat. What matters is how the scores help community members, and organizations and agencies working with the community, to understand their risks and opportunities and to track progress in reducing risk and improving resilience over time.

b) Present and discuss the results at the sources level

- Create a matrix with grades on the y-axis, and the level of urgency on the x-axis.
- Place the sources in this matrix – refer to your CRMC results for the grade for each source (A, B, C, D) and discuss with the community the urgency of each source that has a B, C or D grade.
- Circle the sources that have commonalities.
- Look at the ‘urgent’ sources: could some ‘strong’ sources/group of sources (i.e. with A or B grades) support or compensate for weak and urgent ones?

Example:

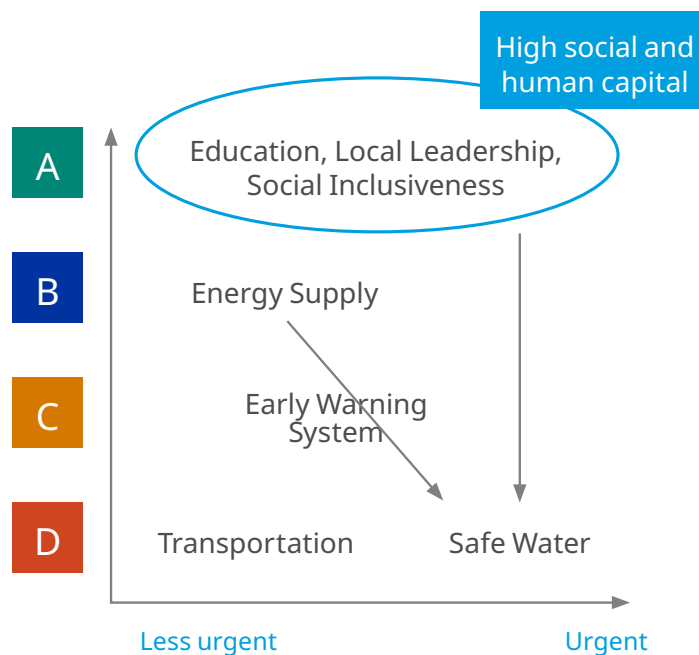


Figure 4 Example analysing interconnections of sources, looking at both their grades and level of urgency

In this example, we can see that community members have a relatively high education level (high human capital) and good social cohesion (high social capital). They also have a relatively good energy supply.

On the other hand, ‘Safe Water’ has been identified as a weakness and rated as ‘urgent’ by the community to improve their flood resilience.

How could they use the strengths of high social and human capital, as well as the good energy supply, to improve access to safe water?

Tips for effective results communication in the community:

- Provide information that is easily understood: for example avoid communicating the results in charts and percentages only.
- Consider different ways of presenting the results for different groups (community members, key informants, local stakeholders, private sector, experts in one specific hazard etc.).
- Share and discuss results in local languages.
- Do not overload the community with too much information; focus on the strengths of each community and use them in a creative way to discuss areas that have space for improvement.
- Do no harm: be sensitive about communicating information that might create tensions in the community. Be aware of the fact that you might share sensitive or confidential information. Context, audience, and power dynamics need to be considered.
- Be cautious when presenting the results. Do not raise hopes and expectations that your organization cannot fulfil: some interventions might be funded and implemented by the community, the local authority, other non-governmental organizations, etc. Clarify that your organization might only be able to fund and implement a few interventions from the community plan.
- Give the community enough time to reflect on and understand the results.



Volunteer interviews a fisherman © Red Cross Albania

Step 8: Brainstorm and select possible interventions with the community and stakeholders

a) Ask the community and stakeholders for ideas for interventions that could help improve one or several sources of resilience, for one or several hazards, then complement with possible interventions that you pre-identified when you analysed the results as a team (in Step 5). You can write these possible interventions on a flipchart.

b) Prioritize the interventions with the community using the criteria that you developed previously as a team (in Step 4). You can also adjust these criteria based on feedback from the community and other stakeholders.

You can use a table (see the activity sheet below for an example of a prioritization table) to explore the feasibility of each intervention.

i **Note:** Possible interventions are not only 'structural' measures such as bridges, drainage, and reforestation. They also involve human and social measures, such as training, community risk maps, community organizing, or creation of disaster risk reduction committees.

i **Note:** For this step, if you have not already done so, you might first need to conduct a stakeholder analysis with the community. This will help you to answer questions such as whether there are external stakeholders interested in, willing and able to support particular interventions. For details on how to carry out the stakeholder analysis see the guide on Project set up, study set up, data collection, and grading available at <https://floodresilience.net/frmc>

Activity sheet: example of prioritization table

Name of intervention	Source(s) and hazards that this intervention targets	Criterion 1. Relevance – level of urgency	Criterion 2. Equity and inclusiveness	Criterion 10. Availability of financial or material resources	Criterion x
Education about evacuation roads	<p>H08 – Flood evacuation and safety knowledge</p> <p>S11 – Response planning</p> <p>H05 – Climate change and risk awareness</p> <p>P02 – Transportation system continuity</p> <p>P04 – Early warning systems (EWS)</p>	Very urgent	It is possible to design different workshops and communication tools to involve vulnerable groups such as children, women, and people with disabilities.	Community leaders are willing to implement this intervention, but some people might be reluctant to participate. The municipality regularly organizes evacuation drills, and they are willing to organize one in our community.	
Etc.					

c) Review the table and select the ‘best’ interventions with the community.

Step 9: Develop an action plan to implement prioritized interventions

Prioritized interventions should be transformed into a community plan. If a community plan already exists, assess how the CRMC results can be incorporated into or used to adapt this plan. The plan should not only include activities funded by the project, but also activities that would be funded by the community, local authorities, or other relevant actors/stakeholders. When planning interventions, think also about integrated planning and execution: how could these interventions interact with each other?

i **Note:** Expectations should be managed carefully, so that the community understands that your program will not fund everything in the plan.

Activity sheet: Example of action plan

Intervention	Detail of activities	Responsible	Necessary resources	Who is in charge of resources?	Timeframe
Education about evacuation roads	Workshop to define the best evacuation roads	NGO and community leaders	1. Coffee break 2. Flipcharts 3. Room	1.Community leaders 2.NGO 3.Municipality	December
	Print maps of evacuation roads	NGO			
	Distribute maps to households	Community leaders			
	Evacuation drill with the community	Municipality and community leaders			
	Evaluation of the drill and planning of next actions	Etc.			
Etc.					

Following the identification of interventions and corresponding action plan, the interventions will need to be mapped out in terms of specific activities and the different results anticipated. This results chain will then need to be monitored and evaluated appropriately.

Annex 1 – The sources of resilience

Source of resilience – Financial Capital

F01 | Household access to discretionary funds

HAZARD: Generic
5C: Financial
4R: Resourcefulness
CONTEXT: Community level

DRM: Response
THEME: Assets
RCN: Flexible

F02 | Community financial health

HAZARD: Generic
5C: Financial
4R: Robustness
CONTEXT: Community level

DRM: Preparedness
THEME: Assets
RCN: Inclusive

F03 | Local government financial capacity

HAZARD: Generic
5C: Financial
4R: Resourcefulness
CONTEXT: Enabling environment

DRM: Preparedness
THEME: Governance
RCN: Inclusive

F04 | Public infrastructure maintenance budget

HAZARD: Generic
5C: Financial
4R: Robustness
CONTEXT: Enabling environment

DRM: Prospective Risk Reduction
THEME: Lifelines
RCN: Robust

F05 | Climate change adaptation planning and investment

HAZARD: Generic
5C: Financial
4R: Robustness
CONTEXT: Enabling environment

DRM: Prospective Risk Reduction
THEME: Governance
RCN: Reflective

F06 | Business Continuity

HAZARD: Specific for flood and heatwave
5C: Financial
4R: Rapidity
CONTEXT: Community level

DRM: Preparedness
THEME: Livelihoods
RCN: Redundant

F07 | Household income continuity

HAZARD: Specific for flood and heatwave
5C: Financial
4R: Rapidity

CONTEXT: Community level
DRM: Preparedness
THEME: Livelihoods
RCN: Flexible

F08 | Risk reduction investments

HAZARD: Specific for flood and heatwave
5C: Financial
4R: Rapidity
CONTEXT: Enabling environment

DRM: Corrective risk reduction
THEME: Lifelines
RCN: Resourceful

F09 | Flood insurance

HAZARD: Unique to flood
5C: Financial
4R: Rapidity
CONTEXT: Community level

DRM: Preparedness
THEME: Assets
RCN: Redundant

F10 | Flood recovery budget

HAZARD: Unique to flood
5C: Financial
4R: Rapidity
CONTEXT: Enabling environment

DRM: Recovery
THEME: Governance
RCN: Resourceful

F11 | Energy affordability

HAZARD: Unique to heatwave
5C: Financial
4R: Resourcefulness
CONTEXT: Community level

DRM: Response
THEME: Assets
RCN: Resourceful

F12 | Heatwave action-plan budget

HAZARD: Unique to heatwave
5C: Financial
4R: Rapidity
CONTEXT: Enabling environment

DRM: Preparedness
THEME: Governance
RCN: Resourceful

Source of resilience – Human Capital

H01 | Secondary school attendance

HAZARD: Generic
5C: Human
4R: Resourcefulness
CONTEXT: Community level

DRM: Prospective Risk Reduction
THEME: Livelihoods
RCN: Resourceful

H02 | Food availability

HAZARD: Generic
5C: Human
4R: Robustness
CONTEXT: Enabling environment

DRM: Response
THEME: Life and Health
RCN: Robust

H03 | First aid knowledge

HAZARD: Generic
5C: Human
4R: Resourcefulness
CONTEXT: Community level

DRM: Preparedness
THEME: Life and Health
RCN: Resourceful

H04 | Climate change action

HAZARD: Generic
5C: Human
4R: Rapidity
CONTEXT: Enabling environment

DRM: Prospective Risk Reduction
THEME: Natural Environment
RCN: Flexible

H05 | Climate change and risk awareness

HAZARD: Specific for flood and heatwave
5C: Human
4R: Robustness
CONTEXT: Community level

DRM: Prospective Risk Reduction
THEME: Livelihoods
RCN: Reflective

H06 | Awareness of how nature mitigates risk

HAZARD: Specific for flood and heatwave
5C: Human
4R: Redundancy
CONTEXT: Community level

DRM: Prospective Risk Reduction
THEME: Natural Environment
RCN: Resourceful

H07 | Flood exposure awareness

HAZARD: Unique to flood
5C: Human
4R: Resourcefulness
CONTEXT: Community level

DRM: Corrective Risk Reduction
THEME: Assets
RCN: Reflective

H08 | Flood evacuation and safety knowledge

HAZARD: Unique to flood
5C: Human
4R: Resourcefulness
CONTEXT: Community level

DRM: Preparedness
THEME: Life and Health
RCN: Flexible

H09 | Unsafe water awareness

HAZARD: Unique to flood
5C: Human
4R: Robustness
CONTEXT: Community level

DRM: Response
THEME: Life and Health
RCN: Flexible

H10 | Heatwave vulnerability awareness

HAZARD: Unique to heatwave
5C: Human
4R: Resourcefulness
CONTEXT: Community level

DRM: Preparedness
THEME: Life and Health
RCN: Reflective

H11 | Heatwave protection knowledge

HAZARD: Unique to heatwave
5C: Human
4R: Resourcefulness
CONTEXT: Community level

DRM: Response
THEME: Life and Health
RCN: Flexible

H12 | Worker protection for heatwaves

HAZARD: Unique to heatwave
5C: Human
4R: Robustness
CONTEXT: Community level

DRM: Response
THEME: Governance
RCN: Robust

Source of resilience – Natural Capital

N01 | Tree cover

HAZARD: Generic
5C: Natural
4R: Redundancy
CONTEXT: Enabling environment

DRM: Corrective Risk Reduction
THEME: Natural Environment
RCN: Robust

N02 | Permeable surfaces

HAZARD: Generic
5C: Natural
4R: Redundancy
CONTEXT: Enabling environment

DRM: Corrective Risk Reduction
THEME: Natural Environment
RCN: Robust

N03 | Land use planning

HAZARD: Generic
5C: Natural
4R: Redundancy
CONTEXT: Enabling environment

DRM: Prospective Risk Reduction
THEME: Governance
RCN: Reflective

N04 | Resource Management

HAZARD: Generic
5C: Natural
4R: Resourcefulness
CONTEXT: Enabling environment

DRM: Prospective Risk Reduction
THEME: Governance
RCN: Inclusive

N05 | Land/water interface health

HAZARD: Generic
5C: Natural
4R: Redundancy
CONTEXT: Enabling environment

DRM: Corrective Risk Reduction
THEME: Natural Environment
RCN: Redundant

N06 | Use of natural capital for flood risk management

HAZARD: Unique to flood
5C: Natural
4R: Redundancy
CONTEXT: Enabling environment

DRM: Corrective Risk Reduction
THEME: Natural Environment
RCN: Flexible

N07 | Use of natural capital for heat risk management

HAZARD: Unique to heatwave
5C: Natural
4R: Redundancy
CONTEXT: Enabling environment

DRM: Corrective Risk Reduction
THEME: Natural Environment
RCN: Flexible

Source of resilience – Physical Capital

P01 | Energy supply continuity

HAZARD: Generic
5C: Physical
4R: Redundancy
CONTEXT: Enabling environment

DRM: Prospective Risk Reduction
THEME: Lifelines
RCN: Redundant

P02 | Transportation system continuity

HAZARD: Generic
5C: Physical
4R: Redundancy
CONTEXT: Enabling environment

DRM: Prospective Risk Reduction
THEME: Lifelines
RCN: Redundant

P03 | Communications systems continuity

HAZARD: Generic
5C: Physical
4R: Robustness
CONTEXT: Enabling environment

DRM: Response
THEME: Lifelines
RCN: Robust

P04 | Early warning

HAZARD: Specific for flood and heatwave
5C: Physical
4R: Rapidity
CONTEXT: Enabling environment

DRM: Preparedness
THEME: Lifelines
RCN: Resourceful

P05 | Continuity of education during disaster

HAZARD: Specific for flood and heatwave
5C: Physical
4R: Rapidity
CONTEXT: Enabling environment

DRM: Recovery
THEME: Livelihoods
RCN: Robust

P06 | Emergency infrastructure and supplies

HAZARD: Unique to flood
5C: Physical
4R: Rapidity
CONTEXT: Enabling environment

DRM: Preparedness
THEME: Livelihoods
RCN: Integrated

P07 | Continuity of healthcare during disaster

HAZARD: Specific for flood and heatwave
5C: Physical
4R: Robustness
CONTEXT: Enabling environment

DRM: Response
THEME: Life and Health
RCN: Robust

P08 | Flood forecasting

HAZARD: Unique to flood
5C: Physical
4R: Rapidity
CONTEXT: Enabling environment

DRM: Preparedness
THEME: Livelihoods
RCN: Integrated

P09 | Household flood protection

HAZARD: Unique to flood
5C: Physical
4R: Robustness
CONTEXT: Community level

DRM: Corrective Risk Reduction
THEME: Assets
RCN: Flexible

P10 | Large scale flood protection

HAZARD: Unique to flood
5C: Physical
4R: Robustness
CONTEXT: Enabling environment

DRM: Corrective Risk Reduction
THEME: Assets
RCN: Robust

Source of resilience – Physical Capital (continued)

P11 | Flood safe water and sanitation systems

HAZARD: Unique to flood
5C: Physical
4R: Robustness
CONTEXT: Enabling environment

DRM: Response
THEME: Lifelines
RCN: Robust

P12 | Waste management and flood

HAZARD: Unique to flood
5C: Physical
4R: Robustness
CONTEXT: Enabling environment

DRM: Response
THEME: Lifelines
RCN: Robust

P13 | Heatwave forecasting

HAZARD: Unique to heatwave
5C: Physical
4R: Rapidity
CONTEXT: Enabling environment

DRM: Preparedness
THEME: Livelihoods
RCN: Integrated

P14 | Household heatwave adaptation

HAZARD: Unique to heatwave
5C: Physical
4R: Robustness
CONTEXT: Community level

DRM: Corrective risk reduction
THEME: Life and Health
RCN: Flexible

P15 | Availability of clean, safe water

HAZARD: Unique to heatwave
5C: Physical
4R: Robustness
CONTEXT: Enabling environment

DRM: Response
THEME: Lifelines
RCN: Robust

Source of resilience – Social Capital

S01 | Mutual support

HAZARD: Generic
5C: Social
4R: Resourcefulness
CONTEXT: Community level

DRM: Response
THEME: Social Norms
RCN: Integrated

S02 | Social inclusiveness of disaster risk management

HAZARD: Generic
5C: Social
4R: Resourcefulness
CONTEXT: Community level

DRM: Prospective Risk Reduction
THEME: Governance
RCN: Inclusive

S03 | Community safety

HAZARD: Generic
5C: Social
4R: Robustness
CONTEXT: Community level

DRM: Recovery
THEME: Life and Health
RCN: Inclusive

S04 | Local leadership

HAZARD: Generic
5C: Social
4R: Resourcefulness
CONTEXT: Community level

DRM: Preparedness
THEME: Governance
RCN: Inclusive

S05 | Disaster response personnel

HAZARD: Generic
5C: Social
4R: Robustness
CONTEXT: Enabling environment

DRM: Recovery
THEME: Governance
RCN: Robust

S06 | Healthcare accessibility

HAZARD: Generic
5C: Social
4R: Robustness
CONTEXT: Enabling environment

DRM: Response
THEME: Life and Health
RCN: Inclusive

S07 | Trust in local authorities

HAZARD: Generic
5C: Social
4R: Resourcefulness
CONTEXT: Community level

DRM: Response
THEME: Social Norms
RCN: Inclusive

S08 | Intra-community equity

HAZARD: Generic
5C: Social
4R: Resourcefulness
CONTEXT: Community level

DRM: Corrective Risk Reduction
THEME: Social Norms
RCN: Inclusive

S09 | Inter-community equity

HAZARD: Generic
5C: Social
4R: Resourcefulness
CONTEXT: Community level

DRM: Corrective Risk Reduction
THEME: Social Norms
RCN: Inclusive

S10 | Risk reduction planning

HAZARD: Specific for flood and heatwave
5C: Social
4R: Rapidity
CONTEXT: Community level

DRM: Prospective Risk Reduction
THEME: Governance
RCN: Reflective

S11 | Response planning

HAZARD: Specific for flood and heatwave
5C: Social
4R: Rapidity
CONTEXT: Community level

DRM: Prospective Risk Reduction
THEME: Lifelines
RCN: Reflective

S12 | Family violence and response planning

HAZARD: Specific for flood and heatwave
5C: Social
4R: Robustness
CONTEXT: Community level

DRM: Corrective Risk Reduction
THEME: Life and Health
RCN: Integrated

Source of resilience – Social Capital (continued)

S13 | Stakeholder engagement in risk management

HAZARD: Specific for flood and heatwave
5C: Social
4R: Resourcefulness
CONTEXT: Community level

DRM: Preparedness
THEME: Governance
RCN: Integrated

S14 | Risk mapping

HAZARD: Specific for flood and heatwave
5C: Social
4R: Rapidity
CONTEXT: Community level

DRM: Prospective Risk Reduction
THEME: Governance
RCN: Inclusive

S15 | Disaster impact data collection and use

HAZARD: Specific for flood and heatwave
5C: Social
4R: Resourcefulness

CONTEXT: Enabling environment
DRM: Recovery
THEME: Governance
RCN: Reflective



The Climate Resilience Measurement for Communities (CRMC)

For more information visit floodresilience.net or follow [@floodalliance](https://twitter.com/floodalliance) on social media.

Photo credit front cover:

The community leaders grading their own capitals in presentation of FRMC results in Manuel Buelta y Rayón
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- a) The Climate Resilience Measurement for Communities (CRMC) has been developed as a product of the Zurich Flood Resilience Alliance (the Alliance) and consists of 1) the measurement framework and associated materials, 2) a hybrid online and mobile app-based software tool, and 3) the data the measurement generates.
- b) The CRMC framework and associated materials were developed by organizations working through the Alliance. The framework and associated materials are the joint intellectual property of the Alliance. Materials pertaining to the CRMC may be used and reproduced freely for research and non-profit purposes only.
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- d) The data: All data are collected in accordance with ethical data collection practices, and are anonymous at the individual and household levels. The data within the tool ultimately are controlled by the organizations that collected it. As a condition of using the framework, all organizations have agreed that data will be stored in a central database and be used for research purposes following the signing of an access agreement that Zurich is managing.
- e) Use-rights: The Alliance are keen for the CRMC to be used as widely as possible, within the time-frame of the current phase running until 2023. Existing partners are encouraged to expand use of the tool within the remit of the Alliance. The Alliance invites expressions of interest by new organizations wishing to use the CRMC by filling out an access request.

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