Climate Resilience Measurement for Communities

Conducting ‘endlines’ in the CRMC: Guidance and ideas for repeat t-line studies using CRMC tools

Visit ZCRAlliance.org/CRMC

Climate Resilience Measurement for Communities

About this document

This document provides guidance and ideas to help you set up, conduct, grade, and analyse repeat t-line studies (simply referred to as 'endlines' hereafter). This guide aims to familiarize project leads and trainers with the requirements for conducting endlines. It provides guidance and answers to some of the common questions you might have when planning and running endlines, and shares some ideas of what to look out for during this process.

While this guidance will mostly be used when planning endlines, it is advisable to review this document at baseline set-up. It will help make the endline set-up easier if the guidance has already been considered in the draft baseline study set-up.

Author

Michael Szönyi (Z Zurich Foundation)

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

Contents

Context

Measurement helps us assess and demonstrate the impact of good practice in action, it also helps to identify barriers or bottlenecks preventing resilience. In the absence of any internationally validated method for measuring disaster resilience, we have developed the FRMC, a flood resilience measurement framework and tool for communities. By measuring resilience we hope to contribute to the evidence needed to increase social, political, and financial investments in flood resilience.

Since 2013, the Zurich Flood Resilience Alliance has been successfully developing and implementing the Flood Resilience Measurement for Communities (FRMC) process, which has been used in over 400 communities globally. The Climate Resilience Measurement for Communities (CRMC) is the next evolution of the FRMC, meeting the increasing demand to measure resilience to multiple hazards (such as heatwaves and wildfires) in order to accelerate climate change adaptation. It is being piloted in several communities through the Z Zurich Foundation's Adapting to Climate Change Program, with more to be added soon.

What is a t-line study?

A 't-line study in the Climate Resilience Measurement for Communities (CRMC) system refers to any study that is not a post-event study but measures resilience outside of specific disaster events. T-line studies are numbered in time-steps, starting with a T0 (time-zero) study, followed by T1, T2, and so on.

In a multiple hazard environment, each CRMC t-line study is numbered sequentially, irrespective of the chosen hazard(s). For example, a T2 flood study does not necessarily indicate that three flood studies have been conducted. It could mean that the T0 study focused solely on floods, the T1 study addressed wildfires, and the T2 study returned to floods.

The T0 study is commonly referred to as the 'baseline study', as it sets the baseline for resilience programmes. The t-line study conducted at the end of the programme is called the 'endline study'. For projects with an extended duration, you may conduct t-line studies in between; these are referred to as 'midlines'. For the sake of simplicity, any t-line study that is not a baseline (T0) study shall be called an 'endline' in this document.

CRMC household surveys being conducted in Moala Village, Fiji. Photo: Cale Johnstone, IFRC

Measuring climate resilience at the community level

Why climate hazards?

As our planet warms and weather patterns change, we are seeing more frequent and intense floods, heatwaves, storms, and wildfires.

These events can take lives, cause serious injury, and inflict lasting psychological trauma. They can uproot communities, separate families, destroy livelihoods, and erase cultural heritage and sense of identity. In their aftermath, we often see ripple effects, such as increased poverty, early marriage of girls, children dropping out of school, or forced migration of men in search of work.

At the same time, they damage critical systems – such as water, electricity, transportation, and communication – and devastate homes, schools, health centres and local hospitals.

Without action to build climate resilience, the situation will get worse because of

- increasing population, urbanization, and economic development in hazard-prone areas;
- increasingly interconnected and interdependent critical systems, where impacts to one system can have cascading effects;
- increasing occurrence of compound events, where individual climate risks occur simultaneously or in rapid succession.

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

Why resilience?

We find that every US$1 invested in prevention saves US$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 has now progressed to the Climate Resilience Measurement for Communities (CRMC) framework and associated tools.

Using our measurement framework and data, we are contributing to the evidence on how to build 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 resilience measurement at 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.

Communities are not homogeneous – they are made of people with diverse identities, needs, and vulnerabilities. By working at this level, we can better understand and address those differences, ensuring that resilience-building efforts are more inclusive and equitable.

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.

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, ODI, London/Global Facility for Disaster Reduction and Recovery at the World Bank, Washington, DC.

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. https://zcralliance.org/resources/item/disaster-resilience-what-it-is-and-how-it-can-engender-a-meaningful-change-in-development-policy/

Use of the CRMC in Peru identified the need for improved river monitoring to keep communities informed of potential risks. Photo: Giorgio Madueño, Practical Action

The Climate Resilience Measurement for Communities (CRMC)

The CRMC comprises two parts: the Alliance's conceptual framework for measuring community 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 studies and analysing the data, and a smartphone- or tablet-based app that can be used offline in the field for data collection.

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 set-up and community engagement, are meant in the wider sense of community programming and are not just about implementing the measurement using the tool.

For more information on the conceptual framework, please see the CRMC overview document.

In this publication we take you through the process which links the framework and the tool together to implement the CRMC in practice at community level.

The CRMC process

Set up the project

1

Select a site

2

Define and understand the community

3

Recruit fieldworkers

4

Set up a study
(either t-line or post-event)

5

Plan the data collection

6

Collect data in the community

7

Grade the sources
(or outcome variables)

8

Analyse the results

9

Share the results

10

Implement interventions

11

Assess the interventions

12

Continued user and content validation

13

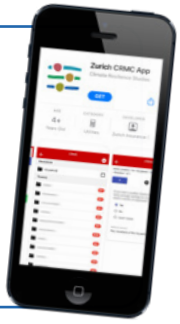
- Set up measurement activities
- Select data collection methods
- Send assignments to fieldworkers' smartphones

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

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

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

- Store the resilience measurement results for comprehensive analysis and validation



Planning and conducting endlines

The CRMC framework can track the progress of resilience in a community over time. Tracking resilience over time is done by re-running t-line studies; that is, by measuring the sources of resilience in the same way as the baseline (T0). At a minimum, the baseline (T0) should be followed by a T1 at project end.

- **Timing of endlines: an endline study should allow for community changes – whether brought about by your work or other influences – to take effect.** They should be conducted towards the end of the programme cycle. However, some flexibility is required. In particular, it is critical to avoid conducting an endline study when flooding is occurring or has very recently occurred. If a hazard event turning potentially into disaster scale, such as severe flooding, a tropical storm, a heatwave or a wildfire etc. is expected or likely within six weeks of the start of the endline data collection, conduct a post-event study instead and postpone the endline study until at least eight weeks after the post-event study has been completed.
- **Conducting and analysing endlines and discussing the results with communities and their political and governance environment has several purposes.** An endline study is not just an assessment of how the programme has helped the community build resilience: it is part of the entire participatory, holistic, and community-centric resilience process. The value in conducting and discussing endlines is to see where the community stands at time Tx, and what has changed, including the enabling environment.
- **Look at the resilience-measurement project cycle holistically,** and consider endlines as early as when planning the entire project. This will make the planning and data collection at the endline stage much easier. Ensure that the endline comprises all the hazards that you have actively worked on during your programme cycle, e.g. flood and heatwave, even though some of the t-lines may not have included all hazards all the time (e.g. you may have conducted a baseline T0 for flood and heatwave, but a T1 only for heatwave. Your endline T2 should still be for both flood and heatwave).
- **Ensure that the community definition stays the same for your endline.** You need to consider how the community may have changed – including population influx or community growth – to ensure you are looking at the community in the same way as before, despite internal changes.

The main principle for endline planning is to ensure the study is conducted as similarly as possible compared to the baseline study. This should drive your thinking when planning the endline, selecting the hazard data-collection methods and field workers in the study set-up process, how you collect data during the active study stage, and when progressing through the data grading.

- **For the study set-up, use the baseline study set-up as your starting point and adjust what needs to be adjusted** based on your new insight on data availability, how the baseline data collection worked, and what you have learnt from the overall

baseline project. Keep it as similar as possible. Depending on how the community has changed, you may need to ask your trainer to update the community household numbers and average household size. Be careful about secondary sources as they may not have updated data since the last study.

- When collecting data in the active-study stage, **try to keep the data-collection approach as similar to the baseline as possible,** although your enumerators may have changed and you may not be going to the exact same households, focus groups, or key informants for information.
- At the grading stage, it is absolutely key to look only at the endline data you have collected and not be influenced by earlier studies. The purpose of grading is to show the factual situation of the community at the endline time, and **NOT to highlight the change you think may have happened during the project time.** Consider having a colleague who has not been involved in the interventions review the grading rationale; this can help with objectivity.

It is just as important to share and discuss the endline results with the community as it was at baseline. An endline is not done for the purpose of collecting final project data; community and local leaders will value the endline discussion and will interpret together with you where the community stands in their resilience journey and what further action could be taken beyond your programme's scope.

Of course, a full CRMC implementation cycle with baselines, midlines, endlines, and post-event studies will help the global researchers of the Alliance with the validation of the overall community resilience measurement framework. Without all your projects coming full cycle, the current stage of validation of the FRMC would not have been possible, and it's likely the development of the new CRMC would not have been possible, either.

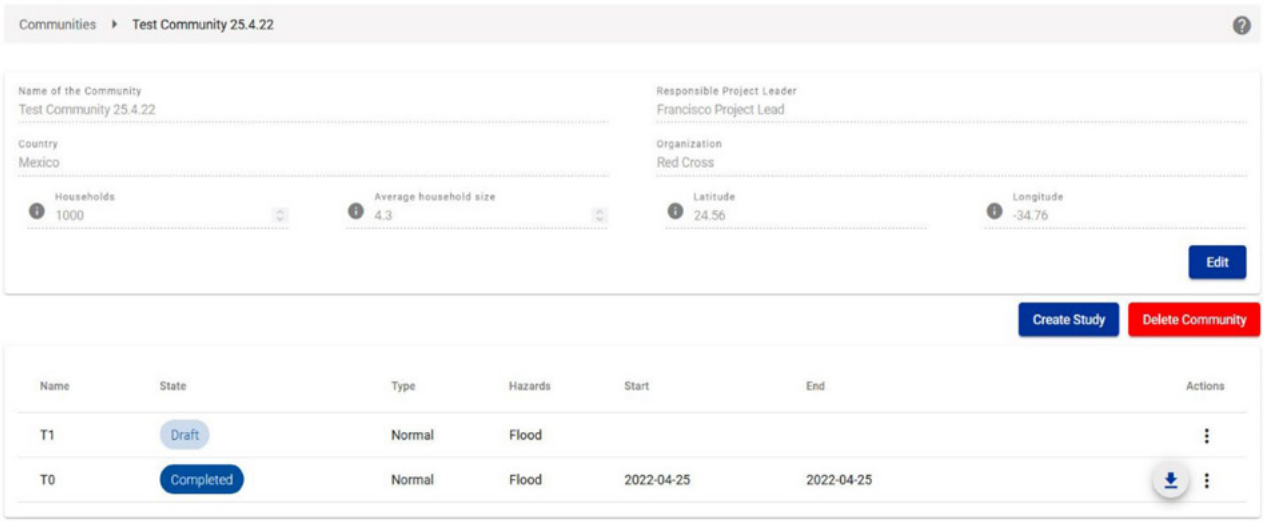


Figure 1 Two t-line studies in the online tool for one community

The purpose of conducting endlines

Endline studies are an essential part of the CRMC measurement cycle. These repeated studies help track progress and patterns of resilience over time, enabling communities and partners to learn and adapt - not to judge or rank.

Additionally, the purpose of conducting CRMC endline studies is to ensure transparency and accountability to the communities we serve, our local stakeholders, and partners. They also provide an opportunity to reflect on learning, strengthen local ownership, and leverage findings for greater climate resilience influence.

An endline study is not meant to validate programme outcomes, but to foster dialogue, shared understanding, and joint analysis among communities, local authorities, and partners.

The CRMC framework serves as an ex-ante approach for how to build community resilience. It is not just about planning interventions or validating the framework, but, rather, gives communities support to understand and then enhance their resilience as part of their development and growth objectives. The understanding that the community gains from the process will influence their and their governments' and other actors' behaviours, regardless of interventions.

The value of conducting and discussing endlines is to see where the community stands at time Tx and what has changed, including the enabling environment upon which communities are also dependent. It is important to highlight those different changes using the different resilience lenses (the 5Cs, the 4Rs[4], etc.) and use the richness of our concept of resilience. It also helps identify and visualize commonalities and differences across multiple hazards, if used in the CRMC for this community, and discuss potential interconnections between hazards. We know from field visits and expert discussions that endlines are very important for the community, their local actors, and leaders, and therefore can confirm that endlines are an important aspect far beyond just an evaluation of resilience at the end of a project. While the term 'endline' may suggest closure, it actually marks another milestone in a community's ongoing resilience journey. Each endline provides insight that informs future actions, partnerships, and influence.

In the following sections, we provide guidance on what to consider when thinking about endlines and when using the CRMC study project cycle, and highlight what's important for endlines at each step along the project cycle.

Enumerators Collecting Resilience Data at Patarkhalla Community via CRMC app. Photo: Nabin C. Joshi

4 The 5Cs (five capitals) comprise human, social, physical, financial, and natural capital. The four properties of a resilient system (4Rs) are robustness, redundancy, resourcefulness, and rapidity

Endline considerations in the project cycle

The CRMC process at a glance and where endlines feature

The overview in Table 1 references the 13 steps of the project cycle in the Step-by-step guide to the process and software document.

Table 1: Endline relevance to the 13 project steps

Project step	Endline relevance
Setting up the project	Consider endlines from the outset. The scope and duration of the project will determine when you are able to conduct baselines (T0), midlines (e.g. T1, T2), and the endlines at the end of the project, and whether you will conduct the midlines for all the selected hazards (remember that endlines should comprise all the hazards for which you have used the CRMC across the project cycle).
Selecting a site	Similar to baselines, the environment and enabling context in which you operate also have an influence on your access to data and to interviewees for the t-line studies.
Defining and understanding the community	The community definition, and hence the 'scope' of what the community is, needs to remain the same – the endline must be conducted in that 'same' community. If quite some time has passed between baseline and endline, and if growth and migration dynamics are quite significant in the project area, this will influence your considerations. The community may have grown in extent or population density, so consider carefully what is inside or outside the community compared to when you first defined it for the baseline.
Recruiting field workers	Field workers or enumerators who help with data collection and conducting interviews technically do not have to be the same for each t-line study. However, the objective is to conduct the studies as similarly as possible, so well-trained field workers who understand both the community and the resilience-measurement context are an important asset that will help with data quality throughout all studies.

Project step	Endline relevance
Setting up a study	The objective is to conduct the studies as similarly as possible so that there is the least possible skew or bias in the underlying approach. Review the community population size to ensure it is still accurate enough. Technically, there are no additional requirements when setting up endlines compared to baselines other than the state the earlier study needs to be in – no t-line study can be in the same state as the prior study (draft, active, grading, complete). However, in practice you are advised to try and use the same data-collection methods, triangulations, and key informant and focus-group discussions. But you will have learnt in prior studies what worked in terms of data-collection methods, the data-collection process itself, and you should reflect this here. Be careful about secondary sources to ensure you are not relying on the same data that was used in the baseline: it needs to reflect the latest situation in the community. Remember that the functionality of the CRMC/the software now offers the feature of online surveys, which can be conducted remotely. However, the objective is to conduct the studies as similarly as possible, so if you didn't use online surveys in the baseline, you may want to think carefully about how the data quality is comparable when interviewees respond online compared to an at-the-door onsite interview.
Collecting data in the community	The approach to conducting interviews and data collection is not different from baselines. The objective is to conduct the studies as similarly as possible so that there is the least possible skew or bias in the underlying approach. This also means ensuring that field workers/enumerators do not express bias towards 'improvements' or 'change' and let the interviewees provide their responses based on how they view the community.
Grading the sources	This is a very important step in an endline, and you should try to 'clear your mind' to avoid bias before you assemble the grading team and start running the grading exercises or grading workshops. The objective of the grading is to assess the situation factually at the time of the study in the respective community, and not to think about what has changed compared to earlier studies, or to highlight how certain interventions have brought about change in the community. It is therefore crucial that you do not review or compare the baseline study with the ongoing endline study but, instead, only focus on the current dataset that will tell you about the grades of the sources at the time of the endline. Consider a colleague – one who has not been working on interventions in those communities that you now grade – could join you in the grading exercise of the T1 study to help with objectivity.

Project step	Endline relevance
Evaluating the grade changes	This project step is different for any study following a baseline study. In evaluating status (only available for studies that are not T0), the grade changes in a T>0 study compared to the prior study need to be assessed and justified. For T0 studies, the status will be moved from grading to completed directly, without evaluating, once grading has been set. It is only at this stage, as well as the results-analysis stage later, that you should start considering what has changed and, potentially, why. In this step, the project lead is asked to provide a reason to explain the grade of T(n) compared with the prior study T(n-1) for the same hazard. Depending on the three possible scenarios for each source (grade increase, grade unchanged, grade decrease), you must select from the dynamic dropdown menu which of the choices best explains the grade change. There is then a free-text field where you can provide a short explanation, which is especially useful for highlighting what actions or interventions are believed to have contributed to the respective situation. Note that, even in this step, the intention is not to evaluate the effectiveness or success of your project work or interventions; rather, it is an attempt to **start looking at what may help build resilience or not.** Providing a short rationale will help in that quest.
Analysing the results	The analysis step is initially no different from baselines. The data cockpit offers you the same features to look at the result of the endline study numerically or graphically, and to use the full, rich concept of resilience by looking at the various lenses and across hazards. However, in a second step, it is possible to bring in the earlier studies and view, for example, the T1 and T0 results side by side.
Sharing the results with the community	In this step, you can use your insights and approaches from the prior step to help the community and its enabling context (e.g. local government) to understand where they currently stand on their resilience journey and maybe also provide explanations as to why that may be the case. At this stage, it is really important to manage community and stakeholder expectations around what it means if results have decreased in some sources or even lenses.
Implementing interventions	If this is not the final endline, but rather a midline, there may still be interventions from your action plan that haven't yet been implemented. For those that haven't yet been prioritized together with the community, this may provide another opportunity to discuss them. Finally, the midline may provide new insights and lead to new intervention ideas that you may want to prioritize if the project allows, or if there are leaders who are willing to take them up. This could also be reviewed at endline in case there are some interventions that the community wants to take forward through other means, leveraging funding themselves.

Project step	Endline relevance
Validating the framework	A full CRMC implementation cycle with baselines, midlines, endlines, and post-event studies will also help with the validation of the overall community resilience measurement framework. Without the work of prior projects coming full cycle, the current stage of validation of the FRMC would not have been possible, and it is likely the development of the new CRMC would not have been possible, either.

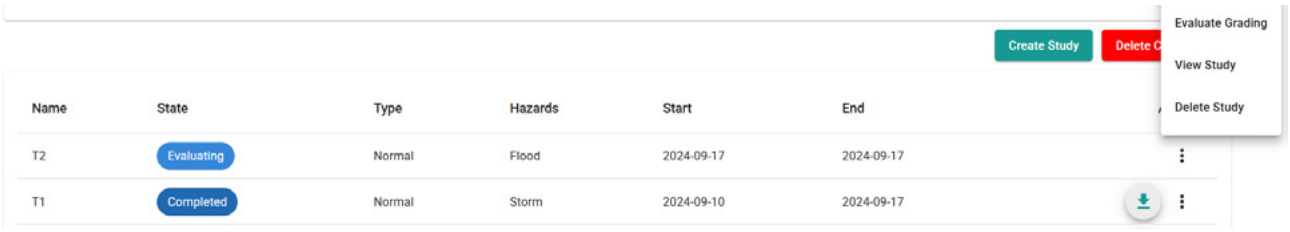


Figure 2 CRMC screenshot showing the work step of "evaluate grading"

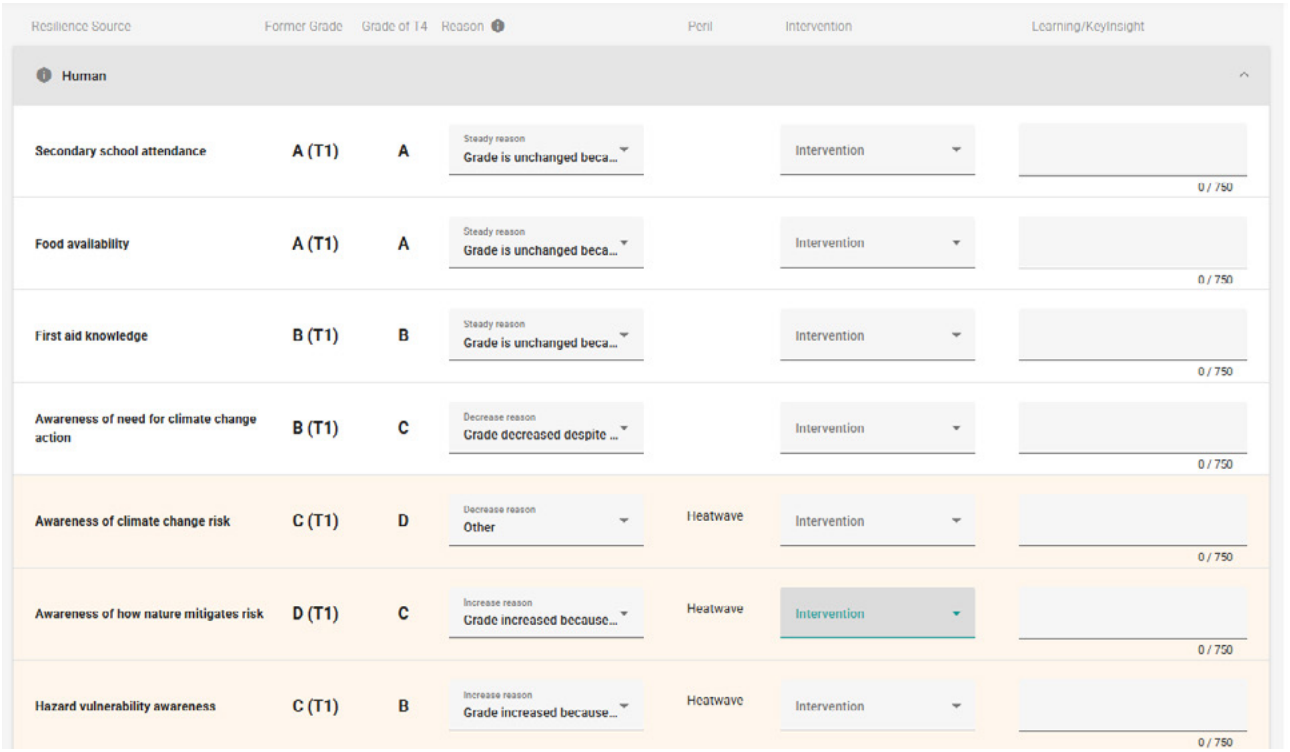


Figure 3 CRMC screen for grade change evaluation with option to link interventions to grade changes

A focus group discussion taking place as part of the T0 study in Thuan commune. Photo : Nguyen Xuan Duong, Quang Tri Provincial Red Cross Chapter

Project set-up

Tracking resilience over time is done by re-running t-line studies; that is, by measuring the sources of resilience in the same way as the baseline (T0). At a minimum, the baseline (T0) should be followed by a T1 at project end to provide an overview of that resilience journey over time for the same hazards. Ideally, there will be a number of intermediary t-line applications between the baseline (T0) and the endline study. For example, in an 18-month project, you would likely just assess the sources of resilience twice (T0 at the start and T1 at the end), with perhaps one post-event resilience outcome assessment. But, with longer-term community engagement, you may complete both types of assessment many times.

The flexibility of the CRMC would allow you to conduct midlines for different hazards than the initial baseline. For example, you may have consciously planned in your long-term project timeline that you would start working on floods and heatwaves in that community and therefore do a baseline T0 for flood and heatwave, then add wildfire at a later stage and use a T1 to set a new wildfire baseline; or use a T1 both for a midline of flood and heatwave and the baseline for wildfire. You could then run a T2 for all three hazards as an endline towards the end of the project.

It is important to consider the full project cycle at the outset when setting up the community resilience measurement. Overall timelines, project budget, and duration of individual steps will all determine when endlines should be conducted. One of the intentions is to show change within a community over time, as they are on a resilience journey. To ensure this change can be measured, a reasonable time period should pass between t-line studies. This should already be reflected when you set up the project at the beginning.

Defining and understanding the community

Remember that the CRMC tool itself does not define the community or outline what is 'inside' or 'outside' the community. A community largely defines itself, and it is this community description that is used when setting up the baseline study. This community definition – and hence the 'scope' of what the community is – needs to remain the same: the endline must be conducted in that 'same' community. If quite some time has passed between the baseline and endline, and if growth and migration dynamics are quite significant in the project area, this will influence your considerations. The community may have grown in extent or population density, so you need to consider carefully what is inside or outside of it compared to when you first defined it for the baseline. Obviously, people who have moved away from the community should not be considered, so don't invite them to interviews. This is particularly important when sending out online surveys, as these could be filled in from anywhere without knowing whether that interviewee is still in the community, so you'll have to find out in advance. Also, a community may have changed in political terms – a new subdivision may have been incorporated, or your community may have merged with another political community. The human and social environment of 'your' community, however, may still be the same, and that's what you should use for your community perimeter.

Setting up the endline study

The study set-up stage is a key step in the endline process. The objective is to conduct endline studies as similarly as possible when compared to the baseline study so that there is the least possible skew or bias in the underlying approach. Technically, there are no additional requirements when setting up endlines compared to baselines. You may want to review the guide Project set-up, study set-up, data collection, and grading.

You only need to consider that the system allows you to create, then activate, grade, etc. the later study, depending on the state of prior studies. For example, you may want to directly set up a draft of the endline study once you have completed the baseline study set-up. The template functionality of the software will allow you to do that. However, you can only create another t-line study draft if you have activated the prior study. Refer to the FRMC technical user manual, available within the CRMC platform, for further details.

In practice, you are advised to try and use the same data-collection methods, triangulations, and key informant and focus-group discussions that you used for the baseline. But you will have learnt in prior studies what worked in terms of data-collection methods, the data-collection process itself, and you should reflect this here. If a certain focus group did not have the right information or answers on some of your resilience sources, then you may want to select other groups, or even other data-collection methods, for that source. You may also find that a certain focus group did not work well at all and not include it in the endline. In this sense, it is important

not only to consider the consistency of the study set-up, but also the data quality and the value of the data itself. It is very likely better to change the set-up in a particular resilience source to collect better quality data than run into the same issues again that you already encountered in the baseline.

As a general rule, review the set-up you used for the baseline and then make adjustments based on your experience rather than start from scratch for the endline set-up. Do triangulate data for each source when possible, but don't over-triangulate, as this significantly increases workload and may provide little additional information. Try keeping household interviews short and use them for resilience sources that are best suitable for household interviews, such as human and social capital, and the first few sources that look at household-level financial capital.

The same rules for statistical representativeness apply when determining the number of household surveys to conduct – the tool calculates and displays the minimum number of household interviews needed for 99% confidence based on the population size of the community.

Note: If the population size of the community has increased significantly, your original input of number of households and average household size may no longer be accurate. If you feel this should be changed, ask your organizational/country trainer to update these numbers in the community set-up before setting up the endline study.

Be especially careful when selecting secondary sources. They may not have been updated since you last consulted them for the prior study, and therefore may not reflect the latest situation in the community.

Remember that the functionality of the CRMC/the software now offers the feature of online surveys, which can be conducted remotely. However, the objective is to conduct the studies as similarly as possible, so if you didn't use online surveys in the baseline, think carefully about how the data quality is comparable when interviewees respond online compared to an at-the-door onsite interview.

Collecting data in the community

Community data collection is a crucial step in ensuring that resilience measurement reflects the voices and lived realities of the people we serve. It must therefore be conducted in a way that upholds neutrality, respect, and trust.

The objective is to maintain methodological consistency with the baseline to minimize bias or distortion in results. This also means ensuring that field workers/enumerators do not express bias towards 'improvements' or 'change', and let interviewees provide their responses based on how they view the community. Enumerators must approach data collection with impartiality, avoiding any assumptions that project interventions have automatically led to improvement. Interviews should capture people's own perceptions and lived experiences, whether positive, negative, or unchanged. The data-collection stage must be approached neutrally and factually. Active engagement is encouraged – enumerators should ask clarifying questions to

ensure accuracy and understanding but must not influence or lead respondents toward perceived 'good' or 'expected' answers. Ask for clarifications or specifications, but do not introduce any expectations of what a 'good response' to a question would be, especially if fieldworkers are aware that interventions have been completed in the community that may or may not have changed the situation.

Grading the sources

Besides a solid endline study set-up, grading is probably the most important step in an endline. It is the key step where project leads and the country management of the organization implementing the project should be careful not to introduce measurement bias.

Carefully consider "clearing your mind" to avoid bias, before assembling the grading team and start running the grading exercises or grading workshops. The objective of the grading is to assess the situation factually at the time of the study in the respective community, and **not to think about what has changed compared to earlier studies, or to highlight how certain interventions have brought about change in the community.** There is no pressure to increase a grade in an endline just because you think something has been done to address that resilience source.

This is important for multiple reasons:

- **The CRMC is not a monitoring and evaluation tool,** so it will not evaluate the quality of interventions that you have implemented.
- **There is no linear relationship between the grades for individual sources of resilience and interventions.** It may be that one intervention influences several sources at the same time, but we cannot and should not anticipate these relationships only the full dataset of all CRMC measurements may shed some light on this.
- **The time element: even the best, swiftest, and most effective interventions will take time to show effect,** and everything that is happening in the community may not show an effect in your t-line yet. This is one of the motivations to ideally conduct several t-lines over time.

It is therefore crucial that you do not review or compare the baseline study with the ongoing endline study. As you do your endline grading, only focus on the current dataset, which will tell you about the grades of the sources at the time of that endline. Ideally, do not look at the baseline results for quite some time before conducting the endline grading, so that you don't even unconsciously have that baseline in mind and start afresh for the new grading. Consider having a colleague who has not been involved in the interventions join you to review the grading rationale; this can help with objectivity.

Evaluating grade changes

This is an additional project step that is different for t-line studies after the baseline. In the evaluating status (only available for studies that are not T0), the grade changes in a T>0 study compared to the prior study need to be assessed and justified. For T0 studies, the status will be moved from grading to completed directly, without evaluating, once grading has been set.

It is at this stage, and also the results-analysis stage, that you should start

considering what has changed and, potentially, why. This will help you develop a narrative when you share the results with community and external stakeholders.

In this step, the project lead is asked to provide a reason to explain the grade of T(n) compared with the prior study T(n-1). Depending on the three possible scenarios for each source (grade increase, grade unchanged, grade decrease), you must select from the dynamic drop-down menu which of the choices best explains the grade change. There is then a free-text field where you can provide a short explanation, which is especially useful for highlighting which actions or interventions are believed to have contributed to the respective situation (see Figures 2 and 3). Since grades (except for the general sources) are awarded for each hazard separately, the grade change evaluation will also be completed for each hazard separately.

When looking at the change between baseline and endline grades, it is tempting to assume that the community with the largest increase has in some way performed the 'best'. This is not how the Zurich Climate Resilience Alliance views the measurement tool. In some cases, resilience grades may go down due to unavoidable external factors, and it is perfectly reasonable for a country programme to make the case that grades would likely have gone down even further without their interventions. In some cases, the right interventions for a community may result in an impressive increase in grades but, in other cases, the implementing organization may decide the time is right to tackle a more entrenched issue that is critical for resilience but works over a long time period and is pertinent to only a couple of source grades. In any case, the grade change evaluation can put the change into context.

CRMC data collection in Moala Village. Photo: Fiji Red Cross

Note that, even in this step, the intention is not to evaluate the effectiveness or success of your project work or individual interventions, but, rather, is an attempt to start looking at what may help build resilience or not. Providing a short rationale will help in that quest, and a project is currently underway to help us better understand how interventions may build resilience and how the Zurich Climate Resilience Alliance's 'intervention questionnaires' combined with this grade change evaluation stage can provide the necessary research basis for that. In this sense, with endlines, you are still contributing to global learning aimed at improving the flood resilience of millions of people worldwide.

Analysing the results

The analysis of endline results provides a valuable opportunity to reflect on learning from the programme cycle and to engage communities in understanding what has changed and why. The results-analysis step is initially no different from baselines, even if sometimes endlines differ from baselines in that programmes have reached greater operational maturity, established key relationships, and gained a more nuanced understanding of the community's risk profile. This maturity may allow for deeper analysis and more meaningful engagement during the endline process.

The data cockpit offers you the same features to look at the result of the endline study numerically or graphically, and to use the full, rich concept of resilience by looking at the various lenses.

However, in a second step, it is possible to bring in the earlier studies and view, for example, the T1 and T0 results side by side. At this results-analysis stage, you should start considering what has changed and, potentially, why, in order to develop a narrative and plan your approach for sharing the results with the community.

The CRMC is not designed as an external evaluation tool for assessing project efficiency or effectiveness. Rather, it is an integrated, participatory framework that supports long-term, multi-year resilience programming by generating evidence and informing community-driven decision-making. This should form the basis of planning discussions with the community about where the community stands at the time of the endline, what has changed, and why.

The CRMC is not a tool for comparing communities or ranking performance. Instead, it helps each community understand its own resilience journey—where it began, where it stands now, and where it aspires to go. The CRMC simply provides information about change and the direction of the journey for the communities themselves, relative to where they started and where they want to get to.

Quantitative results are guidance tools, not final judgments. When discussing endline findings, it is important to balance numbers with qualitative insights and community perspectives to ensure a holistic understanding of change.

While communities should not be compared, aggregated analysis may provide valuable insights for regional or national resilience planning and decision-making. These findings can inform policy dialogues, strengthen advocacy with authorities, and highlight opportunities for inter-community collaboration.

Climate Resilience Alliance

Climate Resilience Measurement for Communities

Keep in touch...

Write to info@ZCRAlliance.org, visit ZCRAlliance.org/CRMC or follow us on LinkedIn.

Intellectual Property note:

a) Since 2013, the Alliance has successfully been developing and implementing the Flood Resilience Measurement for Communities ("FRMC") approach, which includes the underlying framework for measuring community flood resilience, the software to apply the framework (the FRMC tool) and associated training materials, which has been used in over 400 communities globally. The development and writing of the training materials including the user guides has been the joint work of the Alliance.

b) The Climate Resilience Measurement for Communities ("CRMC") is the next evolution of the FRMC, meeting the increasing demand to measure resilience to multiple hazards in order to accelerate climate change adaptation. The typology has been further sharpened whilst retaining the three core elements of community centricity, hazard specificity and development focus. The CRMC has been developed as a product of the Alliance.

c) The software: The FRMC and CRMC software has been developed and is maintained by Zurich. Currently, the software includes the four hazards developed for the framework and implemented by Zurich through the software provider, floods, heatwaves, storms and wildfires, and can be amended from time to time as appropriate as new technology becomes available or further climate-related hazards are added.

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. User organizations can download all of their data at any time.

e) Use-rights: The Foundation and the Alliance are keen for the CRMC to be used as widely as possible. Existing partners are encouraged to expand use of the tool within the remit of their work.

Front cover: *Flooded school in Thiès, Senegal.* Photo: Lydia Darby, Practical Action

In partnership with:

Concern worldwide · IFRC · International Institute for Applied Systems Analysis (IIASA) www.iiasa.ac.at · ISET International · LSE The London School of Economics and Political Science

Mercy Corps · Plan International · Practical Action · Zurich

Powered by: Zurich Foundation