

***Tips and methods for identifying program-relevant locations***

Not all programs will have already identified and digitized their program-relevant locations in a format that is readable by GIS software. If this is the case, teams can consider *mixed-method mapping* or *participatory mapping* to create this data.

**Mixed-method mapping methodology**

A mixed method approach should be used to identify program-relevant locations in situations where a team knows it has (or will have) higher than usual access to the program implementation areas for a defined time period or for some staff. This approach consists of 1) a quantitative data collection of the exact GPS points or boundaries of program-relevant locations, 2) Focus Group Discussions (FGDs) to check whether relevant locations have been missed and understand how people access the program-relevant locations.

To map program-relevant locations, data collectors should use smartphones loaded with applications like CommCare, KoBo Collect, or other data collection tools to record GPS coordinates and/or boundaries of program-relevant locations. Teams should consult relevant technical experts in their organizations to determine what technology may be needed to capture GIS data and validate or clean it. If culturally appropriate and safe, data collectors should also take a photo of the given location to be attached to the final map. A photo of the location may become useful to document current and future changes in the conditions of the location mapped.

To ensure the entire area of interest is being mapped, data collectors should be given an area to complete daily and within the data collection period. The area for each data collector to complete should be clearly defined by using grids on a map (e.g., maps.me) or by defining areas using relevant landmarks e.g., rivers, or main and minor roads. As the data collectors are carefully assessing the areas assigned to them, they should open the data collection app every time they identify the program-relevant location they have been assigned to map, record their position using the GPS function in the data collection tool and answer relevant questions related to the structure mapped. Field supervisors should on a daily basis monitor the mapped areas and reassign new areas to the data collector if assigned areas are for some reason impossible to map.

For FGDs, a purposive sampling approach should be used. Depending on the type of program-relevant locations the participants should ideally include stakeholders with expertise on what is being mapped. For example, if the objective of the FGD is to support mapping of WASH infrastructures, FGD participants should include population groups culturally known to be responsible for fetching water in the area (often women). The participants for the FGD should be recruited from the area near the mapped location.

The number of participants per FGD group should be 5-8 and, when possible, groups should be disaggregated by gender and age. The participants in each FGD should be from the same area to maintain continuity in the discussion. Where possible, the FGD facilitator should translate the discussions; otherwise, local translators should be hired to translate the discussions. Following the FGDs, hand-written notes and/or recordings should be transcribed and translated where applicable and saved with restricted access. Analysis generated from the FGDs can then be used to either inform additional quantitative GIS data collection, correct errors in the GIS data, or to the GIS data set as contextual information that can be used for mapping*.*

Example: [FGD facilitation guidelines and questionnaire](https://mercycorpsemea.sharepoint.com/sites/PaQHQ/_layouts/15/doc.aspx?sourcedoc={68c50ca2-aff9-4e1d-af57-54884f7d0aed}&action=edit)

The [WASH Infrastructure (REACH Initiative)](https://www.impact-repository.org/document/reach/feedf020/REACH_SSD_Terms-of-Reference_WASH_InfrastructureMapping_May2021_External.pdf) terms of reference can be used as inspiration when developing the data collection tool.

**Participatory mapping**

In scenarios where program team members have very little or no access to the area where the program is being implemented, a participatory qualitative mapping approach can be used.

Participatory mapping consists of Focus Group Discussions (FGDs) with respondents who have recently left the inaccessible area (either temporarily or permanently) and who are interviewed in their new location about the conditions in the location they left. For example, community members in the reduced access location may leave it temporarily to access different services or markets, or they may leave it permanently to migrate to another location.

A purposive and snowball sampling approach should be used for such FGDs. Ideally, the respondents should not have left the reduced access location more than 3 months ago. Depending on the type of locations to be mapped the respondents should include informants with specific relevant knowledge, for example, if the objective of the participatory mapping FGD is to map WASH infrastructures, FGD respondents could include population groups culturally known to be responsible for fetching water in the area (often women), or respondents with technical knowledge about the existing WASH infrastructures in the location of reduced access. The respondents for the FGD should be recruited from arrival points for people arriving from the reduced access location, for instance markets, reception centers or IDP camps.

The number of respondents per FGD should be 5-8 and when appropriate, separate FGDs should be conducted for women and men, as well as youth and elders. Ideally approximately 10% of the FGDs should include at least one person with a disability to be able to capture access challenges experienced by people with a disability. The respondents in each FGD should be from the same area to maintain continuity in the discussion. Where possible, the FGD facilitator should translate the discussions; otherwise, local translators should be hired to translate the discussions.

The questionnaire for the FGDs should be designed to incorporate elements that prompt respondents to reflect on exact physical locations, for example a reference map (printed or projected on a screen) could be provided for major relevant landmarks such as roads and rivers in the program area, with the questionnaire designed to prompt them to locate the specific program-relevant locations, such as water access points or IDP camps. During the FGD the facilitator can assign a volunteer from the FGD to mark the relevant landmarks and specific locations on the map, and a note taker should be assigned to take as detailed notes as possible. If a reference map of the program area is not available, FGD participants could collaboratively map landmarks on a blank flip chart, or FGD facilitators could download satellite images of the location from free databases to work from.

The number of FGDs to be conducted for the same program areas depends on when saturation of the findings from the FGD is reached. Ideally 2-3 mapping exercises should be conducted for the same area and program-relevant locations. The different maps generated from each FGD should be used to triangulate the locations mapped and thus be used as a validation of the final map data.

The following questionnaire and FGD facilitation guidelines can be used as an example but should be adjusted to the objective of the mapping exercise and the program indicators to be mapped: [Participatory Mapping – Facilitation guide and questionnaire route](https://mercycorpsemea.sharepoint.com/:w:/r/sites/paqhq/_layouts/15/doc.aspx?sourcedoc=%7Bcccd03f8-50fb-4e42-9d75-9c355d5cfec2%7D&file=program%20indicator%20mapping%20-%20%20facilitation%20guide%20and%20questionnaire%20route.docx&action=default&mobileredirect=true&cid=663ab333-caeb-4864-986d-b24f02d706b4)

As soon as possible after completing the FGDs, the notes taken during the FGD should be transcribed and translated where applicable and saved with restricted access. The hard copy of the maps developed in the FGDs should be photographed and digitized using a GIS software. If resources and time allow, further qualitative analysis can be conducted using a software like MAXQDA to identify deeper trends from the discussion notes.

Because several maps are generated in this method for the same area, the maps may have some variations. The variations and similarity of where indicators are mapped should be used to assess the validity of the map. If the same program-relevant location (e.g. a market) is mapped in the same location more than once, the accuracy of that location is assumed to be higher compared to if the same market has been mapped in different locations. The accuracy of the mapped location can be illustrated when transcribing the maps into *Google My Maps* by adding a note to the mapped location describing the consistency of how the given location was mapped. Additionally, due to the margin of error and slight variation expected between the mapped locations, if indicators are approximately mapped in the same location a location between the two locations should be selected. One master map for each program location with the relevant locations mapped should be generated.

***Tips and methods for identifying pre-existing vulnerabilities***

Secondary literature review

Secondary literature to inform your vulnerability analysis should be based on previous assessment conducted in the program area such as **context analysis, needs assessments or baseline assessments**. These sources may have been identified during the stakeholder/information mapping in step one of this section of the toolkit.

Workshop/ internal meeting

When identifying pre-existing vulnerabilities through a workshop or internal meeting following **questions** can be used to facilitate the discussion:

* Which factors may determine the impact of the hazard on program implementation?
  + Which underlying **physical vulnerabilities** in the program location may determine the impact of the hazard on program implementation?
  + Which underlying **social vulnerabilities** in the program location may determine the impact of the hazard on program implementation?
  + Which underlying **economic vulnerabilities** in the program location may determine the impact of the hazard on program implementation?
  + Which underlying **environmental vulnerabilities** in the program location may determine the impact of the hazard on program implementation?
* Which population groups are considered more vulnerable to the impact of the hazard?
* How can these vulnerabilities be measured?
  + What indicators should be used to assess the vulnerabilities identified?
* What data sources exist to provide information about the vulnerabilities identified?

Once pre-existing vulnerabilities have been identified from a more theoretical perspective, vulnerability indicators should be agreed upon to be able to measure the given vulnerability. This part of the analysis should include discussion of how to measure the different vulnerabilities (e.g., poverty index, proportion of female headed households, proportion of types of house structures, size of wetland area, population density etc.). A vulnerability indicator refers to a piece of information that can measure the presence of a vulnerability in the targeted area.. Table 3 below provides a few examples of pre-existing vulnerabilities and their respective indicators. More examples can be found in the [Risk analysis impact and vulnerability indicator bank.](https://mercycorpsemea.sharepoint.com/:x:/r/sites/PaQHQ/_layouts/15/Doc.aspx?sourcedoc=%7B6AAE4ED9-2FBA-4CCC-9B3E-825F0C2577E8%7D&file=Impact%20and%20vulnerability%20indicator%20bank.xlsx&action=default&mobileredirect=true)

*Table X: Examples of pre-existing vulnerabilities and their respective indicators*

|  |  |  |
| --- | --- | --- |
| **Event** | **Pre-existing vulnerabilities** | **Vulnerability indicator** |
| **Flooding** | Lack of recovery from previous flooding increasing the impact of the current flooding on programming | % of households affected by flooding in the program area  % of land used for agriculture affected by flooding in the program area |
| Untarmacked roads increasing the risk of roads to be damaged during flooding | # of roads untarmacked relevant to the program indicators |
| Single source income (e.g., female headed households) making household more vulnerable to disruptions of livelihoods | % of female headed households in the program area |
| Poor WASH infrastructures making water collection points, and latrines susceptible to damage during flooding | % of unfunctional WASH infrastructures (water collection points and specific types of latrines in the program area |

Once vulnerability indicators have been agreed upon, relevant data sources should be identified, to be able to provide the needed information for the indicators to be mapped.

The added value of adding pre-existing vulnerable is to increase the visibility of how the events you are monitoring may affect your program. This is especially critical when all of this is being done remotely, as you cannot easily travel to the affected area to understand if the flooding is critical. With this information already on your map it should ideally enhance timely decision making and provide relevant information to your decision makers.

The idea is that the contextual factors we will monitor is a subset of all potential contextual factors, and then the vulnerabilities are drawn from that subset. The context map is then created with those vulnerabilities to start with, and then regular updates and event-triggered updates happen across time.