SPUR CHANGE | Capacity-Building & Knowledge Sharing for Small and Medium Organizations (SMO)

Baseline Data Collection:
Quantitative Data Collection

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Quantitative Data Collection

Quantitative data are data that are quantifiable, such as percentage of children enrolled in primary school or percentage of women who received at least one antenatal care visit during the last pregnancy. Quantitative data are often collected through a survey.

Advantages:
-Can provide data that is representative of the whole population;
-Is objective;
-Can be compared to other studies.

Limitations:
-Often requires a large sample size to be representative of the whole population;
-Can be expensive to collect;
-Analysis may require complex statistical skills.

Planning for quantitative data collection requires:
-Identifying your target population
-Calculating the sample size;
-Sampling of potential respondents;
-Developing data collection tools;
-Training data collectors.

The goal of quantitative data collection is often to describe a phenomenon within the entire population. While survey data can also be collected from a non-representative sample, a non-representative sample will not describe the entire population.

Identifying the target population

The first step in designing your survey is to determine who the target population is. For many small and medium organizations, the Performance Measurement Framework (PMF) outlines the expected results of the program and who the target population is.

Expected Results	Indicator	Data Source (target population)	Data collection method
Ultimate outcome: Improved food security of 500 drought affected households in X district			
Intermediate Outcome (medium term)			
Increased agricultural production	Kg of maize harvested per hectare	Farmers	Post harvest survey
	KG of maize harvested per household	Farmers	Post harvest survey
Immediate Outcome (short term)			
Increased adoption of improved agricultural production methods	% of farmers who planted maize at the recommended planting density	Farmers	Farm survey – one month after planting
	% of farmers who applied compost to maize field	Farmers	Farm survey – one month after planting

In this sample PMF, the target population is farmers in X district. The project intends to use a post-harvest survey and a farm survey one month after planting to collect data from farmers for medium and short term indicators.

Review your PMF. Which of your indicators could be measured using a survey? Who would the target population be for your survey?

Survey data collection methods

There are numerous options for collecting survey data. Some of these include:

- Email survey;
- Data collected on a smartphone or tablet (https://opendatakit.org/);
- Online survey link, using a platform such as survey monkey; (https://www.surveymonkey.com/)
- Telephone survey.

When choosing a method to distribute your survey consider how you will protect the confidentiality of your informants.

-Where will the data be stored?
-Who will have access to the data?
-For how long will the data be stored?
-How secure is the data storage location?
-What protocols will you put in place to protect the data?
-How will you de-identify the data?
-When the study is complete, who will own the data?

Sample size

Sample size is the number of completed responses you expect to receive from your survey. It is called a sample because it represents only a sample of people who are part of the entire population where your project is working.

In some situations, you may be able to collect data from everyone in your population. This could happen if you are collecting data from everyone who completed a course, for example. However, it is often the case that survey data is collected from a sample of the population.

There are numerous online sample size calculators that may be useful to your organization. If you are conducting a household survey UNICEF offers a sample size calculator tool: http://mics.unicef.org/tools

Calculating sample size can be a complicated process. In order to calculate sample size you will need to:

1. Know the total size of your population;
2. Determine your margin of error;
3. Choose a sampling confidence interval.

Note: Determining sample size will often require the assistance of someone with statistical knowledge.

Sampling for quantitative data collection

State	District	Village	Number of farmers
Waarap	Akon South	Milo	20
		Lang	20
	Akon North	Maoal	20
		Titic	20
	Gogrial	Liet	20
		Akoi	20
Total			120

In this example, a project is working with farmers in three districts of Warrap State in South Sudan. Data will be collected from six villages, which were randomly selected from a list of all the villages in these three districts. The total number of farmers who will be impacted by the project is 500. A sample size of 100 is needed for the survey. To account for non-responses, an additional 20 farmers were added to the sample size for a total of 120 farmers who will be approached to complete a survey.

	Farmer Initial	Selected for farmer survey
1	JS	x
2	SD	
3	MA	x
4	PP	x
5	WD	
.	.	
.	.	x
.	.	
.	.	x
.	.	
.	.	
.	.	x
.	.	
.	.	
.	.	
.	.	
.	.	x
.	.	x
.	.	
.	.	
.	.	
45	AW	x

In order to determine which farmers in each village would be selected for a farmer survey, all of the farmers in each village were listed and 20 farmers were randomly selected from the list. This random selection method ensures that farmers who live close to the centre of the village or are easy to locate for other reasons are equally likely to be selected for a survey as are villagers who live in remote or hard to reach locations.

Methods for determining a random selection include:

1. Training data collectors to use a random numbers table – such as can be found in, *"A million Random Digits wit 100,000 Normal Deviates";*
2. Pre-selecting random numbers using excel;
3. Using an online random number generator (http://numbergenerator.org/randomnumbergenerator)

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Survey tool development

Survey data collection tools can be developed from standardized survey questions or they can be developed specifically for your project. Sometimes, survey tools combine standardized survey questions and questions that are uniquely developed for your project.

Standardized survey questions are useful to include in your survey if you are collecting data that reports on standardized indicators, such as those that might be asked in a household survey or health facility survey. Examples of standardized survey question sets and tools can be found at:

http://mics.unicef.org/tools (UNICEF)

https://www.dhsprogram.com/data/data-collection.cfm#CP_JUMP_5188 (Demographic Health Survey (DHS))

http://www.washingtongroup-disability.com/washington-group-question-sets/ (Washington Group on Disability Statistics)

Results from survey questions that are developed uniquely for your project, can be compared from the baseline and end-line of your project but would not relevant or comparable to data collected for other similar projects.

Tips for developing survey tools

1. Include demographic questions at the beginning of your survey. This will help you think about how you will disaggregate your data and how you will report on your data. Possible demographic topics could include are:

- Age;
- Gender;
- Ethnicity;
- Religion;
- Highest grade completed;
- Literacy;
- Functional difficulties (disability).

2. If you are using standardized tools, do not change the order, wording or number of questions that are used to ask about and measure the indicator. If you change questions used to measure standardized indicators, you will no longer be reporting on the standardized indicator.

Tips for developing survey tools

Questionnaire for project XX			
Question		**Response**	**Skip**
Birth Module			
1	Have you ever given birth?	a. Yes b. No	If no, end module
2	When did you give birth to your last child?	Date: DD/MM/YYYY	If less than two years ago, end module
3	During your last pregnancy, did you receive antenatal care from any provider?	a. Yes b. No	If no, skip to Q5
4	Who did you receive ANC from?	a. Doctor b. Nurse c. Midwife d. Community health worker e. Traditional birth attendant f. Other (specify_____)	
5	Where did you give birth to your last child?	a. Hospital b. Health centre c. Own home d. Someone else's home e. Other (specify_____)	

3. Think about the logic of your survey. If you ask a woman if she had a live birth in the past two years and then ask a series of questions about pregnancy and birth, a women who indicates that she has never given birth or has not had a birth in the past two years should skip the questions related to pregnancy and birth.

Tips for developing survey tools

4. Where appropriate include a “other” response option. Including “other” as a response option will allow your respondent to respond using an answer that you may not have thought to include in your survey. When it comes time for data analysis, you may be able to recode “other” response options to existing response options. Alternatively, you may create new response options if multiple respondents report the same or similar “other” responses.

However, think hard about where it is appropriate to include “other” response options. Including “other” response options for every question could result in a lot of time consuming data cleaning work after the survey data is collected.

One way to avoid too many “other” responses is to seek local input for potential response options as you develop your survey.

Another way to avoid too many “other” responses is to train your data collectors to select “other” only when they are certain that no already provided response options is provided.

If you include an “other” response option in a question, always include a space for the data collector to specify what the “other” response is. Train your data collectors to always specify what the “other” response is.

Tips for developing survey tools

5. Ask only one question at a time

Questionnaire for project XX		
Question		**Response**
Attitudes to domestic violence module		
1	Do you think that a man has the right to beat his wife or partner if she goes out without telling her or burns the food	a. Yes b. No

Questionnaire for project XX			
Question			**Response**
Attitudes to domestic violence module			
1	Do you think it is okay for man to beat his wife if she:	Goes out without telling him	a. Yes b. No
		Burns the food	a. Yes b. No

6. Avoid asking too many questions or irrelevant questions. Your Performance Measurement Framework should guide the questions you ask in your survey. Avoid asking questions about everything that interest you if you are not going to report on that data.

Training data collectors

Survey data collectors should be trained to:

- Appropriately and politely introduce themselves and the project;
- Identify individuals who are eligible for an interview;
- Locate a safe and private space to conduct interviews;
- Understand basic technical concepts covered in the tool;
- Ask questions exactly as written in the tool;
- Protect the confidentiality of respondents;
- Operate the data collection equipment and keep it safe and in good working order;
- Understand protocols for personal and community safety.

Thank You!

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