



MANUAL

A-MANO

A Technical Guide on Community Mapping and Participatory GIS



A-MANO

A TECHNICAL GUIDE AND CONCEPTUAL FRAMEWORK



The Companion Document to:

<https://sites.google.com/site/fotomapeo/en>

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Overview: What is A-MANO?

A-MANO is a dynamic and visual mapping tool for community-based development.

It's a combination of mapping and community development tools that empower local people to analyze their environment, monitor change over time, propose solutions, and plan for a better future. Using A-MANO, development practitioners can gather information about local social and environmental conditions that enable them to make work more effectively. A-MANO is not a stand-alone development methodology. Rather, it is a tool that may be integrated into existing activities and initiatives in order to increase their effectiveness.

In A-MANO, stakeholders transform a satellite image into a dynamic map of the focus area of a community-based development project. In sequential mapping sessions, local people and technical specialists collaborate to put their respective knowledge on the map. In doing, the map becomes much more than a visual representation of the community. When practitioners add to the map the technical data they have gathered, local people gain access to a valuable body of knowledge. What's more, this knowledge is recorded in an accessible format that they can draw upon in their relations with local governments and NGOs. Or this knowledge may help community organizations (such as a farmers' cooperative or reforestation committee) work more effectively within the community. And when local people contribute their knowledge to the map, development practitioners gain access to a comprehensive and multi-layered body of data that they can use to improve decision-making and overall project implementation.



The key is the use of a satellite photo as a base layer of the map. Because local people can literally see their community during the participatory mapping phase of A-MANO, they can quickly identify and accurately map features. Collecting substantial quantities of locally-verified data no longer requires technical specialists to spend days traversing the community with a GPS and a backpack full of interview forms. Instead they can collect the information they need through an effective and enjoyable exercise that allows them to engage meaningfully with local people.

A-MANO represents a new approach to planning, implementing, and monitoring of community-based development initiatives—an approach in which local people and visiting practitioners can collaborate more effectively through the shared leveraging of valuable data.

Scope of application

Although A-MANO was developed to support an integrated water resource management initiative in Central America, the methodology can easily be applied to meet the needs of any community-based initiative, anywhere. The tools and techniques presented in this guide were selected as the most user-friendly, flexible, low-cost, and powerful of their kind.

Origins

A-MANO was developed by a team of 21 technical specialists from 10 organizations, with the support of the Global Water Initiative, a partnership funded by the Howard G. Buffett Foundation.

The Guide

The Guide serves to provide a conceptual framework for A-MANO. The Guide is organized 'chronologically' - beginning with the first steps to carrying out the technique and ending with how the technique may be used to support broader project-wide objectives. These Steps are:

Define the objective



Prepare



Map



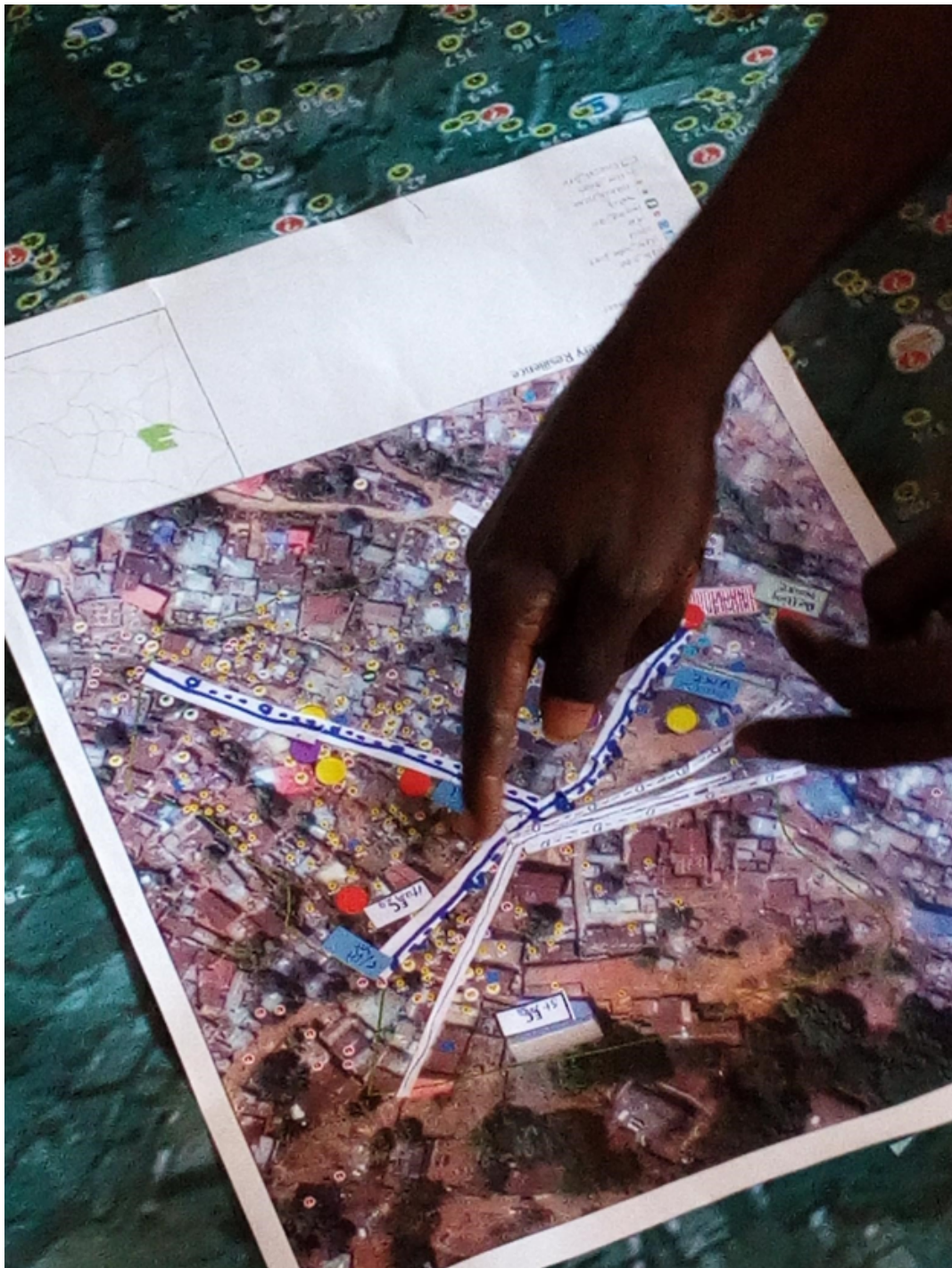
Digitize



Apply

Additionally, the Guide contains manuals' data forms; and best practices to guide the technical and participatory aspects of the technique. These documents may be found in the Appendix:

MANUALS - DATA FORMS - BEST PRACTICES



SIERRA LEONE, COMMUNITY MAPPING PROCESS, CRS, 2018

1 THE FIRST STEP:

Define the objective

A-MANO is a versatile tool and can serve many different purposes. In many cases, the technique enables us to meet a particular objective more quickly, cheaply, and comprehensively compared to conventional methods. However, the technique still requires an investment in our time and resources. And just as importantly, we must recognize the substantial contributions of the community members who participate. They too are making an investment.

Therefore, we must clearly articulate our rationale for carrying out A-MANO. The first step to carrying out the technique is the definition of the objective. Before going any further, you must be able to answer these questions:

- What is the objective of carrying out A-MANO?
- What types of data are required to meet this objective?
- How will the information gathered be used to improve the project?

Pretend you have to explain to a community member why you are organizing an image-mapping exercise, and why he should participate. Now, pretend you need to explain to the director of your organization why you are proposing to carry out the exercise. Can you do it? If so, you are ready to move on to the next step of A-MANO.

2 THE SECOND STEP:

Prepare

The second step of A-MANO consists of all the activities necessary for preparing to carry out the participatory mapping exercise in the field. Before beginning, it is crucially important that you have clearly articulated the reason you will be carrying out the exercise (Step 1).

There are two categories of preparatory activities. These should be pursued simultaneously.

Define the strategy

- Coordinate with community leaders to invite participants; also, to explain the purpose of the exercise and how the map will be used.
- Calculate how much time will be needed to map each feature type (for example, 1 hour to map all participants' houses, 15 minutes to map all springs and sources of water, etc.).
- Create and print the data form sheets. For example, please see the Appendix.

Create the map

- Choose the area that will be mapped (1 community? 2 communities? A watershed?).
- Consult the data that exists for the area to be mapped. In addition to the satellite image, what data should be included on the map that will be brought to the community (for example, houses? The watershed delineation?).
- Create the digital map that will be printed.
- Verify that the digital map has an appropriate size, scale, and resolutions, as well as basic elements of a map.
- Print the map.

Once step two has been completed, you should have a printed map and a set of data sheet forms. Additionally, you should have communicated with key community leaders so that they understand the objective of the exercise and have committed to invite participants to the mapping exercise.

2.1 Create the digital map

The quality of the base map used during the participatory mapping phase of A-MANO is very important. Depending on your experience with the software, there are a few options for creating the map. We will focus on two such programs: Google Earth and QGIS.



For step-by-step instructions on how to use these programs to create maps, please consult these technical manuals, which are described in the Appendix.

- How to create the map using Google Earth¹
- How to create the map using QGIS²

2.2 Verify that the map is appropriate for use in the field

The A-MANO development team agreed upon the following standards to guide the development of image-maps used during participatory mapping exercises. They fall in to two categories:

Appearance

Dimensions = at least 1.5 x 1.5 meters: The map should measure at least 1.5 meters squared. This permits an adequate number of participants to actively map at any given moment.

Area of focus must occupy as large an area of the map as possible: Whether the objective is to map a community, several communities, or a watershed, this focus area must cover as large a region as possible on the map.

Scale should fall between 1:1500 – 1:5000: At this range, houses and other small landmarks will be clearly visible. That is absolutely necessary for the success of the mapping exercise. If participants cannot easily identify their houses, they will not be able to locate other features, A good rule of thumb is: houses should appear about half a centimeter long.

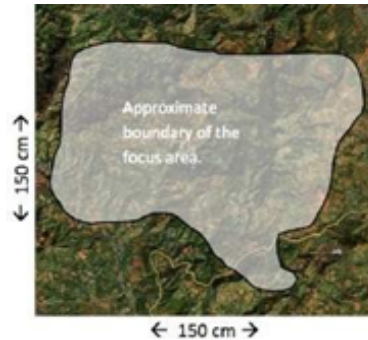
¹ <https://sites.google.com/site/fotomapeo/en/guide/digitize/digitize/google-earth>

² <https://sites.google.com/site/fotomapeo/en/guide/digitize/digitize/qgis>

Symbology should be unobtrusive and intuitive: The symbols that you choose to represent the data that you add to the digital map before printing must be carefully selected. Remember that participants will be adding a great deal more data to the map. Therefore, symbols should be small enough that they leave enough space for this new data. It should also be clear what each symbol represents.

Utility

Title, north arrow, legend: The map must possess these basic map attributes. They should be added to the digital map prior to printing. Additionally, the date may be helpful. Scale may be helpful too. Be careful when adding the scale – the ratio that may appear on your computer screen (for example, if you are working with QGIS or another GIS program to develop the image) is NOT the true scale – it is the scale that the map would have if it were printed at the same size as it appears on the computer screen. The true scale must be calculated using the dimensions of the printed map.



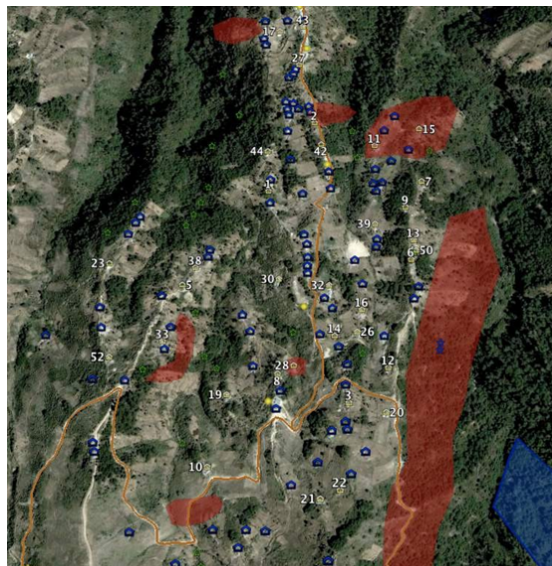
2.3 Print the map

Hopefully, the following recommendations will save you time, money, and frustration, and will lead to a more beautiful and effective map.

Go to the printing shop at least two days before you plan to use the image: Printing a large image takes time. Also, if the print comes out poorly (bad color, overly pixelated, etc.), you will need the extra time to request a second printing.

Request to see a sample: Print shops will often agree to print a small sample of the image when you order the print. These samples are very helpful for letting you know if it is necessary to adjust the color or any other attribute.

Material: In our experience, the material that offers the best image quality is polypropylene paper. This is often the most expensive material. We have found that the most durable material is vinyl, which surprisingly is often among the cheaper options. Plain paper is usually the cheapest. The material you choose depends on how you expect the map will be used, both by technical specialists and by community members or community organizations.



3 THE THIRD STEP:

Map

The field exercise is the key step in the implementation of A-MANO. The preparatory and follow-up steps are absolutely necessary for effective implementation. However, the success of A-MANO depends largely on the group dynamics and atmosphere of the mapping exercise. If participants understand the purpose of the exercise, contribute to the map with enthusiasm, and approach the exercise hoping to learn and teach, the map will live up to its potential as a dynamic, participatory tool for community development and natural resource management.

Because the investment associated with this step is highest (transportation costs, time of both technical specialists and community member participants), it is important that the execution be carried out as effectively as possible.

At the same time, this is the most context-dependent of the five steps of A-MANO. There is no single best methodology for carrying out field exercises for A-MANO. For that reason, this section of the Guide is organized into groups of best practices rather than a prescriptive process. The tips and advice here were gathered and distilled from the experiences of 46 technical specialists from four countries in Central America.

Logistic and timing

- The mapping exercise requires at least 3 or 4 hours if it an independent event. If participatory mapping is integrated into another event, more time will be needed.
- It is generally most effective to schedule the event during the morning. That way, participants can leave to eat lunch (or better yet, eat lunch with the visiting technical specialists). Additionally, a morning session allows technical specialists to digitize the map during the afternoon, upon returning to their headquarters.

Environment

- The mapping exercise should be carried out in one of the community's public spaces. Examples include schools or buildings that belong to community organizations (the water commission, farmer's cooperative, etc.).
 - Although it might be easier to organize for the mapping exercise to be carried out in a private home, in these spaces it is much more likely that a single individual will dominate the mapping.
- The space should be big enough to accommodate a large number of people (up to 60).

- Unless rain or strong wind is an impossibility, the site should be sheltered or have shelter nearby.
- Natural lighting is much better than incandescent or fluorescent lighting. Roofed patios, shady spots under trees, and other such spaces are much better than spaces that are completely enclosed or indoors.
- Put the map on the table or the floor, but not on a wall. The only time it is appropriate to hang the map on a wall is when participants reflect on it after the mapping has concluded.

Participation

- Between 15 and 25 participants is ideal. Within that range, there will be enough space for everyone to contribute to the map.
 - If too many people show up, the group can be divided into smaller groups.
 - This way, while one group is mapping a certain feature (for example, locations of landslides) or a group of features (for example, locations of different types of soil conservation activities), the other group(s) can be discussing the applications of the map or carrying out some other related participatory activity.
 - Groups may switch roles.
 - At the end of the exercise, each group may be asked to explain what they mapped to the other group(s).
- Additionally, if a large number of participants is expected, multiple maps may be divided among separate groups.
 - For example, one group may work with a map of the community (at 1:2000 to 4000 scale) while another group may work with a map of the watershed (at 1:10,000 to 20,000 scale).
 - Each group would concentrate on mapping certain features that are more appropriate given the scale of the map.
- It is important to have the participation leaders of at least two different community organizations. This helps avoid situations in which one individual dominates the mapping exercise.
- Invite participants who are well-respected in the community.

Facilitation

- Two technical specialists are needed to facilitate the exercise.
 - With large groups, three facilitators are OK.
 - Except in cases where mapping is just one of several activities being carried out, no more than three facilitators should be present. The role of the facilitator is to provide guidance, maintain momentum, and encourage participation. With a large group of facilitators, several will be not doing any work during much of the exercise. Facilitators must be models of participation and collaboration, and if several are not doing anything, they set a bad example for community member participants.

- The role of the facilitator is to facilitate (not to map).
- Facilitators should never place a mark on the map. Despite temptation, facilitators should do everything possible to lead participants to map without physically touching the map. Only when absolutely necessary, facilitators may teach a certain mapping technique by demonstrating it and should immediately remove or erase what they have mapped once the participants understand the technique.

4 THE FOURTH STEP:

Digitize

Now that we have carried out the mapping exercise with community members, we must transfer the data contained on the map to a format that allows us to use it for strategic planning, monitoring & evaluation, or other applications. In this step you will need a computer and the physical map.

Digitalization is not difficult, but it is important to follow a few guidelines to ensure that the process is most efficient. These guidelines are organized here, in chronological order. Follow the links for additional information and technical documentation.

1. Create folders for each data type in an intuitive place on your computer.
2. Digitize the data from the map, working in a team of at least two people.
3. Convert the data from 'geographic' files to tabular data files.
4. Join the spatial and non-spatial data in tabular data files.

4.1 Create a system of folders to organize your data

To understand why this guideline is important, it might be useful to consider the map to be a visual representation of a section of a large database. The database contains spatial data (where things are) and non-spatial data (what things are). Because these data are very numerous, it is critically important that data are carefully organized. Ideally, data should be organized by type and location. Additionally, you probably will wish to organize data by time too, particularly if one of the applications of mapping is monitoring and evaluation.

The way you organize your data will depend largely on local conditions and the type of activities you wish to map. Nevertheless, here is an example of one way to organize data.

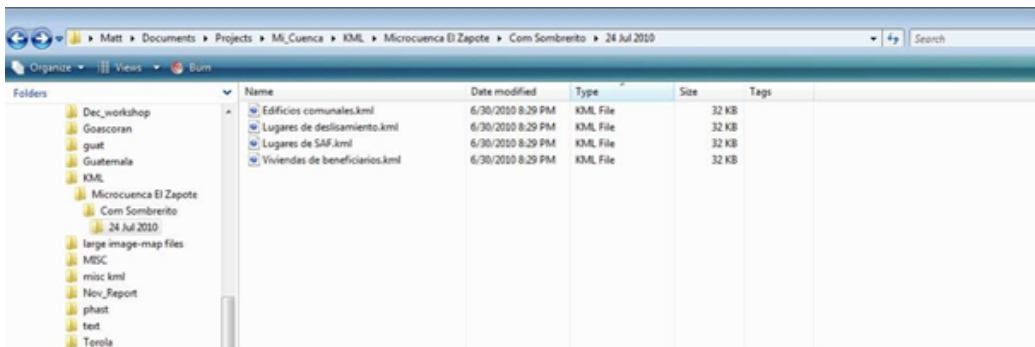
Region (for example, a township, landscape, watershed, etc.)

Community

Date

Type of data (for example, locations of latrines, etc.)

Each level is a folder. Even if you have not yet begun carrying out A-MANO, it is still a good idea to organize all spatial data you already have in a centralized location with some sort of structure that permits rapid and accurate searching of data. It will save a great deal of time in the long run.



When you are ready to begin digitizing a map, first inventory the types of data that exist on the map (soil conservation sites, locations of latrines, etc.) and create a system of folders that provides space for each data type. Then, you are ready to digitize the map.

4.2 Digitize the map

To digitize data most effectively, work with a partner. One person should be near the map and the other should sit at a computer. The role of the person at the map is to locate points and help the person at the computer identify their locations. The role of the person at the computer is to create and organize (in folders!) all the points that appear on the map.



4.2.1 Best Practices

Before consulting any of the step-by-step manuals mentioned below, it may be helpful to familiarize yourself with these best practices for digitization of map data. These recommendations have been drawn from the experiences of 19 technical specialists from four countries in Central America.

Use decimal degrees: When managing large spreadsheets of spatial data, the degree sign and apostrophes will frequently cause problems. Additionally, if data were collected over a large geographic area, data recorded using UTM coordinates will also cause problems if the zone is not specified.

Always save files as KML: The difference between KML and KMZ is that a KML file is uncompressed and a KMZ file is zipped. Google Earth does not distinguish between KML and KMZ files, but other programs will not import KMZ files, or will import them, but with significant errors. Therefore, when given the option to save a file as KML or KMZ, always choose KML. KML and KMZ files are written in XML, which is similar to HTML. For our purposes, there is no need to learn how to edit the code directly, but it is important to understand the basic structure of a KML / KMZ file. When we move an object (point, line or polygon) or a folder in 'My Places', we are actually editing the code of one or more KML or KMZ files. This may seem complicated, but it is important to have a basic understanding of the structure of these files.

Simple is better: unlike other types of files used to record spatial data (SHP, GPX, etc.), there is no body of ‘rules’ to govern KML / KMZ files. For this reason, we often receive an error message when trying to import a KML / KMZ into another program. Complex symbology, non-spatial data (long descriptions, pictures, etc.) are usually responsible. Therefore, using simple symbology or no symbology at all. Never use photos, links, or long descriptions in the files to be converted.

If you use Google Earth, do not use ‘My Places’ to organize your files: Organizing files in ‘My Places’ is not efficient (dragging individual files and editing takes a long time.) It’s much better to create a folder on the computer dedicated to your Google Earth files. Once you have finished editing a file in Google Earth, save it (right click on the file in Google Earth and select ‘Save as ...’) in that folder. Ideally, the folder is divided into subfolders to organize data in an intuitive way.

4.2.2 Ways to digitize the map

Points may be digitized using any GIS program that handles raster data (in this case, satellite imagery) reasonably well. Recommended programs include:

QGIS

QGIS is a free, open source program that resembles the commercial program ArcMap in function and appearance. It may be downloaded [here](#). Please note that QGIS updates frequently, and more recent versions are both more powerful and more intuitive. If you downloaded QGIS earlier than several months ago, it may be worthwhile to update the program with the most recent version. The most recent version of the program includes functions capable of displaying as well as downloading Google Maps/Earth imagery. QGIS accepts SHP, KML, TXT and files of many other formats.

Because QGIS is one of several options for digitizing map data, it may be helpful to evaluate its advantages and disadvantages:

Advantages

- You have complete control over the way your data is organized. Data digitized in QGIS does not need to be reformatted and exported to other programs to be permanently stored. QGIS is a powerful, flexible, and user-friendly geographic information system (GIS).
- You may import and export files of many different formats (TXT, SHP, KML, GPX, and about 20 others).

Disadvantages

- Baseline imagery does not display automatically. You must use georeferenced imagery.
- QGIS is one of the most user-friendly GIS programs. However, for new users (particularly those with little experience using spatial data or databases), the program might seem intimidating.

For step-by-step instruction on how to digitize a map using QGIS, including how to georeferenced imagery, please consult the Appendix.

Google Earth

The free program displays high resolution satellite imagery and permits users to create 'placemarks' for points. KML files may be imported and exported. For step-by-step instruction on how to digitize a map using Google Earth (including how to download the program), please consult the Appendix.

Google Earth is a free program. It may be downloaded [here](#). Because Google Earth is one of several options for digitizing map data, it may be helpful to evaluate its advantages and disadvantages.

Advantages

- Imagery does not need to be geo-referenced. The program communicates with the 'Earth Server' to download and display imagery as you navigate from one plate to another; or, change heading, tilt, or other parameters.
- Digitizing the map data is an intuitive process. Data types do not need to be created in advance - you can create a point with one click of a button.

Disadvantages

- Organization of data is clunky. You may drag or cut-paste only one record at a time. Additionally, data is organized in a series of folders in the program's 'My Places' folder, which can be hard to find on your computer.
- In order to download and display imagery, you must be connected to the internet. You may alternatively pan-cache, but this requires advanced planning; and, even so, sometimes Google Earth may not open correctly if the program detects that the computer is not connected to the internet.
- You may not use Google Earth to digitize data that was mapped in a region with low resolution.

Scribble Maps

This program is web-based. You do not need to download anything. Scribble Maps allows users to 'draw' geographic features using baseline imagery (including Google Maps/Earth imagery) for reference. Digitized data may be exported as KML or GPX files. Visit [Scribble Maps](#)¹.

4.3 Convert Files to CSV

In its raw form, digitized map data exists as a SHP or KML file. In this format, we may visualize the data spatially, which is very important for certain applications. However, for the data to be useful for basic reporting or for more formal monitoring and evaluation, we must convert it to tabular form. This means extracting the coordinates for each point.

¹ <https://www.scribblemaps.com/>

If data were digitized and saved as a SHP file, convert or save the file to KML (an option within QGIS—right click on the layer and select ‘Save as...’, then pick ‘Keyhole Markup Language’ as the format).

Extracting coordinate pairs from a KML file is straightforward, but several key guidelines must be followed. There are two options: downloadable software and web-based conversion programs. If you have a reliable internet connection, there are a number of good conversion programs that do not need to be downloaded. One example is [POI Manager - Online](#). The other option is to use KMLCSV Converter—a free program available for download [here](#)².

For step-by-step instruction on how to use KMLCSV Converter, please consult the Appendix.

4.4 Consolidate spatial data and non-spatial data

At this point you have a small collection of KML (or SHP) files and a corresponding CSV or Excel files for each. One might look like this:

	A	B	C
1	LONGITUD	LATITUD	AREAS DE CONTAMINACION
2	-85.77683676	12.95748362	1
3	-85.77768811	12.9576761	2
4	-85.77732798	12.95808471	3
5	-85.77787598	12.95795477	4
6	-85.778602	12.9566331	5
7	-85.77900149	12.95635755	6

Remember that it is much more efficient to only include a single descriptive field for each type of data digitized. In this case, the descriptive field is the number that was assigned to each point during the mapping exercise. We know that these points refer to areas of contamination because the reference field heading is called ‘Areas of contamination’. Additionally, the file name should tell us this information. We know the name of the community, the region and the date from the system of folders in which this and other files are stored. You should also have a series of CSV or Excel files with non-spatial (descriptive) data from the data forms. A simple one might look like this:

	A	B
1	AREAS DE CONTAMINACION	NOMBRE DEL LUGAR
2		1 Pozo 1
3		2 Rio La Esperanza
4		3 Pozo 2
5		4 Rio La Esperanza
6		5 La Fabrica
7		6 Rio La Esperanza

Our task is to join the spatial data (the first table) with the non-spatial data (the second table). Cut and paste columns from one of the tables to the other.

If you wish, you may delete the reference number column (1, 2, 3, ... , 18). However, this column may be useful for matching points to other descriptive data in later consultation. If you do choose to delete the field, it is recommended that you create another column to serve to uniquely identify each record. An example of a coding system might be

² <http://kmlcsv.pbworks.com/>

[Date the data were first collected] + [Type of data] + [Record number]:

20100728CON001

20100728CON002

20100728CON003, etc.

	A	B	C	D
1	LONGITUD	LATITUD	AREAS DE CONTAMINACION	NOMBRE DEL LUGAR
2	-85.77683676	12.95748362		1 Pozo 1
3	-85.77768811	12.9576761		2 Rio La Esperanza
4	-85.77732798	12.95808471		3 Pozo 2
5	-85.77787598	12.95795477		4 Rio La Esperanza
6	-85.778602	12.9566331		5 La Fabrica
7	-85.77900149	12.95635755		6 Rio La Esperanza

5 THE FIFTH STEP

The Application of A-MANO



The technique of POM has many applications. The team of technical specialists who developed the technique to support an integrated water resource management project in Central America identified the following as examples of applications:

- Identification of locations of local resources (such as natural resources, but also community resources such as community-owned buildings).
- Determination of locations of existing infrastructure.
- Visualization of certain elements of integrated water resource management plans.
- Exchange of technical information and local knowledge between technical specialists and community members.
- Verification of existing data through ground-truthing.
- Raising awareness of problems, risks, or potential threats to the community or the natural environment.
- Identification of needs (particularly the locations of needs) that should be accounted for in the management plan.
- Determination of land use/land cover at the household - or parcel-level.
- Identification of the existence and locations of project or program interventions (soil conservation sites, latrines, etc.).

These are just a few examples of possible applications of A-MANO. From the list above, we can see that there are four general categories of applications of A-MANO:

For Planning

- Identification of locations of local resources (such as natural resources, but also community resources such as community-owned buildings).
- Confirmation of the layout of existing infrastructure.
- Visualization of certain elements of integrated water resource management plans.
- Identification of needs (particularly the locations of needs) that should be accounted for in the management plan.
- Determination of land use/land cover at the parcel-level.

For Monitoring and Evaluation

- Identification of the existence and locations of project or program interventions (soil conservation sites, latrines, etc.).
- Verification of existing data through ground-truthing.

For Engaging Stakeholders

- Visualization of certain elements of integrated water resource mgmt. plan.
- Identification of needs (particularly the locations of needs) that should be accounted for in the management plan.
- Identification of the existence and locations of project or program interventions (soil conservation sites, latrines, etc.).

For Exchange of Information

- Exchange of technical information and local knowledge between technical specialists and community members.
- Raising awareness of problems, risks, or potential threats to the community or the natural environment.

We can see that many of the specific applications of A-MANO fall under more than one of the four general categories. That is OK! A-MANO was designed to be a tool that can be applied to meet several separate objectives simultaneously.

5.1 The application of A-MANO for planning

A-MANO may be used effectively as a tool for planning. A management plan may be divided into three principal components:

- The diagnostic;
- The determination of the baseline;
- The formulation of a management plan.

Because of their unique nature, the formulation of management plans is outside of the scope of this guide. However, applications of A-MANO to carry out the diagnostic and determine the baseline are described below.

The diagnostic

The diagnostic serves to identify and capture key information about the focus area that may be used to formulate a management plan. This process must include an analysis of internal and external characteristics, as well as an analysis of key actors. To carry out these analyses, a wide range of types of bio-physical and socio-economic data must be collected.

Some types of data are most effectively collected by technical specialists alone. Examples include:

- Publicly available records (census information, health stats, etc.).
- Technical data available from governmental bodies (remotely sensed data, map files, weather/climate data, etc.).

Other types of data must be collected with the permission and support of the local stakeholders who are most central to the success of the management plan. Examples include:

- Information about the natural resources or ecosystem services that the management plan seeks to protect.
- Parcel-level information about land use and land cover.
- Household-level information about the people who live in the focus area.

A-MANO can be very effectively applied to gather this second category of data types. As a diagnostic tool, A-MANO should be carried out when the project or program first becomes active in the community. As a participatory diagnostic tool, A-MANO may be used effectively as a means of introducing community members and technical specialists to one another while gathering key input from local stakeholders.

The determination of the baseline

In the words of Dr. Jorge Faustino from the Department of Natural Resources and

Environment at CATIE, the baseline is the reference point that may be used to evaluate biophysical and socioeconomic impacts and changes produced by a certain program of project—it is a departure point against which data collected at later stages may be compared. In this way, the baseline plays a key role in monitoring and evaluation. The baseline also helps to determine which adjustments to the program/project implementation strategy are necessary.

A-MANO can be used very effectively to collect the data used to measure certain indicators that inform the process of monitoring and evaluation. For more background on that, please consult the section of the Guide dedicated to applications of A-MANO for monitoring and evaluation. However, with regards to the determination of the Base Line for use in creating a management plan, A-MANO should be carried out when the project first enters a community.

Further applications

Additionally, A-MANO can be used effectively as a tool for planning individual programs and projects that are a part of the larger program or project. Here are a few examples:

- A-MANO can be used to plan risk-mitigation activities through the creation of community “risk maps” (that display locations of landslides, floods, sources of contamination, shelters, evacuation, etc.). Alternatively, A-MANO can be used to update and add much more detail to existing risk maps.
- A-MANO can be used to plan reforestation efforts. With the participation of community leaders and large property owners (particularly community members who live in ecologically important areas), A-MANO can be used to map locations where reforestation will have the greatest impact, as well as locations where local property owners are committed to planting a certain number of trees.
- A-MANO can be used to plan where to locate monitoring stations (for example, rainfall or stream height), based on local input about appropriate sites.

5.2 The application of A-MANO for monitoring and evaluation

A-MANO can greatly aid monitoring and evaluation (M&E) of community-based development projects in two different ways—in the *collection* and *analysis* of data.

5.2.1 The application of A-MANO to collect data for M&E

A-MANO allows technical specialists to quickly collect accurate and comprehensive information about a community or watershed at the household-level. The mapping exercise may be tailored to focus on types of data that are specifically needed to measure certain indicators that form part of the M&E system.

Monitoring and Evaluation (M&E) systems require large quantities of data. Because A-MANO may be used to collect local-level data accurately and quickly, it can be used to fulfill many of the data requirements of an M&E system. There are three steps for using A-MANO as a tool for collecting data for an M&E system.

1. Evaluate the indicators of the M&E system.

The M&E system should specify the types of data required to measure each of the indicators. Which data types have some spatial component? Be creative. Very few data types truly have no place that can be associated with them (examples may include data that refer to organizations or policy, for example). Note that the spatial component does not need to be part of the M&E system's process of analysis—our purpose here is not to use A-MANO for spatial analysis, but rather for to draw upon its participatory mapping element as a means to collect data required by the M&E system.

- *Make a list of the data types that could be located on a map.*

1. Group the data types into categories.

Some types of data probably relate to households (for example, type of latrine, presence of a ecological oven, whether or not the household is connected to the water distribution network, etc.). Other types of data may refer to agricultural land (for example, presence of certain types of soil conservation activities, presence of certain types of water conservation activities, whether or not certain agro-chemicals are being applied, etc.). Other types of data may refer to forested private land (for example, reforestation, natural regeneration, etc.).

- *Identify categories, such as the ones above, and assign each data type from your list to one of the categories.*

1. Group the data types into categories.

These forms that can be used to record necessary non-spatial attributes of all of the features that appear on the map. By digitizing the map and linking the map data with the data from these forms, you will produce a series of data tables that may be imported directly into the M&E system.

For examples of forms that are currently being used with A-MANO to collect M&E data for an integrated water resource management project in Central America, please consult the Appendix.

5.2.2 The application of A-MANO for spatial analysis of data for M&E

A-MANO allows technical specialists to wield large quantities of spatial information that is relevant to the project or program. Certain indicators of the M&E system may be measured through spatial analysis. While the application introduced above serves primarily to gather data, here A-MANO is applied to gather data whose locations are important for measuring the progress of the project.

It is often necessary to use statistics produced through analysis of spatial data to measure the impact of a project or program. Although it can sometimes be complicated, spatial analysis in M&E is often quite simple. Examples include:

- *How far is X from Y? For example, how far is a certain house from a point of access to clean water?*
- *Is X within Y? For example, is a reforestation plot within an ecologically critical area of the watershed?*

In the first example, it will be necessary to use a GIS program or statistical software to produce the statistics needed to measure the indicator. In the second example, the spatial relationship is visible—representation in a GIS might be useful but is not necessary.

If it is possible to visualize spatial relationships, analysis can be carried out during the mapping exercise itself. For example, if participants are mapping points that are analyzed based upon whether or not they are within a polygon, the polygon should be added to the baseline map layer prior to printing. Additionally, the form used to record reference information about each point should contain a column to record whether or not the point is within the polygon.

5.3 The application of A-MANO for community engagement

A-MANO may be used effectively as a participatory tool for engaging local leaders and other stakeholders in the implementation of the management plan.

There is great potential for A-MANO to be applied as a participatory tool - for engaging stakeholders, for gathering critical insights from local community members, and for encouraging participants to adopt certain practices. While A-MANO is a participatory tool all by itself, it also may be tailored to support other participatory methodologies, such as Agro-Ecosystem Analysis, Participatory Rural Appraisal, and SARARPHAST.

For A-MANO to be applied as a truly participatory method, it must benefit the community members who attend the mapping exercise and create the map. In A-MANO, the map represents a platform for dialogue between local stakeholders and technical specialists. As such, it is a medium of communication and collaboration - a point of reference for planning, monitoring, and visualizing the project or program.

In A-MANO, the use of satellite imagery allows community members to communicate local knowledge often with as much spatial accuracy as technical specialists using GPS units or other methods of data collection. For this reason, in A-MANO it is important that both local stakeholders and technical specialists participate.



5.4 The application of A-MANO for information exchange

A-MANO permits practitioners to rapidly visualize data and share knowledge effectively. During the mapping exercise itself, maps allow both technical specialists and local stakeholders alike to ‘tell a story’ about the history of the community, the obstacles to progress, the impact of the project or program, the vision for the future, and so on.

Additionally, because community organizations own the maps they helped produce they too can use the maps to more effectively communicate with local governments or other NGOs that are active in the region (for example, in this video, community members use a map to communicate with a visiting representative of the local government). Even within the community, or within the group of families that are involved in the project or program, the physical map can serve as an effective tool for sharing information.

Finally, technical specialists can use the spatial data they digitize from the physical maps to communicate more effectively with project coordinators and managers of their organization. As conservation and development initiatives become increasingly the collaborative effort of multi-organization partnerships that include international NGOs, local NGOs, community-based organizations, foundations, and different levels of government, effective communication becomes critical to success.

When information is being exchanged among such a diverse group of actors, it is important to adopt a protocol to guide data sharing. For example, data that relates to natural resources, biodiversity, local knowledge, and indigenous lands must be treated sensitively. An example of one such protocol (in Spanish) may be found in the Appendix.



Acknowledgments

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These individuals are involved in the Global Water Initiative (GWI), a coalition of seven international organizations working to improve water, sanitation and hygiene services in 13 countries in Central America, West Africa and East Africa. For a minimum of 10 years, these partners will address the challenges of providing long-term access to clean water and sanitation for homes and livelihoods, while promoting the protection and sustainable management of ecosystems and watersheds. The partner organizations focus on the needs of some of the world's poorest and most vulnerable communities including those living in arid and semiarid areas. The GWI is financed by the Howard G. Buffett Foundation (HGBF). To learn more about this initiative, please visit the GWI website.

The GWI in Central America is a partnership made up of Catholic Relief Services (CRS), CARE, the International Union for the Conservation of Nature (IUCN), and ten local NGOs. The GWI works in El Salvador, Guatemala, Honduras, and Nicaragua. The GWI in Central America is known as 'Proyecto Mi Cuenca' and is active in 189 communities in 34 micro-watersheds. For more information about the project, please visit the [website of Proyecto Mi Cuenca](#). To learn more about the partners, please visit their websites:

[CRS](#)

[CARE](#)

[IUCN](#)

Planet Action is a non-profit initiative that donates satellite imagery and technology support to local projects that address climate change. Proyecto Mi Cuenca was awarded a grant of several high-resolution satellite images. Together with imagery from Google and from other sources, this grant enables us to implement A-MANO in all communities involved in the project. To learn more about Planet Action and how to apply for satellite imagery, please visit the [initiative's website](#).

Proyecto Mi Cuenca partnered with researchers from the [University of California, Davis](#) to develop and pilot A-MANO.



Appendices

A Technical Manuals

The manuals listed below offer step-by-step instructions for carrying out the technical processes of A-MANO. Preparing the map that will be used during a participatory mapping exercise is the most technically demanding process of A-MANO.

We have identified Google Earth and QGIS as the two most effective programs for carrying out this task. Because practitioners may prefer one or the other, the process of preparing the map has been adapted to both. If you decide to use QGIS, you may need to georeference the satellite image, which is also described.

- [How to prepare a high-resolution, large format map using Google Earth](#)
- [How to prepare a high-resolution, large format map using QGIS](#)
- [How to georeference a satellite image in QGIS](#)

Transferring data from the physical map to a spatial database requires some technical proficiency. Google Earth and QGIS are powerful and effective tools for digitizing of map data. While the general process is described here, step-by-step instructions are also available for both software programs.

- [How to digitize map data using Google Earth](#)
- [How to digitize map data using QGIS](#)

Additionally, if you intend to organize map data in a conventional database (for use in monitoring and evaluation, for example), you will need to extract coordinate pairs from point data. The guide below offers instructions on the most effective way to do this.

- [How to extract the coordinate pairs from map data, and save this data as a CSV file](#)

B Data Forms

The documents available for download here are examples of the type of forms that could be used to collect data during participatory mapping exercises. In particular, they focus on the data necessary for monitoring and evaluation of an integrated water resource management project.

- Form for collecting data on critical areas ([view](#) or download as a [doc](#) or [pdf](#)).
- Form for collecting data on activities and practices ([view](#) or download as a [doc](#) or [pdf](#))
- Form for collecting household-level data ([view](#) or download as a [doc](#) or [pdf](#)).

INSTRUCTIONS: After mapping all the points, indicate the type of data point with the name of the spring or an "X" (if the point refers to a landslide). Also indicate ownership.

Community: _____ Date: _____
Microwatershed: _____ Facilitator's name: _____

No.	Name of the spring	Landslide	Communal / Private / Govt.	Comments
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				

B.2 Example 2: form used to collect data related to activities and practices

Monitoring and Evaluation data form: Activities and Practices

INSTRUCTIONS: After adding all the data points to the map, use the legend below to indicate with an "X" the presence of each type of intervention, and the name of the landowner.

COMMUNITY: _____ DATE: _____
 MICROWATERSHED: _____ FACILITATOR'S NAME: _____

N°	Full name	Con A-S	Par AF	Par SP	Re Nat	Refor	Man Bos	Orto	Mi Cuenca
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									

LEGEND

Con A-S Activities related to soil and / or water conservation
 Par AF Agroforestry parcel
 Par SP Silvo-pastoral parcel
 Re Nat Natural regeneration
 Refor Reforestation
 Man Bos Forest management
 Otro Other type of activity: _____
 Mi Cuenca Promoted and financed by Mi Cuenca

Monitoring and Evaluation data form: Household Information

INSTRUCTIONS: After adding all data points to the map, write names of heads of household. For the other fields, Presence = "1"; No Presence = "0"; No Information = Leave Blank.

Community: _____	Date: _____
Microwatershed: _____	Facilitator's name: _____

No.	Full name of head of household	Letrine	Water connection	Eco stove	Other
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					

Comments:

C Best Practices

The recommendations below have been distilled from the experiences and insights of 46 technical specialists from Guatemala, Honduras, El Salvador, and Nicaragua.

Best practices related to printing the map

Go to the printing shop at least two days before you plan to use the image: Printing a large image takes time. Also, if the print comes out poorly (bad color, overly pixelated, etc.), you will need the extra time to order a second printing.

Request to see a sample: Print shops will often agree to print a small sample of the image when you order the print. These samples are very helpful for letting you know if it is necessary to adjust color or any other attribute.

Material: In our experience, the material that offers the best image quality is polypropylene paper. This is often the most expensive material. We have found that the most durable material is vinyl, which is often among the cheaper options. Plain paper is usually the cheapest. The material you choose depends on how you expect the map will be used, both by technical specialists and by community members or community organizations.

Best practices related to digitizing the map

Use decimal degrees: When managing large spreadsheets of spatial data, the degree sign and apostrophes will frequently cause problems. Additionally, if data were collected over a large geographic area, data recorded using UTM coordinates will also cause problems if the zone is not specified.

Always save files as KML: The difference between KML and KMZ is that a KML file is uncompressed and a KMZ file is zipped, to save time for data transfer (upload and download). Google Earth does not distinguish between KML and KMZ files, but other programs will not import KMZ files, or will import them, but with significant errors. Therefore, when given the option to save a file as KML or KMZ, always choose KML. KML and KMZ files are written in XML, which is similar to HTML. For our purposes, there is no need to learn how to edit the code directly, but it is important to understand the basic structure of a KML / KMZ file. When we move an object (point, line or polygon) or a folder in 'My Places', we are actually editing the code of one or more KML or KMZ files. This may seem complicated, but it is important to have a basic understanding of the structure of these files.

Simple is better: unlike other types of files used to record spatial data (SHP, GPX, etc.), there is no body of 'rules' to govern KML / KMZ files. For this reason, we often receive an error message when trying to import a KML / KMZ into another program. Complex symbology, non-spatial data (long descriptions, pictures, etc.) are usually responsible. Therefore, using simple symbology or no symbology at all. Never use photos, links, or long descriptions in the files to be converted.

If you use Google Earth, do not use 'My Places' to organize your files: Organizing files in 'My Places' is not efficient (dragging individual files and editing takes a long time.) It's much better to create a folder on the computer dedicated to your Google Earth files.

Once you have finished editing a file in Google Earth, save it (right click on the file, in Google Earth and select 'Save as ...') in that folder. Ideally, the folder is divided into subfolders to organize data in an intuitive way.

D Protocol for the Use of Geographical Data

'Mi Cuenca' Project, Central America Attached Countries: Nicaragua, Honduras, El Salvador, Guatemala

Eldin Castellanos

Catholic Relief Services, Guatemala

Introduction

Participatory mapping, as a tool to be used within the 'Mi Cuenca' project, will generate geographic data in various categories: general geographic, social, economic, productive, etc. The handling of said data, depending on the type, should be shared with prudence in order to not cause conflicts and damages to third parties with their use and publication.

The present document tries to establish some general rules of ethics for the divulgation of the information that is generated.

Protocol Definition

For the 'Mi Cuenca' project in Central America, 'Information Protocol' is defined as: *the rules for publishing and sharing the geographic information generated in order to facilitate the flow of information at all levels and promote the proper use of this information.*

In addition, the symbology that has been agreed upon for the project is attached in the annex to this protocol.

Information Generation

Due to the implementation of the 'Mi Cuenca' project and the diverse needs and management of the participating communities, a series of information is generated that is useful for planning based on the integrated management of water-sheds that also serves to promote local community development, which is of interest to the community and also to the participating organizations within the 'Mi Cuenca' project.

Source

For the purposes of this document, 'Source' is defined as the direct owner of the information (who generates the information), and who therefore has the legal rights and authority to transfer the information to a third party.

As a general rule, when a map is generated, the name of the source of information must be written inside the box of this one.

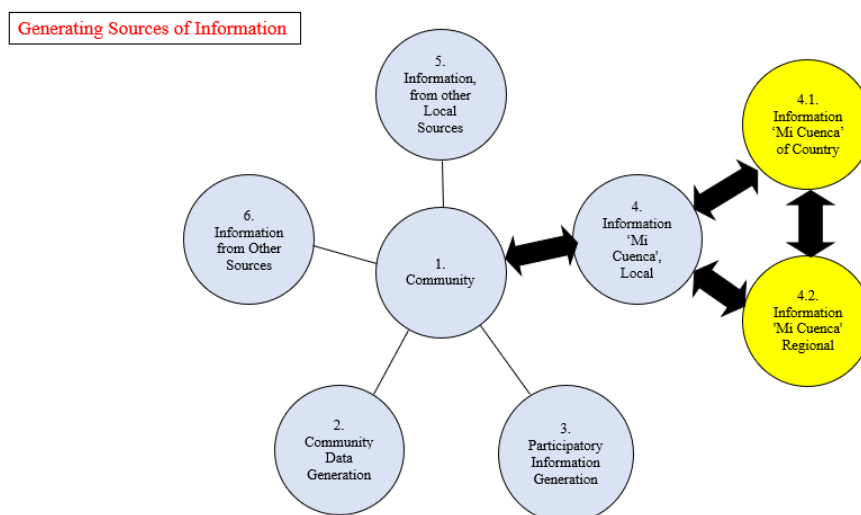
For the case of a process of participatory community mapping, the source of the information will always be the Community, in conjunction with the 'Mi Cuenca' project.

Datatype

Depending on the type of activity that is carried out while gathering information, different types of data can be collected, which can be classified as:

- Tickets:
 - General information of the community
 - Data available on available resources and the geographic environment
 - Data of project activities
- Process:
 - Calculation of community goals
 - Calculation of variables of project indicators
- Storage
 - Movements of the month, quarter and fiscal period
 - Catalog of communities
- Outputs:
 - Generation of maps of various types
 - Pictures, graphics, etc.

The following scheme tries to show each of the sources of generated information. To better understand the scheme, it is established that the central axis of this chart is the community to who the information should theoretically be returned.



Each of the identified information generation sources is defined below

1. Community:

The community is the center of attention, where diverse activities of diverse actors are concentrated and therefore it generates diverse topics of study, such as: social, cultural, projects, religious, natural resources, risk management, of incidence, among others.

1. Community Data Generation:

They are those directly generated by local development organizations, without the participation of any external entity. They can be mentioned among these: Population Census, Resource Identification, Community Development Plans, etc.

1. Participatory Information Generation:

It is the information that arises from the participation or mediation of an external organization within the community. The 'Mi Cuenca' project, as an external entity, has generated information of the following type:

- Censuses (Baseline, intermediate study, final study)
- Participatory Mapping, among others

1. Information from 'Mi Cuenca':

It includes all the information that is generated in relation to the 'Mi Cuenca' project, of which the technical team is the main generator, such as:

- Progress of project indicators
- Quarterly and yearly results
- Technical studies, etc.

1. Information from other local sources:

As local sources we define those that, being from other projects, are a part of any of the organizations within the consortium: Example project A4N, Miscellaneous Food Safety, CAFÉ, etc.

1. Information from other sources:

It is generated by community-diverse organizations, such as: government agencies, other NGOS, other than those involved in the 'Mi Cuenca' project.

'MI CUENCA' INFORMATION PROTOCOL

The present protocol governs directly in paragraphs 3 and 4 (of the Scheme), which is where the project and the community are linked. In the rest of the paragraphs, the responsibility of the information will be directly from the generating entity, to whom the authorization of the use should be requested.

For purposes of defining when information can be shared or not, the following categorization is defined according to a type:

Category 1.1:

WITH FREEDOM OF GENERAL USE

Included in this category is all the information from which the owner of the information has the consent. At this point it is worth clarifying that the request for consent is made only for the use of the project and should be considered as a total restriction to share with third parties, in which case it should be referred to the third party with the owner of the information so that it defines whether or not it can be shared with it.

In no case will the publication of information that includes the linking of names of persons with geographic location within this category be allowed.

In the case of the use of this information for the generation of a map, this map becomes the property of the 'Mi Cuenca' project (which bears the name of the source) in which case, it can be shared with third parties through printed or digital sheets (as long as it is done through digital files of the type: PDF, JPG, TIF, GIF, PNG or other within this category).

In any case, the verbal and written consent of the community is required or Community authority.

They will be of free use (provided that there is corresponding community consent) the data of activities such as: Water Systems, Irrigation Systems, areas of reforestations, nurseries, that derive from the execution of the 'Mi Cuenca' project, in the ways in which they are allowed within this category.

Category 1.2:

WITH FREEDOM OF USE WITHIN THE PROJECT OR ORGANIZATIONS OF THE CONSORTIUM

For purposes of the personnel within the 'Mi Cuenca' project and their organizations have the necessary planning and research instruments, this is defined categorization in order to release the use of other digital files, which may be used within the individual platform of Google Earth (free version) and are:

- Departamentos.kmz
- Cuencas.kmz
- Microcuencas.kmz

- Communitities.kmz
- Others that are requested by the 'Mi Cuenca' team.

Category 1.3:

WITH PARTIAL RESTRICTION

With this category you should mark all the information of which the owner has given express instructions that it should not be used to be shared in situations specific ones that should be indicated.

In any case, the verbal consent of the community or Community authority is required.

Category 1.4:

WITH TOTAL RESTRICTION

- Information whose content relates names of people with geographic location.
- Information with content that compromises the execution of projects.
- Information that contains economic income data of the population and other information that of the possibility of making conjectures of wealth of a family or person.

For the handling of the information that is generated based on paragraph 3, it will be necessary to count with the community verbal consent of the organization that represents legally to the community.

For the distribution of the information that is generated based on paragraph 3, it will be due to have the consent and written authorization of the community organization duly legalized.

With regard to DATA CONCERNING: GENDER, INDIGENOUS PEOPLE; In addition to the consent of the corresponding authorities, one must have the consent of the person or family of this.

In case of discrepancy between the established criteria, the situation will be solved considering our guiding principles: Dignity and Equality of the Human Person, social nature of humanity, common good, subsidiarity, solidarity, faithful administration of the Resources and others of the organizations within the consortium.

GENERAL STANDARD OF THIS PROTOCOL

When a community requires that the information collected is not shared, it is must inform the 'Mi Cuenca' project staff on a timely basis, disposition to restrict the data generated in a participatory manner and immediately classify it within category 3: **with total restriction**.

E Community Participatory GIS-DRR Facilitation Guide

Janeen Kim Cayetano & Matthew Sarsycki

Catholic Relief Services

This approach was used as a pilot for Cyclone Preparedness efforts in Kutupalong refugee camp in Cox's Bazar, Bangladesh.

Materials needed:

- Printed A2 maps for FGD 1 - 3
 - Site Plan (w/wo drone image) for FGD 1 and FGD 2 for each group
 - Landslide and Flood Risk Map (1) for FGD 2
 - A2 paper for FGD 3
- Colored Stickers or Colored pieces of paper: 6 to 7 colors
- Colored Pens (5 sets)
 - Black - Road, Landslide
 - Red - Fire, Health
 - Green - Other Facility, Wind
 - Blue - Drainage, Flooding
- A3 Paper (extra)
- Tracing Paper (trace north and boundary)
- Scotch Tape (transparent)
- Masking Tape
- Attendance Sheet
- Notebook and Pen for GIS Animator (take notes)
- Snacks

Total Time: Approximately 4 hours (2 hours for male focus group, 2 hours for female focus group)

Each project area is made up of 2 - 5 Mahjis as decided by the DRR/GIS team when delineating boundaries

Main Procedure:

1. There will be a pre-determined list of participants where a representative from each cluster representing all the Mahjis (2 - 5) in the project area. There should be between 8 - 12 male participants (Session 1, morning) and 8 - 12 female participants (Session 2, afternoon) Before entering the venue (Mosque, CFS, Community Center, etc.), HoH/attendees should sign-in to the registration to know who have attended.

Full Name	Age	Gender	FCN No.	Source of Livelihood	Signature
-----------	-----	--------	---------	----------------------	-----------

1. Two sessions will be conducted, one for male and one for female. Be sure that everyone participates in the workshop especially for the female session. It should be explained to the Mahji who are male that their participation is very valued for the men's session, but we would like to hear from the females separately. Any final decision will not be made until a future workshop where the Mahji will surely be involved.

3. Place all workshop supplies and materials in one area of the room: printed maps, colored pens, masking tape.
3. Start the program by providing a short introductory remark and explanation of the activities as per below:

Introduction





Hello, thank you for coming to the workshop. We are working with Caritas Bangladesh. Caritas Bangladesh has been involved in several activities in your community and through the guidance of your community leadership we are providing shelter materials and training, improving facilities and assisting with other needs of vulnerable groups. Your participation today is greatly appreciated, and we hope this is a valuable exercise as we work with you to prepare for the upcoming Cyclone and Monsoon season. We are going to be conducting several exercises today to get a better sense of your needs to prepare for the upcoming Cyclone and Monsoon season which includes preparing for wind, flood, landslides, fire and other challenges that may be facing the community. This includes identifying areas of possible evacuation in the community. The workshop should take about 2 hours. We have some water and refreshments available as needed, thanks again for participating.

3. Ask the participants if they have any questions about the process or expected outputs of the workshop.

FGD 1: Hazard Mapping (45 minutes)

1. Start the activity by showing the participants a map with the current facilities in the area
1. Ask the participants to point out where their households are on the map
1. Ask the participants to point out where the current location of the meeting is on the map
1. Briefly discuss the basic concepts of hazards such as strong wind, flood, landslide and fire with the upcoming monsoon season
1. Give the group 30 minutes. Using a transparency paper as an overlay, put this on top of the map. Using symbols (see below), mark the hazard areas of exposure to hazards:
 - a. Ask the participants to identify areas where floods could appear in the community;
 - b. Ask the participants to identify areas where floods could appear in the community;
 - c. Ask the participants to identify where landslides could appear in the community;
 - d. Ask the participants to identify where fire risk could appear in the community.

Map Legend

	Flooding
	Fire Risk
	Landslide
	Areas exposed to high winds

6. Summarize the results of the activity and ask if the participants would like to make any changes

FGD 2: Present Risk Analysis and Identify Evacuation Centers Locations (30 minutes)

1. Present the Flood and Landslide risk maps (if the risk maps are not available, present the exposure maps instead) to the participants. Explain that these maps were developed by combining areas of flood risk with information about vulnerable groups to determine the risk of specific households in the community.
2. Overlay the hazard maps from FGD 1 with this map.
3. Ask the participants if they agree with the maps and if they would like to change anything.
4. Give the group 20 minutes. using the base map, place a new transparency on top and ask the participants to identify areas that could serve as possible evacuation centers in the community. Ensure that evacuation centers are outside of risk areas and easily accessible by most vulnerable households (use the other maps as reference).

	Possible "Evacuation" Center
---	------------------------------







5. Summarize the results of the activity and ask if participants would like to make any changes.

FGD 3: Hazard Preparedness Actions (30 min)

1. Using the maps developed in FGD 1 and 2, facilitate a discussion amongst community members regarding specific preparedness actions they would take to prepare for the upcoming cyclone/monsoon season.
2. Ask the participants what they feel they could use at the HH level from NGOs, gov't, etc. to help prepare for each hazard.
3. Ask the participants what they feel they could use at the community (Majhi) level from NGOs, gov't, etc. to help prepare for each hazard.
4. Ask the participants what they would currently do to prepare for each hazard at HH level (reinforcing roof, placing items above floor level, securing documents, etc.).

Hazard	What is needed for preparedness (HH Level)	What is needed for preparedness (Mahji level)	Current preparedness (if any)
Flood			
Cyclone (Wind)			
Landslide			
Fire			

5. Using the hazard map developed by the participants in FGD 1. Ask them to plot their needs (if they are structural) on the map using the following guidance below:

	Water Source for drinking and/or bathing.
	Reinforced Houses
	Toilet and Bathing Place
	Solar Light
	Community Waste Bin
	Grass Planting
- D - - - D - - - D -	Drainage
	Other

6. Summarize the result of the results of the activity and ask participants if they would like to make any changes.

Closing and Next Steps

1. End the workshop with the guidance below.

Conclusion

Thank you so much for participating today, this will go a long way to inform on the process of preparing your community for the upcoming Cyclone/Monsoon season. For next steps, we plan to work with other stakeholders to identify the best strategy to assist with early warning and evacuation in your community. We are going to come back in a few weeks to work with you to develop an action plan. Please let us know if you have any questions or concerns moving forward.

A group photo may be taken before officially ending the workshop!

Participatory Workshop Photos





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