Food and Agriculture Organization of the United Nations

Developing a Monitoring and Evaluation Plan for Food Security and Agriculture Programmes

Defining your indicators

Text-only version

In this lesson

LEARNING OBJECTIVES

At the end of this lesson, you will be able to:

- describe the steps for building an indicator table;
- apply criteria for selecting the right indicators; and
- apply criteria for checking the quality of a given indicator.

INTRODUCTION

Identifying indicators is a crucial part of an M&E plan. Appropriate and well-defined indicators will help you to set realistic targets and monitor the progress of your programme efficiently, thus matching the information needs of different stakeholders.

This lesson will support you in the process of selecting indicators and defining them appropriately.

How can I construct my indicators?

How can I select the most relevant indicators?

How can I check the quality of my indicators?

DEFINING YOUR INDICATOR

As you already know, an indicator is developed to answer an **M&E question**.

For example: a possible indicator to answer this question

M&E ?	Did we manage to train all the government officers we had targeted?
Indicator	Percentage of government officers trained.

The indicator is only one way to answer that question. Other indicators could do it as well.
A characteristic of indicators is that they are almost always an **approximation** of what we want to measure. Only an evaluation would be able to answer this question properly, by cross-analysing data coming from the M&E system with interviews (with tutors, with students, with their organizations), observation of events etc. It is important to make a distinction between what you want to know (the monitoring question) and the way to answer it (indicators).

An indicator is not just a ratio or a number. To make sure that its meaning, measurement and interpretation will be unequivocal in the next five years or so of the programme, **you must define it in a more detailed way**. The definition should explain in detail **how the indicator is measured.**

M&E ?	Did we manage to train all the government officers we had targeted?
Indicator	Percentage of government officers trained.
Definition	Indicator = (A/B*100)%, where: A = number of government officers who completed the training sessions. B = estimated number of government officers who are likely to be involved in the design and implementation of policies impacting rural livelihoods (revised each year)...

Most of the indicators of your M&E system will likely need to be calculated **every year**, to be included in the annual report. Indicators relying on surveys (which is often the case for outcome indicators) may be calculated less frequently; for instance, at baseline, mid-term and in the final review.

Frequency and information sources

You also have to determine **how frequently** you will calculate your indicator. At project level you may calculate indicators more often, such as every month. At programme level, especially when your indicators actually aggregate data coming from projects, calculations occur less often, such as once or twice a year.

To develop indicators, you need reliable **information sources.** As you know, by definition, the monitoring system only relies on data that you can **easily and regularly collect**. Fortunately, there are many sources that you can turn to feed your M&E system. You may, for example:
Start with the data **generated by your own** programme such as project reports, activity reports, feedback questionnaires from your training sessions or your seminars, as well as observations in the field. At the activity and output levels, it is common to rely on these sources to define your indicators. Then, think about the additional data you could retrieve from **external sources**, such as that for **context** indicators.

Finally, you can specifically collect data to address **unanswered needs**. This is usually done through **surveys**.

In our indicator table, Sharifa is adding a new section, "**Sources**": For elementary indicator **A**: activity reports of the programme and for elementary indicator **B**: needs assessment performed in the design phase of the programme. It is revised each year based on consultations with the national government.

Situation

Let's imagine that three years after the launch of the programme, Sharifa finds out that seventy percent of government officers have completed the training session.

How should she consider that result: a success, a failure or unable to judge?

You'll be unable to determine whether the programme is a success or a failure if you don't know how many officers were already trained at the time to of the launch of the programme three years ago, and how many the programme planned to train. This is why every indicator includes a baseline and a target.

BASELINE AND TARGET

Every indicator should include a **baseline** [1]and a **target**.

Baseline - Defining the baseline values will usually be done with a **baseline study**, which is performed **during the first year** of the programme. This is especially true for output and outcome indicators, as well as context indicators.

Target - Defining the targets to be reached is more problematic and usually requires a mix of experience of such programmes, good knowledge of the context and a touch of audacity. Doing it in **partnership** with the programme's stakeholders will make it much easier, and will disseminate your objectives. Be prepared **to revise these targets in** light of the observed results, especially after the first year of activity and after the mid-term evaluation.

Sharifa defines a baseline, which is an estimation based on a previous programme, and sets the targets for the mid-programme and end-of-programme.

Baseline → **Fifteen percent** (54 government officers were trained in a previous project, against an estimated target of 360).

Target →

- Year 3: **50 percent**
- Year 5 (end of programme): **75 percent**

[1] **Baseline -** Baseline is the status of the indicator at the beginning of a programme or project. It acts as a reference point against which progress or achievements can be assessed. A typical baseline in a food security programme might be the share of farmers using irrigation techniques at the beginning of the project. In this example, the baseline might be 30 percent of smallholders.

Source: United Nations Development Group (UNDG's), Results-based management handbook, p. 20. Available on the UNDG Web site.

Comments → "Note that due to transfers and new arrivals, the persons included in the target change every year. Besides, we know from the previous project that some officers are reluctant to join the courses. Therefore, we believe that 75 percent is a realistic, yet ambitious target."

Note that the comments section can be completed later on in the programme, to record aspects that will be useful when interpreting the results.

A full indicator table

M&E ?

"Did we manage to train all the relevant government officers?"

Indicator	Percentage of government officers trained.
Definition	Indicator = (A/B*100)%, where: **A**= number of government officers who completed the training sessions **B**= estimated number of government officers who are likely to be involved in the design and implementation of policies impacting rural livelihood (revised each year)
Frequency	Every year
Sources	For elementary indicator **A**: activity reports of the programme For elementary indicator **B**: needs assessment performed in the design phase of the programme. Revised each year based on consultations with the national government.
Baseline	**15%** (54 government officers were trained in a previous project, against an estimated target of 360)
Target	year 3: **50%** year 5 (end of programme): **75%**
Comments	Note that due to transfers and new arrivals, the persons included in the target change every year. Besides, we know from the previous project that some officers are reluctant to join the courses. Therefore, we believe that 75% is a realistic, yet ambitious target.

CHOOSING THE RIGHT INDICATOR

Being able to define indicators is only half of the story. The other half consists in **choosing the indicators** that will be monitored. Would you manage to calculate many indicators every year and be ready to use them? The risk of being overwhelmed by data would be strong, too, as there is a limit to the capacity of programme managers to absorb information.

Choosing indicators is about striking the **right balance** between what you need and what you can really do. **Indicators should be few enough so that the M&E system does not become a burden to the very programme it is supposed to serve and numerous enough so that all the major outputs and outcomes of the programme are covered.**

In general for the indicator you need to answer the following questions

Am I able to collect and analyse data?

Ensure that you are actually able to **collect and analyse** the needed data. For instance, if you ask an evaluator or a partner to collect or analyse relevant data, you need to ensure that it will be available for M&E on an annual basis.

Is the indicator really necessary?

Verify which indicators best answer the **information needs** required by you and other stakeholders, i.e. your M&E questions. Concentrate on those priorities which have significant implications in terms of **decision-making**: a very high budget, innovative set-up or mechanisms, or strategic theme. If a question is critical to the success of the programme, you may need several indicators to answer it. You may also decide that this question will be better answered by an evaluation, by an ad hoc study or by external sources. **Remove** any indicator that is not necessary for decision-making or for accountability, even if the information is interesting. This is especially necessary for information at activity or output levels. Your programme's M&E system should focus on outcome indicators. While you can collect other information (if it easy to do so), wait for the evaluation to analyse it.

What indicators are used by the organization?

You will need to manage **external requirements** for aggregation purposes.

The best solution to monitor your own outcomes consists in using generic indicators proposed by your organization, when they exist.

What is available from the project level?

Aggregate information **coming from the project level** (i.e. activities, first outputs) is available.

Your programme-level M&E system will be much easier to implement if you make sure that information is regularly collected at project level to feed your information needs. Each project will

have its own set of indicators, but only some of them will be used for aggregation at programme level. If there seems to be an issue in a given project, you can use its own indicators to understand it.

Do I have enough indicators?

Make sure that you **cover all outcomes** and the most **critical outputs** of your programme.
There may be some cases where only an evaluation can genuinely assess an outcome: explain it at that stage.

Choosing the right indicator – Situations

Sharifa is asking her colleagues about some typical indicators that can be used to monitor the outcomes of her project, as well as appropriate ways to collect relevant data. She is now requesting the advice of Mulat, a **capacity development** officer working in her organization.

"I need to monitor capacity development outcomes. What indicators could I use?" – Sharifa

M&E Questions	
Did the targeted people learn something new? Was it relevant to their needs?	***How to collect the data?*:** Immediate training evaluation done by the operator or, even better, a Knowledge-Attitude-Practice (KAP) survey. ***Indicator***: Share of participants indicating that they acquired new knowledge during the training.
Are participants convinced that they should act to enhance rural livelihood conditions?	***How to collect the data?*:** Immediate training evaluation done by the operator or, even better, a Knowledge-Attitude-Practice (KAP) survey. ***Indicator***: Share of participants who declare that the training session has changed their view about the priority that should be given to enhancing rural livelihood conditions.
Did participates use their new knowledge in a professional setting?	***How to collect the data?*** Knowledge-Attitude-Practice (KAP) survey only. ***Indicator***: Share of participants who declare that they have used their new knowledge at work in one of the following contexts: training colleagues, dealing with agriculture stakeholders or lawmaking.

Sharifa is now talking to Leila, who works in the office for **partnerships and advocacy**.

"How can I monitor my programme's outcomes in terms of partnership and dialogue?"

M&E Questions	
Do government officers now see agriculture stakeholders as relevant partners in lawmaking and law implementation?	***How to collect the data?*** Survey ***Indicator***: Share of government officers who declare that they see agriculture stakeholders as relevant partners. Share of agriculture stakeholders who believe they have a partnering relationship with the government.
Does the government include dialogue with stakeholders as a step in the lawmaking process?	***How to collect the data?*:** Interviews or workshops with government officials and agriculture stakeholders. Such an indicator should not be limited to a yes/no answer; rather, a scoring technique can be used to assess how far dialogue activities are now part of government practices. ***Indicator***: Implementation of dialogue activities as part of the lawmaking process.

Finally, Sharifa asks Clara, a legal and policy analyst.

"How can I monitor the outcomes on lawmaking and regulatory processes?"

Do government officers understand the need for more or better regulation to enhance rural livelihood conditions?	***How to collect the data:*** Survey. An alternative solution would be to hold an annual workshop with government officers and agriculture stakeholders where you ask them to describe the political climate on these questions, to give examples etc. You could then turn that information into a scoring indicator. ***Indicator***: Share of government officers who declare that more or better regulation to enhance rural livelihood conditions is needed.
Do new pieces of legislation or regulations explicitly aim to improve rural livelihood conditions?	***How to collect the data:*** Analysis of legislation. Alternatively, you could get this information by partnering with an NGO or an international organization which specializes in watching legislation.

	Indicator: Existence of new legislation or regulation aimed at improving rural livelihood conditions.
Do new pieces of legislation or regulations aimed to improve rural livelihood conditions follow a strategy supported by your organization?	***How to collect the data:*** Data can be collected in the same way as for the previous indicator. This indicator could benefit from a scoring system based on a checklist of expected legislative mechanisms, for instance. ***Indicator***: Coverage of the strategic objectives of your organization on rural livelihood by legislation and regulatory activities this year.

CHECKING QUALITYNDICATOR

Now, you are almost ready to define your indicators. Let's just take a moment for the **quality check**. The quality check will help you make your final decision about which indicators to keep. You can do so by answering the following questions:

➡ **Does it measure what it should?**

M&E question	**Which indicator best answers the following M&E question?**
Did the training activities help improve capacity in terms of dealing with rural livelihoods?	☑ Share of trainees who have acquired new knowledge of rural livelihoods. There's a direct link between this indicator and what we want to know; besides, the phrasing is really clear and gives a good idea of what is calculated. ☒ Education level of trainees. Not really. Education level of trainees is a good context indicator, but here we would like to know whether our training make trainees learn new knowledge of rural livelihood.

➡ **Is its meaning unequivocal?**

An indicator named "**Level of partnership**" would be unclear. A good indicator must be understood without ambiguity by everyone who has to use it. In the minds of both decision-makers and the public, the meaning of the indicator must be the same as for the programme managers. Partnership between

who? And is it measured in terms of the number of stakeholders involved in the partnership initiative that your programme has initiated? Or is it indicating the depth of the partnership?

If it's about the number of partners:	Share of targeted stakeholders having participated in partnership events gathering together agriculture stakeholders and government officials.
If it's about the depth of partnership:	Implementation of dialogue activities as part of the lawmaking process. Share of agriculture stakeholders thinking that they have a partnering relation with the government.

Can it be measured?

Sharifa is defining an indicator to monitor the expected impact of the programme. Which indicator would you suggest she uses?

Option 1	Proportion of the country's body of legislation that is now in line with the strategic objective of your organization to support rural livelihoods. ☒ This indicator would probably be great to predict the expected impact of the programme, but it requires so much work that it is unlikely that you would be able to calculate it every year. You should always make sure that the needed data is easy to obtain and that you will be able to calculate the indicators at the expected frequency.
Option 2	Coverage of the strategic objectives of your organization on rural livelihoods by legislation and regulatory activities this year. ☑ Correct! You should prefer a simple scoring system for the M&E system and keep the other indicator for the mid-term or final review. You should always make sure that the needed data is easy to obtain and that you will be able to calculate the indicators at the expected frequency.

Is it sensitive enough?

A programme indicator must vary significantly once the programme is implemented and begins to produce effects. This sensitivity is easy to achieve at the output level, but you should take care to ensure it exists at outcome and impact levels. For example, imagine that you plan to put stakeholders around the table to discuss ways to avoid food price volatility in the national market.

→| Would you use **Domestic food price volatility**, indicator at outcome level? |←

No, because it is unlikely that price volatility will change significantly following talks with the stakeholders. However, if your programme was aiming to create a new legislative framework for food pricing or to enable producers to exchange information about prices, there would be a fair chance that these things would have an impact on prices. In that case, using this generic FAO indicator could be a good idea.

Is it reliable and credible?

Your partners and yourself should be able to trust the produced information. If you are collecting the information, you will be able to ensure that the data collection process is transparent. You need to be more careful when others are producing the information you will be using.
For instance, imagine that you are funding, for the first time, local NGOs to organize partnership events and you want to know if they were a success. After the first round of events, you discover that each NGO counts participants differently. For instance, some count the number of persons registered; some, the number of attendees; while others add up each day's participants (50 on the first day + 40 on the second = 90 participants). You can't choose to add up the figures to gain an accurate view of participant involvement. Possible ways to solve this issue:

Provide a checklist of relevant organizations that your programme targets	☑ If you target some relevant organizations or a particular sector of the public, it is a good idea to provide a checklist or a document for your local partners to fill in, but you could also start with a common definition.
Provide a common definition	☑ A common definition is a good way to start. If you are targeting a relevant organization or a particular sector of the public, it can helpful to provide a checklist or a document for your local partners to fill in.
Ignore this; nobody will know	☒ If you choose to ignore the problem, the indicator will not be very useful! A common definition is a good way to start. If you are targeting a relevant organization or a particular sector of the public, it can be helpful to provide a checklist or a document for your local partner to fill in.

Annex 1.: Checking the quality of your indicators

And, finally, your indicators will be even better if...

- they are based on data that is **recent** enough. There may be some lag between the moment when the information is collected and the moment when you can use it for M&E. This is particularly true for context indicators relying on national statistics. Make sure that the information will not be obsolete when you will be using it.
- they are **comparable** with other indicators used inside and outside your organization. Using generic indicators will help to ensure this, but at the risk of not being sensitive and specific enough.
- they have a **target value** to reach. This value will help with interpretation of indicators and decision-making.

SMART criteria

The SMART criteria are a good way to check the quality of indicators. A SMART indicator:

- has a **S**pecific purpose: You can make a decision based on it;
- is **M**easurable: It is possible to retrieve the needed data to calculate it;
- is **A**chievable: It has a target value and this target can be attained;
- is **R**elevant: It answers your information needs;
- is **T**ime-phased: The target value evolves in time depending on the time needed to achieve the expected results.

CONCLUSION

Let's conclude this lesson with a few tips to identify and correct biases when using indicators. Using a given indicator to measure a situation or a process **can influence and "distort" the situation** or the process itself. These phenomena are rarely malicious processes. However, you should be aware of them and take corrective measures if required.

Choosing indicators has consequences. Use with caution!

The observer effect

Do you know the observer effect? It is a common bias in scientific experiments, in which the act of observing will affect the phenomenon being observed. For instance, different sets of lenses in a microscope may give slightly different results. Well, the same effect applies to indicators. The way you try to measure a fact or a situation may affect the situation itself, in big and small ways.

Exemple

If you hand out an evaluation questionnaire at the end of a course, attendees may give higher scores because they liked the trainer, or because they suspect that the trainer will read the evaluation forms afterwards. Also, in a survey, people may not provide their true opinion for various reasons (for instance they may think that there is a "right answer" that the surveyor would prefer), even when the survey is anonymous. Be sure to identify such biases, and interpret the obtained results accordingly. For instance, bear in mind that an immediate training evaluation will almost always lead to positive results. So, be sure to hold a survey later to have a better view on whether or not your training did make a difference.

Goodhart's and ampbell's laws

Goodhart's law states that: When a measure becomes a target, it ceases to be a good measure. What Goodhart, who was a banker, meant, is that if you are using a measure to monitor, to control or to evaluate a situation, then the measure will change accordingly. This rule is well known in the finance world. For instance, if the banks are making decisions based on interest rates, it is likely that these rates will be subject to intense pressures, or may even be manipulated, to influence decisions.

Example: For instance, if the number of **grants allocated** is the main output on which projects are assessed, there will be a tendency, year after year, to see a larger number of allocated grants. But, as the budget stays the same, the grants will be lower and lower, and may not be sufficient to obtain the expected outcome.

Campbell's law states: The more any quantitative social indicator is used for social decision-making, the more subject it will be to corruption pressures and the more apt it will be to distort and corrupt the social processes it is intended to monitor.

Example: Another example of Campbell's law, occurs when **everybody knows what the indicator is**. Let's say that, to measure an advocacy campaign, the project manager decides to count the number of "Likes" on the project's Facebook page. He/she tells everyone that if the page amounts to 10 000 likes, it will be considered a success. The staff is likely to ask their relatives to "Like" the page so that the number increases. This approach may bring more people to the page, but the measure becomes obsolete the moment it is possible to manipulate it.

SUMMARY

An indicator is not just a ratio or a number. To make sure that its meaning, measurement and interpretation is unequivocal, you should **define** it in an accurate way, as well as identify the information **source**, **baseline** and **target** for each indicator.

Choosing indicators is about striking the **right balance** between what you need and what you can really do. There should be enough indicators so that all the major outputs and outcomes of the programme are covered, but not so many that the M&E system becomes a burden to the very programme it is supposed to serve.

It is also advisable to consider information available at **project level** and indicators used in your **organization**.

In addition, to make sure you have identified a **good quality indicator**, you should also check that:

- it measures what it should;
- its meaning is unequivocal;
- you have the capacity to measure it;
- it is sensitive enough; and
- it is reliable and credible.

ANNEX - CHECKING THE QUALITY OF YOUR INDICATORS

As you've probably observed, it can be difficult to control the quality of your own indicators. However, quality is a very good way to discuss your indicators in an M&E committee meeting. Ask your partners to do it: How do they understand the indicator? Does it seem to answer their questions?

Question	Indicator
Does it measure what it should?	*Indicate what it should measure and why it measures it well.*
Is its meaning unequivocal?	*Explain in ordinary language what the indicator means and make sure that this is understandable in the indicator's current phrasing*
Can it be measured?	*Describe how you will measure it and how likely it is that you will obtain the needed data at the expected frequency.*
Is it sensitive enough?	*Do you expect this indicator to vary if your programme is a success?*
Is it reliable and credible?	*Are you collecting the data yourself and do others do it as well? What measures will you take to ensure that the data collection process will be reliable?*