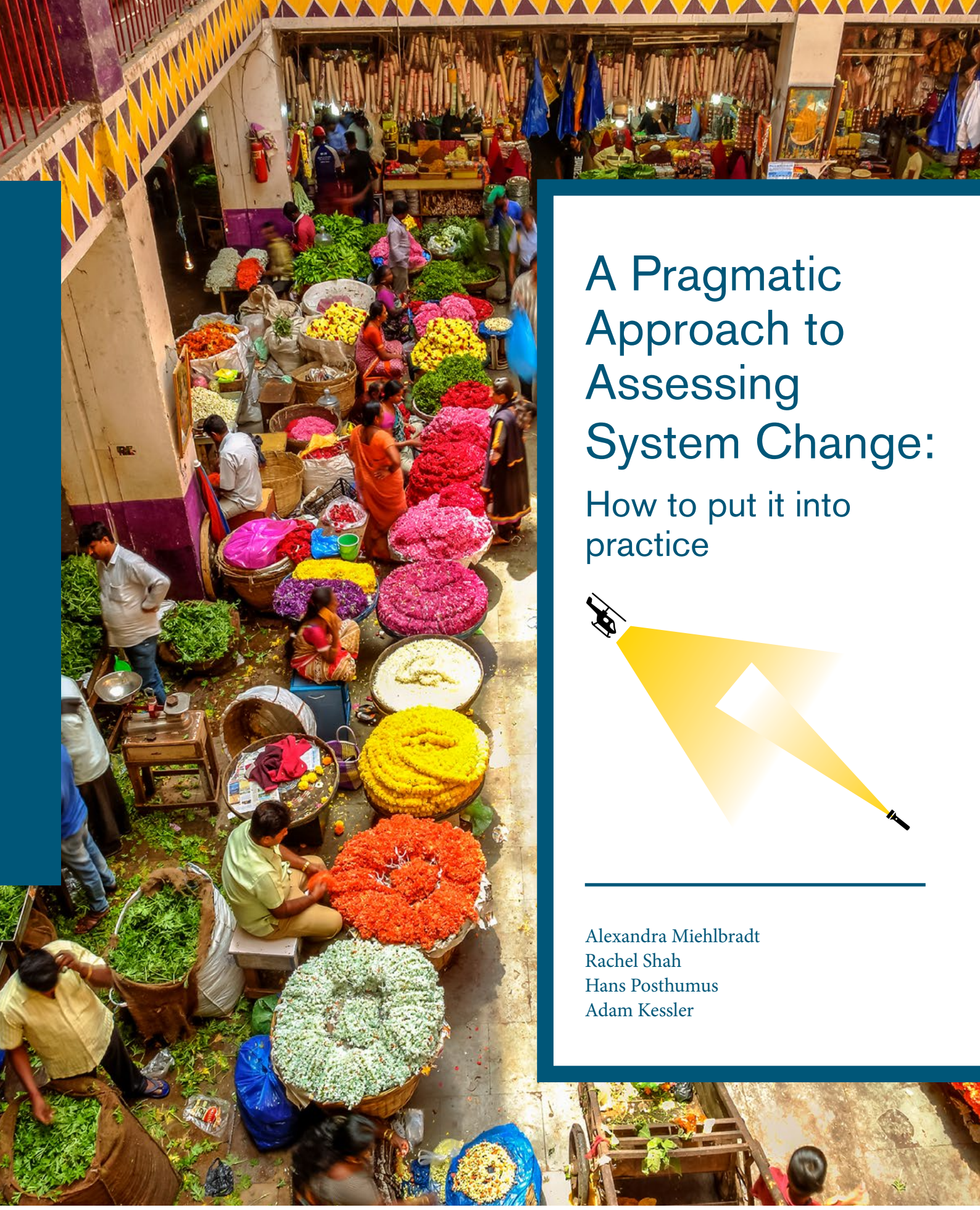

A Pragmatic Approach to Assessing System Change:

How to put it into practice

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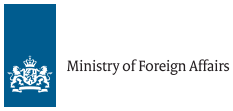

We would like to thank the participants of the Advanced Monitoring and Results Measurement training workshop who helped us to test and refine this approach using three real life cases: the maize system by Promoting Rural Incomes through Support for Markets in Agriculture (PRISMA) in Indonesia, the livestock system by the Market Development Facility (MDF) in Pakistan and the Vocational Education and Training (VET) system by Skills 4 Jobs (S4J) in Albania. Particular thanks go to Vincent Limputra from PRISMA, Erka Caro From S4J and Farhan Akhtar and Ali Sarwar from MDF.

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The views expressed in this report do not necessarily represent the views of the agencies involved.

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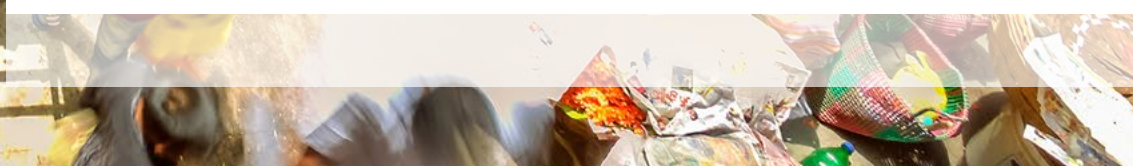

Acronyms

BMO	Business Membership Organisation
CEO	Chief Executive Officer
DCED	Donor Committee for Enterprise Development
DFID	United Kingdom Department for International Development
GAP	Good Agricultural Practices
ISP	Intermediate Service Provider
MIS	Management Information System
PRISMA	Promoting Rural Income through Support for Markets in Agriculture
S4J	Skills for Jobs
SDC	Swiss Agency for Development and Cooperation
VET	Vocational Education and Training
WBL	Work Based Learning

Glossary

Desired state	A clear description of the state of each indicator used to describe the system when the main and supporting systems are working better for the target group.
Helicopter lens	The helicopter lens is focused on big picture changes and looks at what is changing in the main system and the supporting systems that the program is targeting. It captures changes that are happening for a variety of reasons, including changes caused by external factors and changes caused by expected and unexpected effects of single or multiple interventions.
Intervention	A coherent set of activities, implemented by the program and the partner(s), to achieve specific changes in behaviour and performance of system actors.
Intervention lens	The intervention lens follows the spread of a specific change introduced by an intervention, by tracking how intervention partners influence other system actors, examining how far the change spreads and whether it will stick, and by assessing whether the change in the supporting system affects the main system and benefits the target group.
Intervention plan	A plan that outlines how an intervention is expected to change one or more supporting systems and how changes in the targeted supporting system(s) lead or contribute to changes in the main system and how they benefit the target group.
Main system	The broadest system that the program realistically expects to influence.
Partner	A public or private sector actor with whom the program has signed a specific partnership agreement to jointly design, finance and implement a specific intervention.
Partnership	A documented agreement between the program and a partner that specifies the roles and responsibilities of each party to jointly design, finance and implement a specific intervention.
Performance	A description of how well the system functions, using price, quality, quantity and timeliness of the product or service the system produces relative to the wider market, and the inclusivity of the system.
Starting state	A clear description of the state of each indicator used to describe the system, when the program began.
Supporting system	An interconnected system that influences the main system.
System	A group of interacting, interrelated or interdependent elements that form, or can be thought of as forming, a complex whole. In this paper, it refers to the system that the program aims to influence, comprised of one main system and several support systems, as defined by system boundaries.
System boundaries	Conceptual lines that help to demarcate the system to be targeted from 'everything else' that is also connected to the system and the target group.

System change	A change to how a system works and to what happens as a result. Programs typically conceptualise system change as change in the underlying causes of system performance that leads to a better functioning, more pro-poor system. For more discussion on system change, see the BEAM Exchange website.
System diagnosis	The process of studying a system to identify what changes will make the system more effective, inclusive, and resilient and the key constraints to and opportunities for catalysing those changes.
System results chain	A visual representation of the plan in the system strategy, showing how changes in multiple supporting systems will jointly change the main system and contribute to achieving the program goal.
System strategy	A summary of the changes a program aims to facilitate in the main system and selected supporting systems, and an explanation of how these changes are expected to happen.
System strategy table	A table with detailed information about what system changes are expected to happen and how, including system boundaries, indicators, information about starting and desired system states, and a brief summary of the program's plan.
Unexpected system changes	System changes, positive or negative, that occurred but that were not predicted in the program's system strategy or intervention plans.

1 Introduction

1.1 Overview

Few topics create as much confusion and debate as system change, and many programs feel stuck when it comes to assessing it. The field has struggled to agree on an approach that programs can implement and stakeholders can understand. Consequently, practice varies widely and many are frustrated or confused.

However, some mature programs are starting to use pragmatic and credible approaches to assess system changes. Building on these emerging practices, this paper outlines a process that programs can apply to regularly and practically assess system change.[1] It accompanies the overview paper, A Pragmatic Approach to Assessing System Change, and targets practitioners responsible for facilitating and/or assessing system change. While the overview paper summarises the approach, this paper on putting the approach into practice provides more detailed implementation guidance, worked examples, and useful tips.

Read the overview paper: ***A Pragmatic Approach to Assessing System Change.***

1.2 Why assessing system change is important

The problems development practitioners are trying to address occur because of how systems work. Tackling those problems in a lasting and significant way requires helping systems to become more effective, inclusive, and resilient.[2] System change is a change to how a system works and to what happens as a result.[3] Planning for and assessing system change is, therefore, a strategic management issue, critical for everything from developing a strategy and designing interventions, to adapting strategies, improving implementation and reporting impact.

1.3 The examples used in this paper

Two case examples are used for illustration throughout this paper: PRISMA's work in the maize system in East Java, Indonesia and S4J's work in the Vocational Education and Training (VET) system in Albania. While the cases are based on real programs, they have been significantly modified for learning purposes and do not represent the current situation of the programs, partners, and interventions.[4]

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[1] The approach was tested and refined together with a group of thirty results measurement practitioners at the Advanced Results Measurement Training Workshop in November 2019. The tools and concepts presented here are inspired and informed by existing practices, but are not yet fully applied by current programs, including those cited in the cases.

[2] The technicalities and debates about how to define "a system" are better explored elsewhere, but the dictionary definition of a system – a group of interacting, interrelated or interdependent elements that form, or can be thought of as forming, a complex whole – is sufficient for our purposes. Section 3 explains how this paper uses the concept of 'main' and 'supporting' systems and provides guidance on how to put boundaries around systems.

[3] For more discussion on system change see the BEAM Exchange website.

[4] Thanks to PRISMA and S4J for allowing us to use their cases.

The Australia-Indonesia Partnership for Promoting Rural Income through Support for Markets in Agriculture (AIP-PRISMA) aims to accelerate poverty reduction through inclusive economic growth. PRISMA is active in many systems across Eastern Indonesia, including the maize system in the Madura province of East Java. PRISMA aims to increase the incomes of farmers by increasing the productivity and production of maize by existing farmers as well as by increasing the number of farmers cultivating maize. This is expected to lead to a shift from maize cultivation for subsistence only to more commercial farming. For a more detailed explanation of the case, see Annex A.

Skills for Jobs (S4J) supports VET providers to apply effective training methods, improve facilities and management, offer training that meet the demands of the private sector, and develop their positioning and reputation. The overall assumption is that strengthened private sector involvement in VET and an increasing supply of qualified employees will lead to a more competitive and growing economy. In its first phase, S4J focussed on addressing constraints to individual VET providers' performance. In its second phase, S4J aims to achieve nation-wide system change by introducing a number of 'products' developed and tested in its first phase to the wider system, with the intention that they are adopted by the other VET providers and supported by the relevant government agencies. For a more detailed explanation of the case, see Annex B.

2 The process outlined in this paper

This paper explains how to articulate the system changes that a program aims to catalyse, assess those changes, and use the results to inform decision making and reporting. The approach described in the paper builds on the good practices outlined in the DCED Results Measurement Standard. The guidance provided has been designed to be useful to programs that aim to catalyse system changes whether or not they apply the DCED Standard. Where relevant, readers will find references to specific guidance related to the DCED Standard in the footnotes.[5]

This paper comprises five main sections. In section 3, the paper explains how to express a system strategy and intervention plans. A system strategy summarises how the program aims to influence the main system it targets and how the resulting changes are, together, expected to contribute to the program goal. Intervention plans guide implementation by showing how each intervention is expected to contribute to specific system changes.

Section 4 describes how to assess system changes using both an *intervention lens* focused on changes introduced by specific interventions, and a *helicopter lens* that enables programs to assess big pictures changes in the main and supporting systems as well as what is driving them. Section 5 outlines how to analyse findings from the helicopter lens and the intervention lens together to understand what system changes are happening and why, and to assess a program's contribution to system changes. Section 6 explains how to use the analysis to make decisions and improve intervention plans and the system strategy. Finally, in section 7, the paper explains how to use information on system change to report credibly to program stakeholders.

Figure 1 shows how this process fits into a typical program cycle.

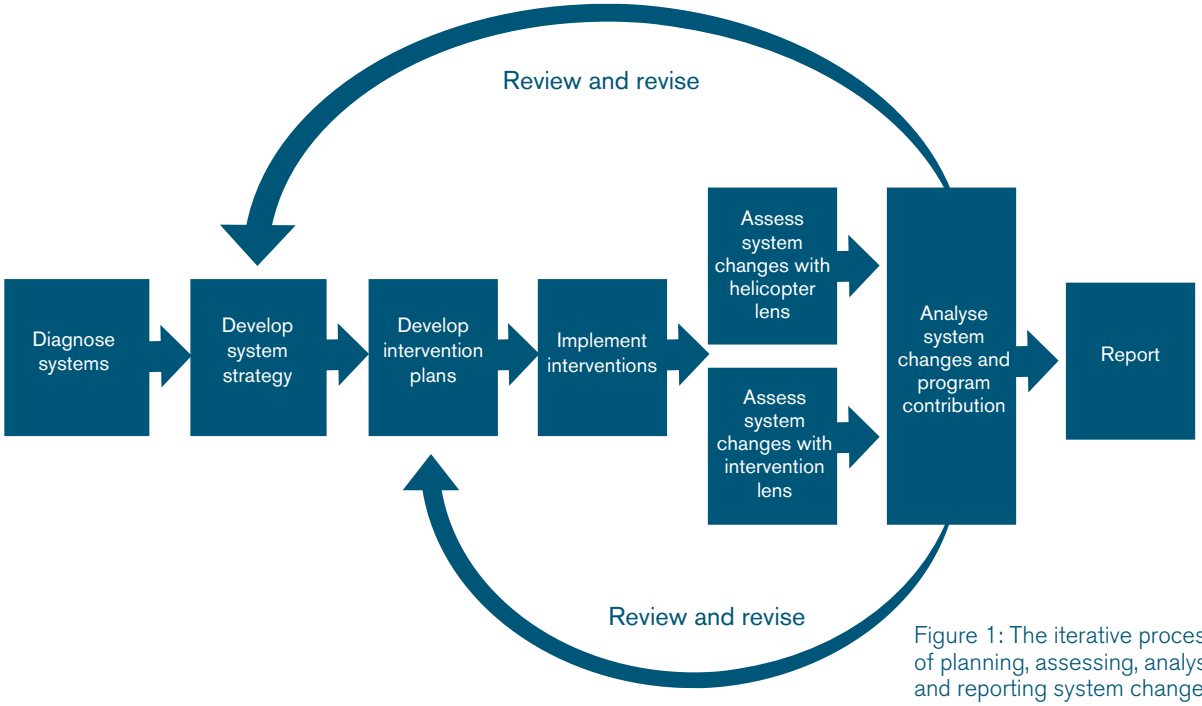
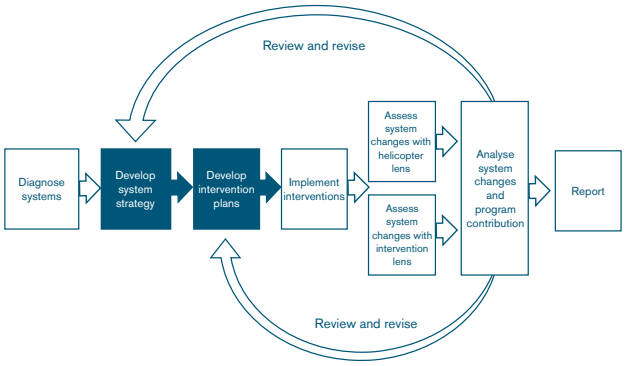


Figure 1: The iterative process of planning, assessing, analysing, and reporting system change.

[5] More specific guidance on complying with Section 4 of the DCED Standard (Capturing wider changes in the system or market) is available on the DCED website.

Annex A shows examples of the tools applied to PRISMA's work in the maize system in East Java, Indonesia. Annex B shows examples of the tools applied to S4J's work in the Vocational Education and Training (VET) system in Albania. Annex C shows additional guidance, not related to either case. Throughout the paper, readers can click on boxes to see examples from these two cases, additional guidance and videos of practitioners discussing aspects of the approach. Readers can also go through the cases in their entirety in Annexes A and B.

3 Articulate a system strategy and intervention plans



This section covers how to articulate a system strategy and intervention plans. It first introduces the idea of 'system boundaries,' explaining how to set the boundaries of a system in such a way that a program can set clear goals and assess system change progress relative to these boundaries. It then introduces the components of a system strategy, which describe what is expected to change in both the main system and the supporting systems, and how that is expected to happen.

Finally, this section briefly describes how to articulate an intervention plan, which outlines how an intervention is expected to introduce and promote changes to supporting systems so that they become sustainable, reach scale and contribute to system changes outlined in the system strategy.

Watch ***this video*** to hear practitioners discuss system strategies.

3.1 System boundaries

3.1.1 Why is it important to set system boundaries?

Systems don't operate in isolation; any given system is connected to multiple others. Systems can also be considered to include or exclude different parts, depending on a program's perspective. For example, does 'the maize system' only include certain kinds of maize? Does it include maize by-products? Is it a regional, national or international system?

Unless programs describe the system and set the boundaries of the systems they target, it will not be clear to the team or to external stakeholders what the program aims to influence and what it does not. Nor will it be clear where to focus system change assessment efforts, or how significant assessed changes are. Clear system boundaries help a program to develop effective strategies and to assess and report system changes relative to the systems it has set out to influence.

3.1.2 How to set system boundaries

Setting system boundaries starts with the main system, which is the broadest system that the program realistically expects to influence. In the maize case, for example, the main system is maize, of any kind, produced by smallholder farmers on Madura Island. In the VET case, the main system is vocational education and training for youth in Albania. As the examples suggest, the main system is often related to a crop, product or service.

To set boundaries for the main system, define the specific crop, product or service in a way that is relevant to the program's target group or program goal.[6] Be clear about who the target group is, and specify the geographical area that the program is focusing on. Systems are rarely confined to a particular region, but it is important to focus. Programs usually deal with this by specifying a geographic area in relation to key actors in the main system – usually the target group – without assuming that everything in the system will be confined to that region. For example, PRISMA's goal is to improve the system that affects the supply and demand of maize produced by smallholder farmers on Madura Island, but they recognise that buyers might be based elsewhere.

Setting system boundaries also involves deciding which supporting systems to focus on. Supporting systems are interconnected systems that influence the main system. In the PRISMA case, for example, two of the supporting systems are hybrid seeds and information on good agricultural practices (GAP). In the S4J case, curricula, training methods, and apprenticeships are supporting systems.

Programs select supporting systems that represent the most critical constraints to (or opportunities for) improvements in the main system. When making these decisions, be clear about what is excluded as well as what is included. This helps program teams to decide not only what to do, but also what not to do. Figure 2 illustrates an example from the maize case, showing which supporting systems are included and which are excluded. PRISMA has chosen maize as the main system (highlighted green), excluding other crops. It has decided to include four critical supporting systems (highlighted blue) while excluding the others (highlighted grey).[7]

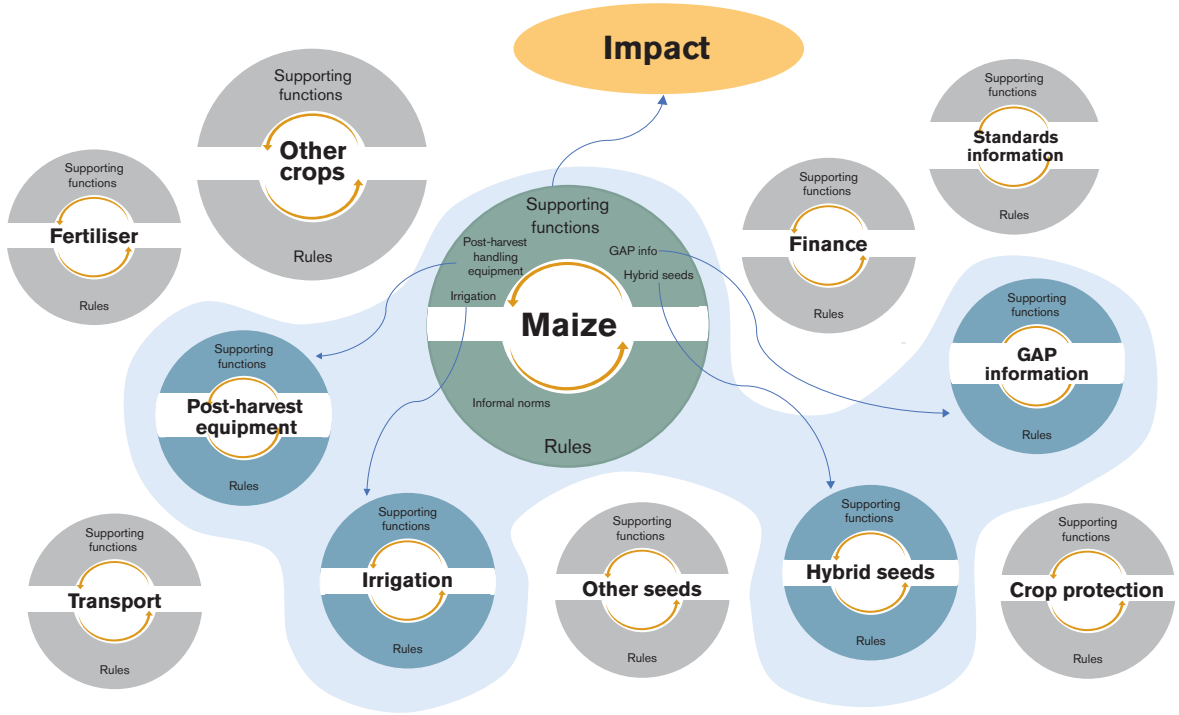


Figure 2 : Example of setting system boundaries from the maize case.

Read an example of how system boundaries were set in the VET case.

[6] While most program goals reference a specified 'target group,' some have goals, such as reducing carbon emissions in a given region, which do not. For the sake of practicality, this paper refers to target groups throughout, but the guidance can equally be applied to programs with different types of program goals.

[7] It is not necessary for programs to make this type of diagram. It is only included here as a useful visualisation of system boundaries.

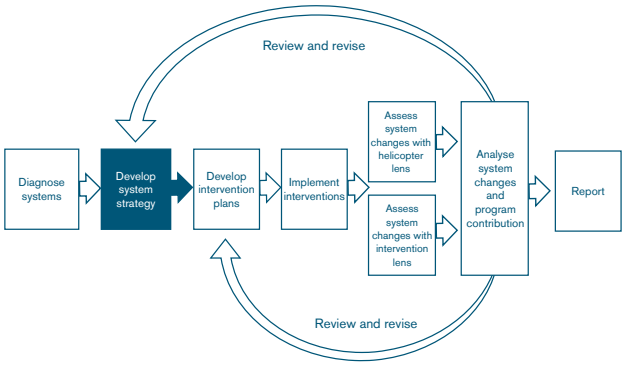
The process of setting boundaries is an iterative one. Set system boundaries during the initial diagnosis and strategy design process but recognise that they may need to be revised as the program progresses.[8] The initial choice of main system may prove to be too broad – meaning that the program cannot realistically expect to influence it with the time and resources available. Alternatively, it may prove to be too specific, without enough potential for transformational change. The initial choice of supporting systems may have ignored issues that are critical to drive change or included factors that the program cannot feasibly expect to change. Consequently, be willing to revise system boundaries if necessary, as more information is gathered and a better understanding of the constraints and drivers for change is obtained.

This paper talks about 'main systems' and 'supporting systems' in a way that implies two 'layers' of interconnecting systems. This is a simplification, however, as all systems comprise multiple layers of subsystems and are themselves, part of larger systems. In the maize case, for example, maize produced by smallholder farmers on Madura Island is part of a broader national maize system – which, in turn, is part of a global maize system. Meanwhile its supporting systems, like hybrid seed, have their own supporting systems, like inputs for seed producers, regulations on imports of seeds, and certification. Some programs will choose to target supporting systems that are several 'layers' away from their main system. The principles of boundary setting are no less relevant in such cases: be clear about how each supporting system is connected to the others, and be explicit about what is included and excluded.

Read additional guidance on how to avoid common mistakes in setting boundaries.

3.2 System strategy

3.2.1 What is a system strategy?



A system strategy provides a clear summary of the changes a program aims to facilitate in the main system and selected supporting systems, and an explanation of how these changes are expected to happen.

A system strategy includes:

- a summary of the *boundaries* of the system (as discussed in section 3.1 above),
- the *starting state* and *desired state* for each of the *expected changes* in the system, and
- the *plan* for how the program intends to facilitate those changes (or, to put it another way, a summary of the program's theory of change for the specific system it is targeting).

Outline separate system strategies for each main system the program is targeting. As discussed in section 3.1, some programs intervene in supporting systems that are several 'layers' away from their main system. If that is the case, it may be useful to treat the selected supporting systems as main systems, developing 'nested' system strategies for each of them, and an umbrella system strategy for the main system. This will allow the overall system strategy to be unpacked into a few more manageable nested system strategies. For example, in the maize case, the program may want to develop a system strategy for the hybrid seeds system covering *its* supporting systems such as inputs for seed producers and seed certification. The hybrid seed system strategy would sit within the umbrella system strategy for the maize system.

Start developing a system strategy early in the program, so that it guides decisions on which supporting markets to target and which behaviours interventions should aim to influence. Typically, programs develop their first iteration of a system strategy immediately following their diagnostic research or in the early stages of implementation.

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[8] Diagnosis is the process of studying a system to identify what changes will make the system more effective, inclusive, and resilient and the key constraints to and opportunities for catalysing those changes. For more information, see Springfield Centre (2015) The Operational Guide for the Making Markets Work for the Poor (M4P) Approach, 2nd edition funded by SDC and DFID.

3.2.2 How to articulate a system strategy

This paper doesn't explain how to diagnose systems, develop a system strategy or identify opportunities for interventions.[9] It does, however, provide guidance on how to articulate this in a written system strategy that clearly outlines expected system changes and lays the groundwork for assessing them.

Outlining a system strategy starts with articulating the changes the program intends to foster in the main system and supporting systems. The rationale is that the expected changes in supporting systems will, together, promote the desired changes in the main system. The main system changes may not be directly caused by any one supporting system change but may be expected to occur as the result of the combined effect of multiple system changes.

It is not necessary or possible to consider all potential changes. Instead, focus on the key expected system changes that will make a difference for the target group and contribute to the program goal.

To articulate expected system changes, answer the following guiding questions for the main system and each supporting system:

- Who is doing what in the system now and who is expected to do what in the future?
- What do they have access to and use now and what are they expected to have access to and use in the future?
- What are the rules and norms now and what are they expected to be in the future?
- What interactions are happening now? How do actors relate to each other? How are interactions and relationships expected to be different in the future?
- What is the performance of the main and supporting systems, and what is their desired performance in the future?

Read additional guidance on what 'performance' means.

A clear articulation of system changes forms the basis for the system strategy, which can be summarised using a system results chain and a system strategy table. Although results chains represent complex system changes in a linear way, they provide a useful framework for thinking through a strategy and for planning monitoring activities. A table can provide more details on the plan for influencing targeted systems in a way that a results chain can't easily capture. A table also provides a way to record key indicators of system changes and the starting and desired states for each of them.

The following sections briefly outline what to include in the system results chain and system strategy table. Programs are invited to experiment with their own tools and formats, treating the templates here as inspiration rather than prescriptive formats.[10]

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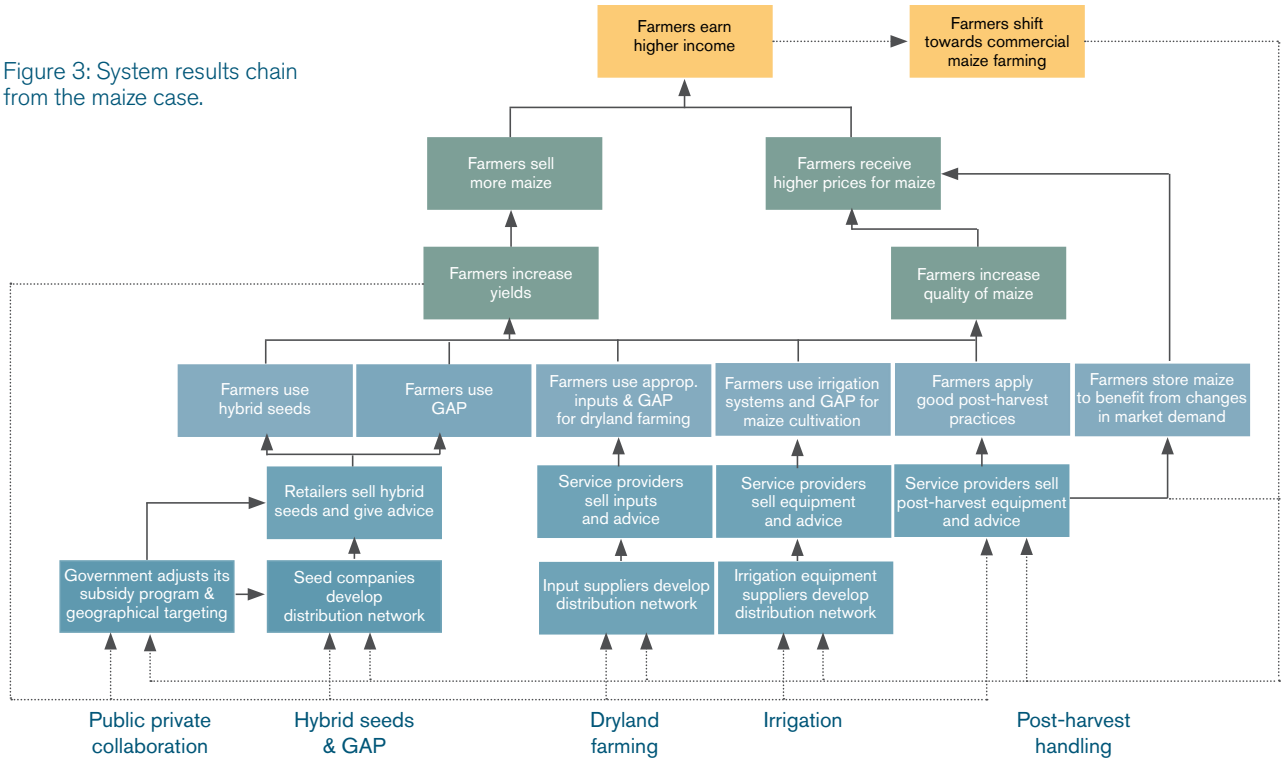
[9] For guidance on how to do these, see the Springfield Centre (2015) The Operational Guide for the Making Markets Work for the Poor (M4P) Approach, 2nd edition funded by SDC and DFID.

[10] These tools will also support programs seeking to comply with the fourth element of the DCED Standard, "Capturing Wider Changes in the System or Market". This element requires programs to outline what they mean by system change, and develop a pathway to show how it is expected to be achieved. For more information, see the DCED Standard, Version VIII.

3.2.3 System results chain

The system results chain provides a visual description of the plan, showing how changes in multiple supporting systems will jointly change the main system and contribute to achieving the program goal. Figure 3 shows a system results chain from the maize case.

Figure 3: System results chain from the maize case.



Read an example of a system results chain from the VET case.

A system results chain is similar to an intervention results chain, a tool that many practitioners are already using.[11] The difference is that in a system results chain, intervention areas and system changes are shown in aggregate, to get the bigger picture of the theory of change for the whole system.

At the top of a system results chain, articulate the desired cumulative impact of all the program's interventions in the system. PRISMA focuses on poverty reduction: higher incomes for farmers. The system results chain in Figure 3 also shows a key system change that is a program goal – that farmers' norms shift away from only subsistence maize farming towards commercial maize farming.

Below this, show all the key changes in the main system that are expected to lead to this impact. Use arrows to show the relationships between these key changes and the intended impact. In this case, famers are expected to earn a higher income through a combination of selling more maize and of selling better quality maize which fetches higher prices. The program expects these changes to be driven by changes in farmers' production practices (e.g. 'farmers use hybrid seeds,' 'farmers use irrigation systems…'). Another changed practice – the use of better storage – is also expected to directly improve farmers' ability to sell their maize for a better price.

[11] For guidance on intervention results chains, see Kessler, Sen and Loveridge (2017), Guidelines to the DCED Standard for Results Measurement: Articulating the Results Chain, DCED.

Below this, summarise the key change(s) expected in each supporting system the program is targeting, and use arrows to draw any links between them, as well as to show which main system changes they will contribute to. In this case, changes in farmers' production practices require a combination of changes in supporting systems, such as retailers making hybrid seeds and irrigation services accessible to farmers and providing them with better information about how to use them.

Where the program will target businesses that operate in two support systems, it makes sense to combine both supporting systems in the table and the results chain. For example, in the maize case, the program targets the provision of hybrid seeds and information about growing hybrid maize together.

At the bottom of the system results chain, outline the intervention areas that are expected to drive changes in supporting systems. The system results chain can then be cross-referenced against intervention results chains that provide further details about how program interventions will facilitate these changes.

Finally, include any feedback loops that show how the system is expected to become self-sustaining. Results chains are inevitably simplified representations of system change but can nonetheless help programs think through sustainability and scale. For example, in the maize case, as farmers become more commercial, they will have a higher capacity and more incentives to invest in irrigation, improved seeds and better maize storage. This will, in turn, enable them to further improve the quality and yield of the crop and become more profitable, which is likely to shift farmers even further towards commercial maize farming.

3.2.4 System strategy table

A system strategy table complements the system results chain by providing further details about what changes are expected to happen and how. It includes a summary of system boundaries, indicators for each expected system change, information about the starting and desired system state for each expected change, and a brief summary of the plan for the main system and each supporting system.

Figure 4 gives an illustrative example of a system strategy table format that includes all the information above in a succinct way, although alternative formats can be used.

Boundaries			
Indicators	**Starting system state**	**Plan timeframe**	**Desired system state**
Main system:			
Supporting system 1:			
Supporting system 2, *etc.*			

Figure 4: Illustrative system strategy table.

Read an example of a completed system strategy table from the maize case.

Read an example of a completed system strategy table from the VET case.

Boundaries

To start the system strategy table, summarise the boundaries chosen for the main system. Record what the main system is and how it is relevant to the target group, what geographical area has been chosen, and which supporting systems the program has decided to work in (as explained in section 3.1).

Indicators

Use the guiding questions to further articulate the expected changes and identify a manageable number of quantitative and qualitative indicators for each of the expected changes. The first four guiding questions relate to changes in *how the system works*; answers may include changes in practices, actors, access to technologies, information flows, relationships, coordination, policies or informal norms. These kinds of changes underpin changes to the *performance* (or underperformance) of the system. Performance includes the price, quality, quantity, and timeliness of the product, or service the system produces relative to the wider market, and the inclusivity of the system. It's important to include indicators about both types of changes.

Also develop indicators for aspects of the system that are deemed critical to monitor, whether they are expected to change or not. For example, indicators that will provide important background information on the system, such as the number of actors in a market, or the price of key commodities. Indicators might also cover specific areas of interest such as gender or environmental themes. Even if these are not expected to change as a result of interventions, monitoring them could provide essential information for adjusting the system strategy and for interpreting other changes

Read additional guidance on addressing a common challenge - monitoring too much.

Read an example from the maize case showing indicators related to changes in context.

Starting and desired system states

A system strategy table provides information on the starting state and desired state for each indicator. The differences between the starting and desired states are the changes that the program aims to catalyse.

Record the state of each indicator when the program began, based on information from initial diagnostics, as the 'starting state.' Then document what the state of each indicator is expected to be when the main and supporting systems are working better for the target group as the 'desired state.' The desired state is informed by the vision of the program and determined by what the program team thinks can be achieved within the timeframe of the strategy, in relation to the overall program goal. System change usually takes considerable time. Some programs outline a desired state far in the future and specify projected progress towards that desired state within the life of the program. Other programs outline a desired at the end of the program or phase. Therefore, also record the timeframe for the strategy. It is good practice – if rare – to invest in monitoring and assessment after the end of the program to see how systems continue to change and to assess the sustainability of results achieved.[12]

Record the starting and desired state both in absolute terms and relative to the boundaries of the system, by using both absolute numbers and percentages. For example, if one indicator relates to how many actors change their behaviour, the desired state should be stated both as:

- the number of actors that did change their behaviour, and
- the percentage of actors that did change their behaviour out of the total number of actors in the system that could be expected to change their behaviour in the long term.

This provides a better understanding of the significance of a change relative to the whole system.

[12] Shah and Seely (2020), How can we fix the biggest sustainability problem facing development?, Beam Exchange Blog.

Plan

The narrative plan in the system strategy table describes how the program plans to facilitate changes within supporting systems through their portfolio of interventions. It further describes how these different intervention-driven changes are expected to interact and lead to changes in the main system. Finally, it explains how system changes are expected to benefit the program's target group.

To articulate a plan, answer five key questions:

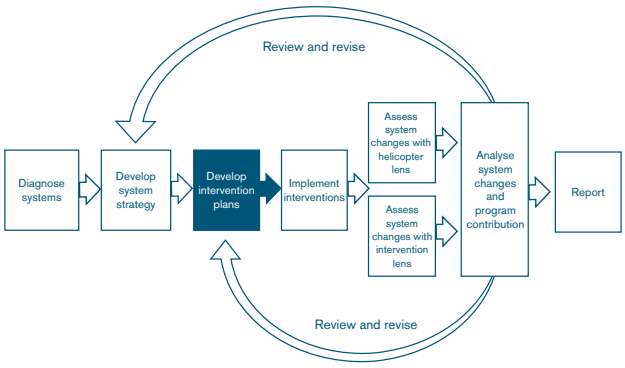
1. How are program interventions expected to catalyse changes in each supporting system?
2. How are changes in each of the supporting systems expected to influence the main system?
3. How are changes in each of the supporting systems expected to influence other supporting systems?
4. How are changes in the supporting systems expected to jointly influence the main system?
5. How are changes in the main and supporting systems expected to benefit the target group?

In the plan, explain what the program plans to do, and *how* and *why* changes are expected to occur, as well as how they might sustainably benefit the target group. These are things that aren't easily represented by the system results chain. For example, building on the program's understanding of system relationships and dynamics, document what sequence and combination of system changes in supporting systems is expected to make an important contribution to system changes in the main system.

Read examples of how changes in supporting systems might influence other supporting systems and the main system.

3.3 Intervention plans

3.3.1 What is an intervention plan?



Intervention plans outline how interventions are expected to change supporting systems. They show what is expected to change, for whom, why, and how changes are expected to spread. They also show how changes in the targeted supporting system(s) lead or contribute to changes in the main system and how they benefit the target group.

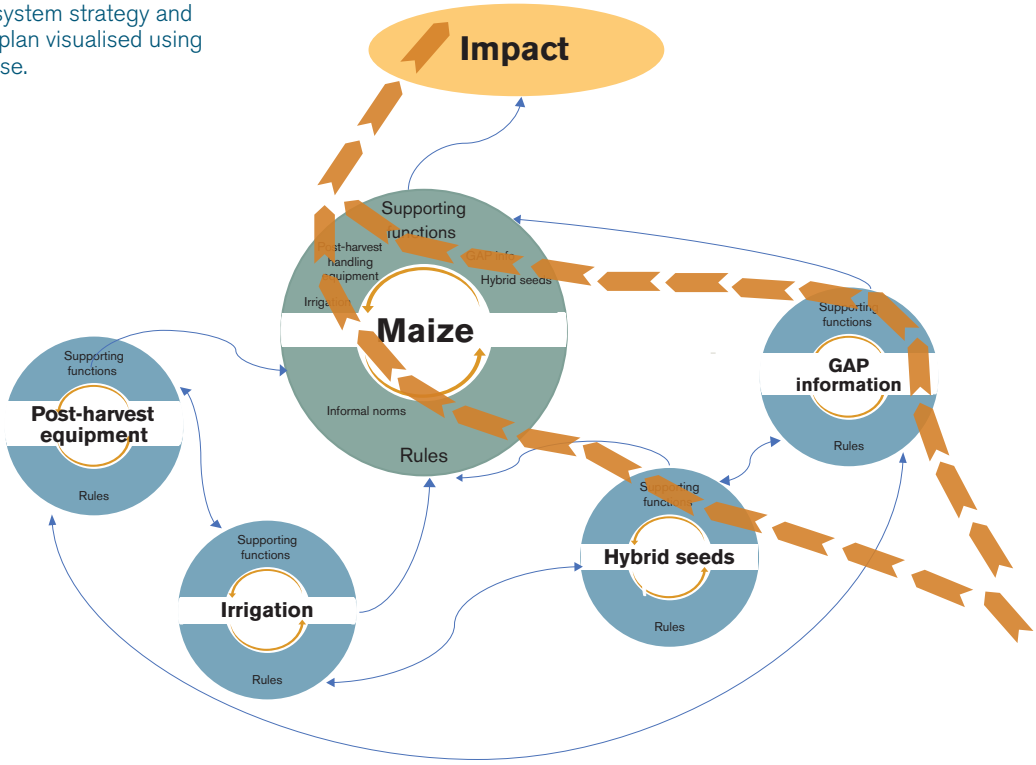
Watch this video to hear practitioners discuss intervention plans.

Each intervention plan fits within the system strategy and addresses part of the system strategy. While the system strategy provides an overview of how all changes, together, are expected to change the main system to benefit the target group, an intervention plan provides the details of how one intervention will promote specific system changes and how that will contribute to the system strategy. An intervention may contribute

to system changes outlined in the system strategy individually, or through the combined effect of multiple interventions. For example, in the maize case, one intervention plan outlines how a number of partnerships with seed companies to develop a hybrid maize seed distribution channel leads to more seed companies setting up distribution channels for hybrid maize seeds. Another intervention plan outlines how partnerships with district governments lead to improved coordination for hybrid maize seeds distribution. The combined effect of both interventions is expected to lead to a better supply of and use of hybrid maize seeds by smallholder farmers.

Using the maize case, Figure 5 shows how interventions targeting two supporting systems jointly contribute to a change in the main system, which is part of the system strategy. The supporting systems (in blue) are expected to influence the main – maize – system (in green) in order to benefit smallholder farmers (in yellow). The blue arrows visualise the linkages among the systems. An intervention plan describes one intervention, visualised by the dashed orange arrows that show working with seed companies to target two supporting systems – hybrid seeds and related information about good agricultural practices.

Figure 5: A system strategy and intervention plan visualised using the maize case.



Most programs use intervention guides to manage interventions, to plan monitoring activities and to record data.[13] Although there are multiple formats, an intervention plan typically includes:

- a plan of what the program will do, and why, usually expressed through a narrative plan and an intervention results chain;
- expected changes in the supporting system and the changes they will contribute to in the main system, usually expressed through the intervention results chain and through intervention projections; and
- qualitative and quantitative indicators, which lay the foundation for the assessment plan.[14]

As intervention guides are useful to steer the implementation and assessment of interventions, develop them just before or soon after the start of an intervention.

[13] The use of intervention plans to structure the monitoring and management of interventions is codified in the DCED Standard for Results Measurement. For an example intervention plan, see the DCED Toolkit for Implementing the DCED Standard. Note that this covers intervention management and measurement beyond system change alone.

[14] For additional guidance on projections and indicators, see Sen, Kessler and Loveridge (2018), Guidelines to the DCED Standard for Results Measurement: Defining indicators of change and other information needs, DCED.

3.3.2 How to articulate an intervention plan

This section explains how to prepare intervention plans, articulate expected system changes and define indicators to monitor and assess system changes.

Outline of what the program will do

Programs usually start interventions by partnering with system actors to influence their behaviour.[15] To increase the likelihood of system change, programs choose partners and design interventions to influence both partners and other system actors. The goal is that system actors adopt and own new behaviours at scale, that these new behaviours are sustainable, and that other changes in the system reinforce the new behaviours, making them more resilient.

To ensure that the intervention plan reflects these system change goals, design the plan to address the following questions:

- **Why would partners adopt and own the change, and how would other actors in the supporting system adopt and own the change?** What are their incentives to make, adapt and sustain the change? What are the risks and how are the actors expected to manage them? Do other actors in the system have sufficient incentives to adopt the change also? Why is this change better for them than alternatives the actors might choose?
- **How will partners be able to adopt the change, and how will other actors in the supporting system be able to adopt the change?** What information, resources and other capacities do partners need? Where will they get these from on an ongoing basis? What are the steps they will need to go through to adopt, own and sustain the change? How will other actors in the system find out about the change? How will other actors in the supporting system get what they need to adopt the change?
- **How will the behaviour changes become resilient?** What other behaviour changes in the same or other supporting systems are needed to reinforce or protect the change? How will the behaviour change continue and evolve appropriately in the face of new opportunities, disruptions or shocks?

Read an example from the maize case explaining why and how actors in the supporting system would adopt a change, and how a change can become resilient.

Expected system changes

Clearly articulating the expected system changes and the program's role in catalysing them helps programs to focus interventions on promoting system changes, not only on behaviour changes among partners.

Changes in systems, even if they are relatively small supporting systems, rarely occur as the result of one partnership. Programs that develop one intervention guide for a few similar partnerships can articulate expected system changes in that intervention guide. For programs that develop a separate intervention guide for each similar partnership, it makes sense to have a separate document – an intervention system change guide – that articulates expected system changes linked to each of the intervention guides describing the partnerships that will contribute to those system changes. This intervention system change guide can then also be used to

[15] For more guidance on facilitation, see Springfield Centre (2015) The Operational Guide for the Making Markets Work for the Poor (M4P) Approach, 2nd edition funded by SDC and DFID.

record data on system changes resulting from the combination of partnerships (see section 4). For example, if similar partnerships with two different seed companies to develop distribution systems for hybrid seeds are expected to lead together to other seed companies developing such distribution systems, the adoption of that behaviour change in the hybrid seed supporting system is the combined result of both partnerships.

Lay out the key system change(s) introduced by the intervention and the program's vision for how the targeted supporting system(s) will change as a result. Describe briefly the program's partnership tactics, why the change hasn't already emerged in the system and how the intervention addresses that. Include details on how the change being introduced by the intervention is expected to reach sustainability and scale. Integrate into the description, how the system changes are expected to incorporate related issues of importance to the program, such as gender equity or environmental stewardship.

Use the intervention results chain to show the relationship between program activities, the system changes expected among system actors, and impact on the target group. It is critical that the results chain does not focus solely on the initial intervention partner(s), but also shows how a change might spread to other actors, and how it is expected to be sustained without ongoing program input.

Figure 6 shows a simplified intervention results chain from the maize case.

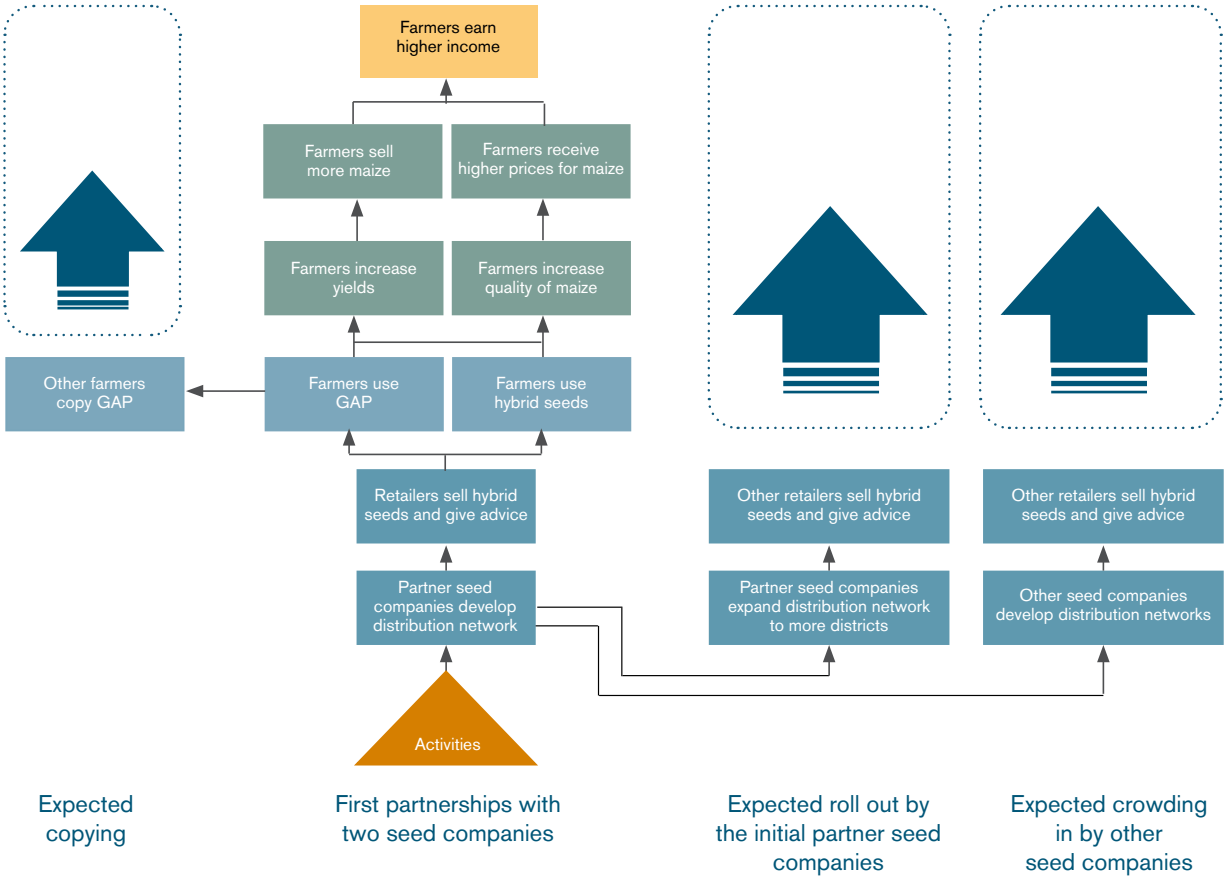


Figure 6: A simplified intervention results chain from the maize case.

Read an example results chain from the VET case.

Indicators to monitor and assess system change

Qualitative and quantitative indicators provide further detail on expected system changes and lay the foundation for assessments. Typically, programs list envisioned behaviour changes for specific system actors in the intervention results chain boxes, then map indicators to each of the boxes. There is likely to be an overlap between these indicators and some of the indicators in the system strategy table. This overlap is useful because, during analysis, it will help to evaluate the links between what happened as a result of interventions and wider changes in supporting systems and the main system.

To devise indicators that will capture system changes, make sure to include indicators for:

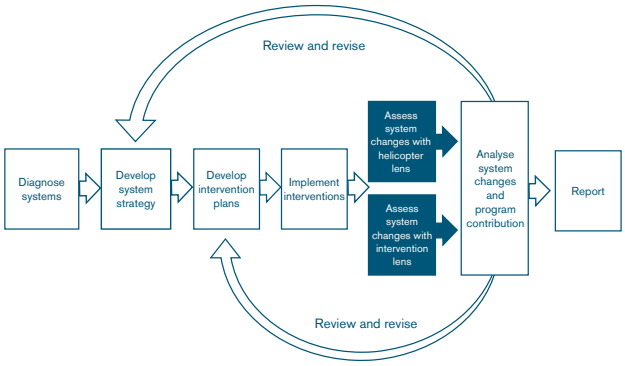
- **Ownership**, for example, benefits from new behaviours, resourcing of new behaviours, satisfaction with new behaviours, intention to continue with new behaviours, adaptation of new behaviours, independent investment in new behaviours, and changes to organizational structure and staffing to accommodate the new behaviours;
- **Scale**, for example, how many actors have changed, what proportion of relevant actors in the system have changed, to what extent have actors spread the change, and how is the change continuing to spread;
- **Resilience**, for example, further changes that reinforce and protect the key change introduced, perceptions indicating changed norms, and opinions or evidence on how actors will react to new opportunities or disruptions related to the change.[16]

Similar to developing the system strategy table, record the beginning state for the indicators (often referred to as the baseline) and project the desired state for the indicators. This provides a picture of how much the program expects the systems to change and doubles as a useful check on the logic of the intervention plan.

Read example intervention plan indicators from the maize case.

[16] Complimentary guidance is available in Nippard D. et al (2014) Adopt-Adapt-Expand-Respond: a framework for managing and measuring systemic change processes, The Springfield Centre.

4 Use complementary lenses to assess and analyse changes



This section covers how to assess system changes against the system strategy and intervention plans. It introduces two complementary lenses: an *intervention lens* to assess the adoption and spread of changes introduced by interventions, and a *helicopter lens* to assess wider changes in the main and supporting systems. Together, these two lenses enable programs to build a robust understanding of what system changes are occurring and why.

4.1 Why use two lenses?

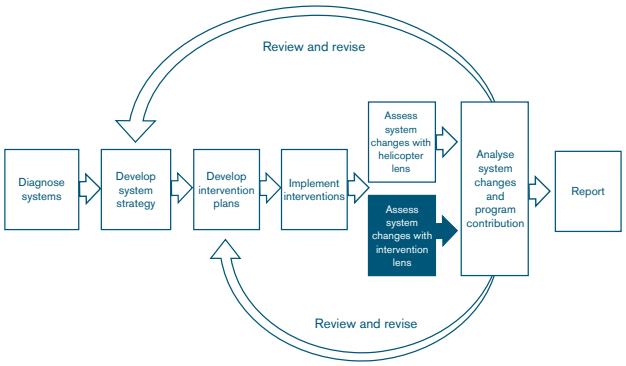
Experience has shown that different perspectives are needed when assessing system change. One perspective – the intervention lens – captures the impact of interventions by tracking how changes become embedded in a supporting system and what the result of these changes is. It illuminates if and how interventions have catalysed changes in the systems they target and the ownership, scale and resilience of these changes.

The other perspective – the helicopter lens – is needed to get a wider understanding of how systems are changing, and what is driving those changes. This perspective starts with the changes happening in the main system that the program targets. It then identifies the factors contributing to those changes. It captures changes to the system, irrespective of whether they were caused by interventions or by other factors. Once captured, it identifies the factors that contributed to these changes which may be external factors unrelated to the program, single interventions or multiple interventions working together. System changes can be unpredictable and are often caused by multiple factors combining in unexpected ways. The helicopter lens enables programs to assess what system changes are happening and what caused them, and to determine the implications for the system strategy.

If only the intervention lens is used, programs may have robust evidence about intervention impacts, but will miss the big picture of how and why the main system is or is not changing. The intervention lens is not focused on the changes happening across the main system. If only the helicopter lens is used, the program may understand the trends in the main system but will have difficulty understanding if and how the program contributed to those trends. Together, the two lenses shine a light on a program's entire system strategy, from program interventions through to system changes in both supporting systems and the main system, and any impacts these changes have had on the target group. Together, the two lenses also provide evidence on whether the program contributed to system changes and, if so, how, as well as on what other factors were critical.

4.2 Intervention lens

4.2.1 What is an intervention lens?



The intervention lens follows the spread of a specific change introduced by an intervention. It tracks how intervention partners influence other system actors, examining how far the change spreads and whether it will stick. It also follows the results chain, to assess whether the changes in the supporting system affect the main system and benefit the target group.

Use the intervention lens to answer the following questions:

- To what extent do system actors own the introduced change? Who does, or doesn't? Why?
- What is the scale of the change, relative to the whole system? Why has, or hasn't, it scaled?
- To what extent is the change resilient? How is the change reinforced by other parts of the system?
- To what extent do changes in the targeted supporting system(s) affect the main system?
- To what extent do those specific changes in the main system affect the target group?

Watch this video to hear practitioners discuss using the intervention lens.

The starting point for the intervention lens assessment is the intervention plan. Most programs use intervention guides to outline how to monitor changes and assess impact resulting from interventions.[17] Ensure that these intervention guides do not only focus on intervention partnerships, and changes that can be easily attributed to an intervention. Ensure they also focus on changes to ownership, scale, and resilience of the change in the targeted supporting system(s), especially among system actors who are not program partners. The following section explains how to design an intervention lens assessment plan that captures supporting system changes as well as results from partners.

4.2.2 How to develop an intervention lens assessment plan

An intervention lens assessment plan builds on the intervention plan (see section 3.3). It outlines how and when to get information about expected system changes.

Read an example intervention lens assessment plan from the maize case.

Read an example intervention lens assessment plan from the VET case.

[17] More guidance on how to use intervention guides as a starting point for measurement is available from the DCED. An overview is provided in the DCED Toolkit for Implementing the Standard, and specific advice on measuring changes in indicators is available in Kessler and Sen (2018), Guidelines to the DCED Standard for Results Measurement: Measuring Changes in Indicators, DCED.

An intervention lens assessment plan for getting information about expected system changes

The intervention lens assessment plan focuses on how to get information about the expected system changes outlined in the intervention plan. To start, consider *what* information you need about each change and *why*. The answers do not necessarily need to be recorded in the intervention assessment plan but considering them first helps with developing an assessment plan that is fit for purpose.

In most cases, the information needed will parallel the questions that will be addressed during analysis (see section 5):

1. Did this change happen, or is it happening?
2. What is the situation now? How much have things changed? In some cases: how quickly is the change happening?
3. Why did or didn't this change happen?
4. Are there signs that the change is becoming sustainable and resilient?

Next, develop a plan for how to get information about each of the expected changes in the intervention plan.

For each change, consider:

1. Who or what will be the source(s) of information?
2. What method(s) will be used to collect information?
3. What sampling and/or sourcing strategy will be used?
4. How frequently will information be gathered?
5. When is it most appropriate to collect information?

Although the questions might seem technical, the answers do not need to be. For example, a sampling strategy for speaking to consumers might be "walk into the market and approach people; speak to anyone who is willing." Similarly, a method might be an informal, unstructured interview with a key informant, which, phrased another way, amounts to having a chat over coffee with someone who knows about the system. On the other hand, some changes will demand more intensive research, such as surveys with a representative sample of a given population, multiple in-depth interviews or longitudinal panel studies. Think back to what information is really needed, and why, and design the assessment plan accordingly, balancing the need for rigor with practicalities and available resources.

Read additional guidance on how to get information from system actors.

Usually, the actors who have changed their behaviour are an important source of information. However, do not rely on them alone. Whenever possible, triangulate information from several sources to confirm (or refute) if and how a change happened. Sources could include other system actors as well as media reports and other secondary data. Think broadly – suppliers, buyers, service providers, consultants, researchers, other development programs, civic societies, associations, journalists, and public agencies can all be useful sources of information. Where possible, use multiple sources to triangulate between respondents and other data sources, rather than relying on just one viewpoint. Be aware of the potential limitations of each respondent's knowledge and their possible biases, rather than uncritically accepting what they say.

The assessment plan ends up listing a series of research/monitoring exercises. They are planned for different points during the year using different sources. Each research/monitoring exercise will provide information about changes in multiple indicators. When the time comes to do the planned research exercises, make a more detailed research plan before heading out to collect the information. In doing so, reflect again on what information is needed and why, ensuring that the research is designed to capture not just *what* is changing, but *why* it is changing, *how* it is changing, and *how much* it is changing.

Read additional guidance on assessing benefits for the target group.

How to capture unexpected system changes

It is difficult to predict exactly how and when a system will change, so keep eyes and ears open for signs of unexpected system changes, both in the course of assessing expected changes and in other regular activities. Remember that unexpected system changes may be positive or negative from the perspective of achieving the program's aims. A wealth of valuable information can be collected simply by team members noting down information they get by coincidence or serendipity. There are more things programs can do to make it more likely that they will capture this invaluable information.

Firstly, ensure that all implementation staff are trained to notice signs of system changes in the course of their regular activities, conversations, and media consumption. Encourage staff to integrate a few open-ended questions on system changes into their regular discussions with system actors.

For example, questions relating to the hybrid maize seeds supporting system might include:

- Have you seen any changes to the way seed companies are operating in the last year? If so, what changes? Why do you think they are happening?
- Have you seen any changes in small farmers' attitudes towards maize seeds in the last year? If so, what changes? Why do you think they are happening?

Secondly, set up a way for staff to record any information they get quickly and easily. This might be a section in the intervention guide, or an online log that team members can update. It is also useful to include signs of system change as a standing agenda item in every intervention review meeting. During the meetings, encourage staff to reflect and verbally report any signs of system change they might have noticed and record the points in brief meeting minutes.

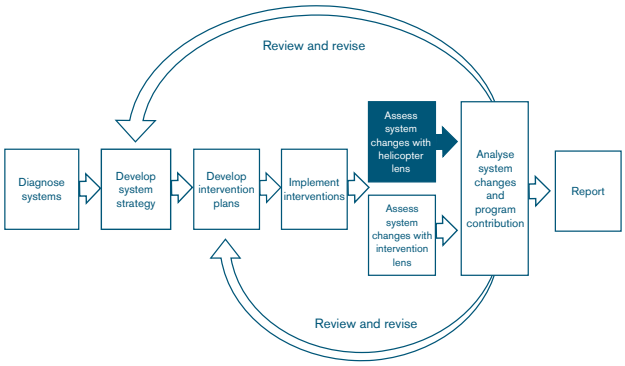
Thirdly, plan to have regular conversations with a diverse range of knowledgeable informants using open-ended questions to uncover signs of unexpected system changes in the targeted supporting system. List these conversations as part of the intervention lens assessment plan. The key informants can change over time as the program discovers who is willing and able to give them the most insightful and reliable information. Some programs hire journalists or market actors to do this data collection, utilising their networks and connections.

Fourthly, allocate monitoring and research resources to follow up and validate initial information on unexpected system changes. The approaches above typically yield anecdotal signs of system changes. It will take a follow up investigation to find out whether the information is accurate, how widespread changes are, how they came about, and why they happened. Wherever possible, integrate this information gathering with other planned monitoring activities, but recognise that some time and money is likely to be needed to follow leads.

There are multiple ways of formulating an intervention lens assessment plan. Thinking through what to find out, and how, is most important. How to translate this thinking into a written format is less important. There are different options shown in the maize and VET cases. Whatever format is used, it's important to take time to think about *what* information is needed and *how* to get it, and then turn this into a written intervention lens assessment plan.

4.3 Helicopter lens

4.3.1 What is a helicopter lens?



The helicopter lens is focused on big picture changes. It looks at what is changing in the main system and the supporting systems that the program is targeting. It is not tied to program interventions, so it captures changes that are happening for a variety of reasons, including changes caused by external factors and changes caused by expected and unexpected effects of single or multiple interventions.

Use the helicopter lens to answer the following questions:

- What changes are happening in the main and supporting systems?
- What is driving these changes?
- How, if at all, do these changes relate to or reinforce each other?
- Has the performance of the main system or targeted supporting systems changed?

The starting point for assessing system changes using the helicopter lens is the system strategy, which lays out the expected changes in the system. However, as with the intervention lens, it is also important to keep an eye open for unexpected changes. Too narrow a focus may lead to missing crucial information; too broad a view may be resource-intensive without adding value.

Watch this video to hear practitioners discuss using the helicopter lens.

Read guidance on keeping helicopter lens assessment plans realistic and practical.

4.3.2 How to develop a helicopter lens assessment plan

It's important to have a plan to assess the big picture changes outlined in the system strategy. These changes are not necessarily tied directly to any one intervention. Therefore, without a concrete plan, it is easy for them to get missed in regular monitoring activities, losing opportunities to improve strategies, and communicate achievements to stakeholders.

Like an intervention lens assessment plan, the focus of a helicopter lens assessment plan is on monitoring and assessing the expected changes outlined in the system strategy but needs to capture unexpected changes too.

Read an example helicopter lens assessment plan from the maize case.

Read an example helicopter lens assessment plan from the VET case.

A plan for getting information about expected system changes

Like the intervention lens assessment plan, the helicopter lens assessment plan outlines what information is needed and how it will be collected. Programs often find the prospect of monitoring and assessing the system changes described in the system strategy overwhelming. The system strategy begins to address this difficulty by clearly articulating what specific changes the program hopes to see, devising indicators that would suggest those changes are happening, and being explicit about how much each of those indicators might realistically be expected to change.

The helicopter lens assessment plan builds on the system strategy by revisiting the question, "What do we need to know?"

As with the intervention lens assessment plan, the information needed about each of the expected changes in the system strategy will parallel the four questions that will be addressed during analysis (see section 5):

1. Did the expected changes listed in the system strategy happen, or are they happening?
2. What is the system state now? How much have things changed? How quickly are changes happening?
3. Why did or didn't the expected changes happen? What are the drivers of change?
4. Are there signs that the changes that have happened are becoming sustainable and resilient?

The questions can be addressed in a different order. Sometimes, with the helicopter lens, it's easier to describe the current state and compare that to the starting state (Q2), and then assess whether a change has happened or is happening (Q1) and why (Q3). Sometimes it's easier to identify initial signs of change (Q1), and then work out how much things have changed by assessing the current state of the system and comparing it to the starting state (Q2). Use the order that works best for your program team.

Once it's clear what the program needs to know, the process for building an assessment plan mirrors that of the intervention lens assessment plan.

For each of the things the program needs to know, think about how to get that information by answering the following questions:

- **What do we aim to assess?** What are the indicators of each change? It's important not to get overly focused on listing numerous indicators. Instead treat indicators as signs of the overall change you are trying to assess. Indicators will be listed in the system strategy but may need to be adapted or revised. If so, remember to revise them in the system strategy as well as in the assessment plan.
- **Who (or what) has information about this?** Zoom out and think beyond partners. Remember the approach you took during diagnosis – who did you approach and why? Who might have a perspective different to those of your partners? Do you need to talk to your partners too? What other sources could you draw on to triangulate? It can be useful to use observations and secondary data to get information, as well as talking to people.
- **What type of information do we need?** Are you looking for people's opinions, for narratives, for representative quantitative data, for quick-and-dirty observations, for a combination, or for something else altogether? The indicators in the system strategy will help determine what kind of information is needed.
- **How could we collect this information?** Think about what research methods would be most appropriate. What level of rigour do you need? Do you need to triangulate by using multiple methods? If relevant, include any notes on what sampling and/or sourcing strategy might be needed.
- **When and how often will we collect this information?** Some data is time sensitive, and some indicators relate to data that program stakeholders want to track and so need to be assessed more regularly. Other information may be needed less regularly.

This thinking process can be done in any format. A useful approach is to work through a table like that shown in Figure 7. However, remember that the format for documenting the thinking process is less important than ensuring that a thorough and practical thinking process takes place. After thinking through how to assess each system change, it's easier to make a practical assessment plan to guide information collection, and to integrate information gathering into the regular monitoring activities for interventions.

1. What do we need to know? (e.g. expected changes, current system state, reasons for change, signs of resilience etc.)				
What do we aim to assess? (e.g. indicators/signs of system changes)	**Who (or what) has information about this?**	**What type of information do we need?**	**How could we collect this information?**	**When and how often will we collect this information?**
2. What do we need to know? (e.g. expected changes, current system state, reasons for change, signs of resilience etc.)				
Etc.				

Figure 7: Format for developing a helicopter lens assessment plan.

When developing the helicopter lens assessment plan, programs have to decide how rigorous to be. As with the intervention lens assessment plan, the degree of rigour will be shaped by *why* the program needs to know the information, and how easy or difficult it is to gather that information. The degree of rigour doesn't need to be the same for each indicator; adjust the rigour based on the importance of the system change, the challenges in information collection and the available resources. In order to analyse system changes, it's better to have some relevant information on all indicators than to have very robust information on a few indicators only. At a minimum, obtain regular information from a range of stakeholders and secondary sources (when relevant), and look beyond the most obvious actors, especially partners.

Secondary data, including news stories, reports produced by the government or other programs, and surveys conducted by other organisations can be useful and relatively impartial sources of information. They are often easier and quicker to obtain than primary data, so are a good starting point.

Interviews with respondents can provide more specific information than secondary sources and allow for probing into the reasons for change. Perceptions of respondents are important, but potentially biased; so triangulate between different sources to understand the changes.

Large quantitative surveys can play a role in helicopter lens assessments too but are likely to be expensive and time-consuming. Prioritise getting rapid, regular feedback from secondary sources and interviews with system actors; then commission large-scale surveys only where needed.

Read additional guidance showing different options for helicopter lens assessment methods.

How to capture unexpected system changes

It's critical that the helicopter lens assessment plan enables capturing and recording information about unexpected changes. Indeed, capturing unexpected changes is central to the helicopter lens.

The information needed about unexpected system changes is the same as that needed about expected system changes:

1. Did any unexpected changes happen? What were they?
2. What is the system state now? How much have things changed?
3. Why did changes happen? What were the drivers of change?
4. Are there signs that the changes that happened are (becoming) sustainable and resilient?

Remember, however, that the unexpected system changes identified may be supporting or constraining the achievement of the program's aims. While the information needed on these types of system changes is the same, the implications for the program will be very different.

Use the same four approaches to getting information on unexpected changes outlined in section 4.2 but apply them with a few adaptations as highlighted below.

Firstly, train staff to notice signs of system changes in the course of their regular activities, conversations, and media consumption. It's important all staff members, not only monitoring and results measurement staff, understand what kind of changes to look out for. Encourage implementation staff to integrate a few open-ended questions on system changes into their regular interactions with system actors and other contacts in the main and supporting systems.

For example, questions on the maize system could include:

- Have you seen any changes in the maize system over the last few years? If so, what changes? Why do you think they are happening?
- Are there any significant new actors in the maize system? Have any of the big actors changed how they are working? Why?
- Have you seen any changes in small farmers' attitudes towards maize in the last couple of years? If so what changes? Why do you think they are happening?
- What else is going on in maize that's new? Why?

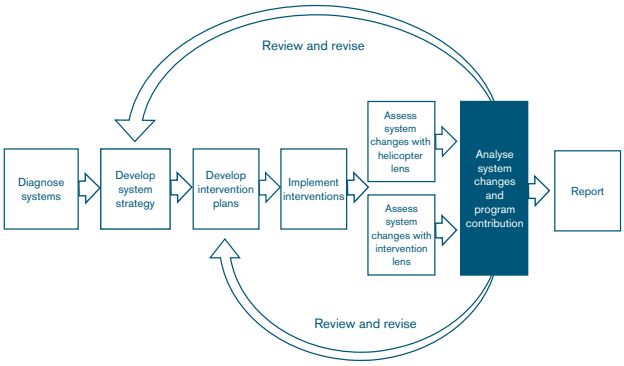
Secondly, set up a way for staff to record any information they get quickly and easily. This could be the same log as the one used to record ad hoc observations of system change from the intervention lens assessment plans. Use a format that makes it easy to record, collate and analyse information. Ensure that review team meetings regularly address the question of whether anyone has noticed signs of system change, particularly in the main system.

Thirdly, plan to have regular conversations with a diverse range of knowledgeable informants using open-ended questions to uncover signs of unexpected system changes in the main system, as well as in targeted supporting system. List these conversations in the helicopter lens assessment plan. The informants may be the same individuals as those from the intervention lens assessment plan, or different ones, depending on their expertise.

Fourthly, plan and allocate monitoring and research resources to follow up and validate initial information on unexpected system changes. This is particularly important for the helicopter lens assessment plan. When using the helicopter lens to assess changes in the main and supporting systems, there is less of a clear delineation between expected and unexpected changes. It is difficult to predict how the main system will change given the numerous factors at play. It's likely that further research will be needed to investigate initial signs of system change. In practice, assessing changes through the helicopter lens is often iterative. The key is to keep an open mind, and review and revise regularly.

Read a fictitious example of unexpected change from the maize case.

5 Analyse, interpret and assess contribution



This section explains how to draw on the information collected through both lenses to analyse and interpret findings about the main and supporting systems and to assess if and how the program has contributed to changes in the systems.

The helicopter lens enables programs to assess system changes by comparing the current state with the starting state of the main and supporting systems reflected in the system strategy. The intervention lens enables programs to assess the scale, sustainability, and impact of the changes introduced by program interventions. It focuses on system changes in the supporting system(s) and how these changes influence other supporting systems and the main system (see Figure 8). The two lenses are complementary, and the data collected through each lens are most useful when interpreted in light of findings from the other.

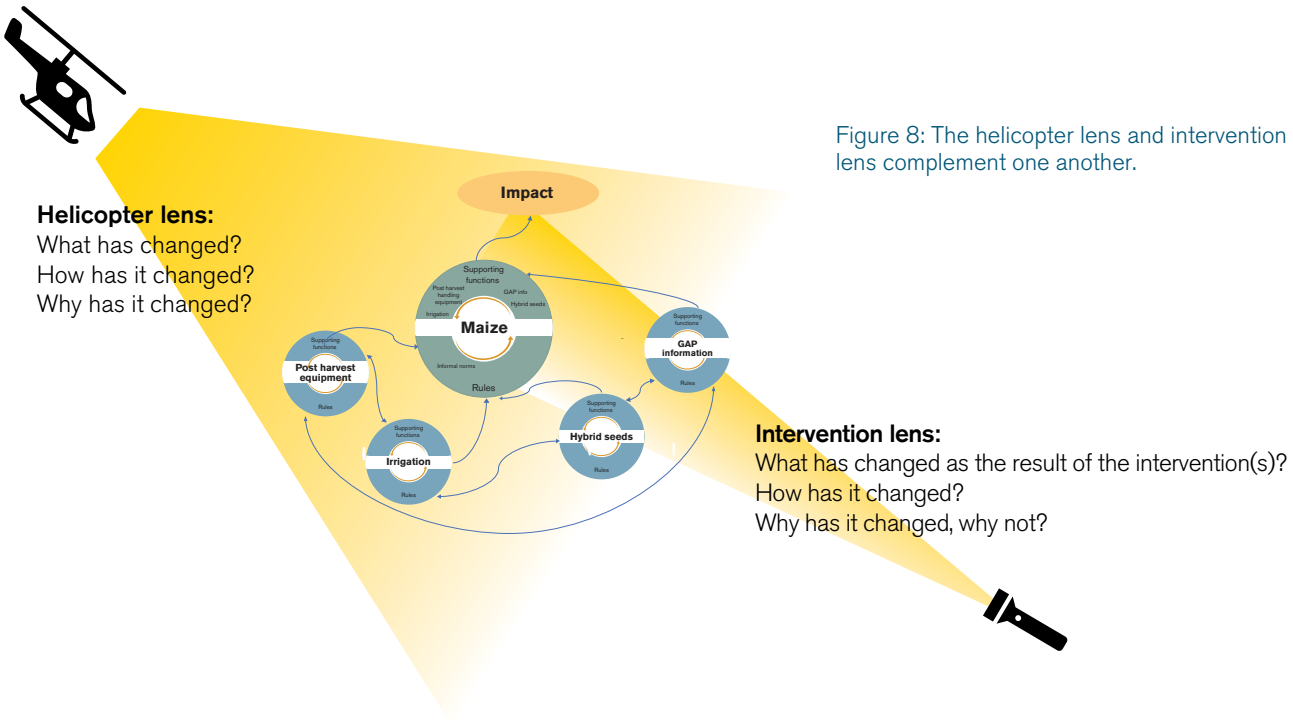


Figure 8: The helicopter lens and intervention lens complement one another.

Watch this video to hear practitioners provide tips on assessments.

5.1 Analysing and interpreting system change data

Analyse the information about the system changes by answering the same key questions (also stated in sections 4.2 and 4.3) for each targeted supporting system and the main system.

1. a) Did the expected changes listed in the system strategy happen, or are they happening?
   b) Did any unexpected changes happen? What were they?
2. What is the system state now? How much have things changed?
3. Why did or didn't changes happen? What were the drivers of change?
4. Are there signs that the changes are becoming sustainable and resilient?

The process of analysis for answering each of these questions is the same.

Firstly, assemble all the information that could help to answer the questions in one place. This information could come from a number of sources, including monitoring and results measurement data, anecdotes staff have recorded about system changes, and specific pieces of research. It's likely that information about system changes in the main system will mostly come from helicopter lens assessments whereas information about changes in supporting systems will come from both helicopter and intervention lens assessments.

Secondly, organise the information according to the changes listed in the system strategy table and system results chain. In the process of organising, information will also emerge on changes that are not listed in the system strategy, such as unexpected changes in the main system or changes in other supporting systems. If they are relevant, add these changes too. To organise information into these categories, the program might 'code' data, write notes into a table, or conduct an analysis workshop.

Thirdly, evaluate the available information according to whether it is rigorous enough for the program's needs. This involves critically considering how much information there is to answer each question for each change, who the sources are and what their biases might be, whether information is out-of-date or incomplete, and whether different sources confirm or contradict each other. Sometimes the conclusion might be that there is not enough evidence, and further investigation is needed.

Fourthly, draw a conclusion to each question and for each change on the basis of the available evidence. It's rare that such a conclusion is indisputable. More commonly, there is enough evidence to draw tentative conclusions on the basis of thoughtful interpretation in an atmosphere of robust debate. In such cases, record your conclusions and the reasons for them, and be willing to change them if new information emerges that undermines their validity.

Finally, work out what the findings mean for the program. This is explained in section 6.

5.2 Assessing contribution for system changes

It is essential to understand if and how the program has contributed to the system changes in supporting systems and how these have catalysed system changes in the main system. Programs are never solely responsible for system changes, and it is often impossible to quantitatively separate the role of the program from the roles of system actors. Findings from both the intervention lens assessments and the helicopter lens assessment can inform a useful and credible contribution analysis. This type of analysis helps programs to understand the extent to which they are influencing the systems they work in. This understanding is critical for both strategic decision-making and reporting. This section provides more detailed guidance on assessing contribution.

5.2.1 Assessing a program's contribution to system changes in supporting systems

Assess the program's contribution to system changes in supporting systems by collecting evidence on the reasons for identified changes and comparing those reasons to the program's interventions to see whether any links can be identified, avoiding unrealistic or overstated claims. Assessing contribution is often easier when looking at system changes in supporting systems than at system changes in the main system. This is because changes are more closely linked to program interventions. They also relate to a smaller and more clearly defined group of stakeholders. Most of the information will come from intervention lens assessments, but information gathered through the helicopter lens may also be useful.

To analyse information on a program's contribution to change:

- **Consider respondents' opinions on why change happened.** Although people's perceptions of the reasons for change are typically not fully accurate, it is still worth asking for opinions, and triangulating responses from different system actors. Ask actors who know about changes, as well as actors who changed. Respondent opinion is important though it needs to be supplemented by other sources of evidence.

- **Investigate how information travelled.** If the program contributed to system actors' behaviour changes, there was likely a mechanism through which information travelled from the program and/or its partners to those actors. Gather information about how actors got the necessary knowledge. For example, how did business(es) that the program didn't directly influence find out about the new behaviour?

- **Compare the nature of system changes to the initial behavioural change.** If it appears that other businesses copied program partners, what are the similarities and differences between the new behaviours of program partners and of other businesses? Are they similar enough that it is likely that the partners' behaviour changes contributed to the other businesses' new behaviours?

- **Observe other changes to incentives and capacities.** Can actors' behaviour changes be explained by changes to their incentives, or capacity? If so, what changed? Where did they get any resources needed to make the change? Are there observable links between changes to system actors' incentives and capacities and program activities?

- **Look for alternative causes of the changes observed.** There are many reasons why system actors might have changed their behaviours, for example, influence of government or civil society organizations, innovations from the private sector, changes in the business environment, other donors' activities, or even the weather. Purposefully look for other reasons for change besides the program and the influence of program partners, and make sure to phrase investigative questions in an open-ended way (e.g. 'What influenced this change?' not 'Did the program influence this change?').

- **Sense-checking by looking at the chronology of changes.** An effect always follows a cause. Did new actors' behaviour changes follow the behaviour changes of actors the program influenced directly?

Read an example from the maize case of how staff assessed the reasons for a change in behaviour of one actor in a targeted supporting system.

5.2.2 Assessing a program's contribution to system changes in the main system

Assess the program's contribution to changes in the main system by collecting evidence on the reasons for identified changes. Compare those reasons to system changes in targeted supporting systems to which the program's interventions have contributed. Consider whether any links between the two can be identified. As with the analysis of supporting systems, avoid unrealistic or overstated claims. While changes in supporting systems tend to be more closely tied to specific interventions, changes in the main system are more likely to have been affected by external factors and by multiple interventions. Consequently, assessing a program's contribution to these changes presents more challenges and involves using and combining information from both the helicopter and the intervention lens assessments.

Firstly, collect evidence on the reasons for an identified change as explained in section 5.1. In doing so, pay equal attention to the factors that the program likely did not contribute to as to those that it did, including factors that are in supporting or other systems outside the program's boundaries. For example, substantial changes in the maize system in Madura might have occurred because of changes in the transport system, even though the program did not target the transport supporting system.

Secondly, gather information not only on what the causes of a change were, but the relative importance of those causes too. One way to do this is to ask respondents to rank the causes they name in order of importance or to explain what they think are the most important causes of a change and why. It is rarely possible to quantify different factors' relative contributions to change, but it is possible to gain an understanding of how important different causes are relative to one another. Often, system changes only happen as a result of a number of factors that together create the drive for system change.

Thirdly, see whether any of the reasons for a system change are linked to system changes in the targeted supporting systems. For example, if one of the reasons for changing norms among maize farmers is greater access to information about agricultural practices, has 'greater access to information' been identified as a change connected to any of the program's interventions? If so, was an analysis done of the program's contribution to that change, and if so, what was the outcome?

The rationale here is to assess if there is or isn't a plausible pathway linking changes in the main system to program activities, supported with sufficient evidence for each link. Combining information from both lenses enables this. The intervention lens shows if and how program activities led to a system change in a supporting system. The helicopter lens shows if the change in the supporting system was one of several factors that caused a change in the main system.

Generally, changes identified in the main system will have multiple causes, so it is important to explicitly consider the multiple interrelated factors that might have contributed to changes and their relative significance, as well as looking for links to program interventions.

> For example, maize production may have increased this season because farmers had better access to hybrid seeds, which was demonstrably caused by program interventions. How important was that cause relative to the influence of a change in import regulations that increased the demand from the poultry sector? Would farmers have produced more maize without the use of hybrid seeds? Would farmers have produced more maize had the demand not increased? There are no simple answers here but ask critical questions to help build a credible story. Look at the chronology of changes to provide a useful sense check too.

In practice, pinpointing why changes happened and the relative significance of different causes is not an exact science. Talk to people who have an overview of the system (such as members of an association, university or government agency) as well as to those directly affected by changes to build an evidence base for links between changes. Compare their answers and draw on staff members' own analyses to come to a nuanced understanding of why change happened.

Finally, accept that it is unlikely that program interventions are the sole factors in achieving system changes in the main system. There are multiple factors and multiple layers between interventions and system changes. To work out if, how, and how much a program contributed to a change, create a culture of honest enquiry, stimulate rigorous analysis, and encourage robust debate. The program may have made a critical contribution to some system changes. The contribution to other system changes may be more limited. Focus on building an understanding of contribution that is sufficiently robust to inform ongoing strategy decisions as well as being credible to external stakeholders, rather than trying to quantify or overstate the program's contribution.

Read an example of assessing contribution for a main system change in the maize case.

Read an example of assessing contribution for a main system change in the VET case.

Read additional guidance on how to avoid unrealistic claims of contribution.

6 Review and revise

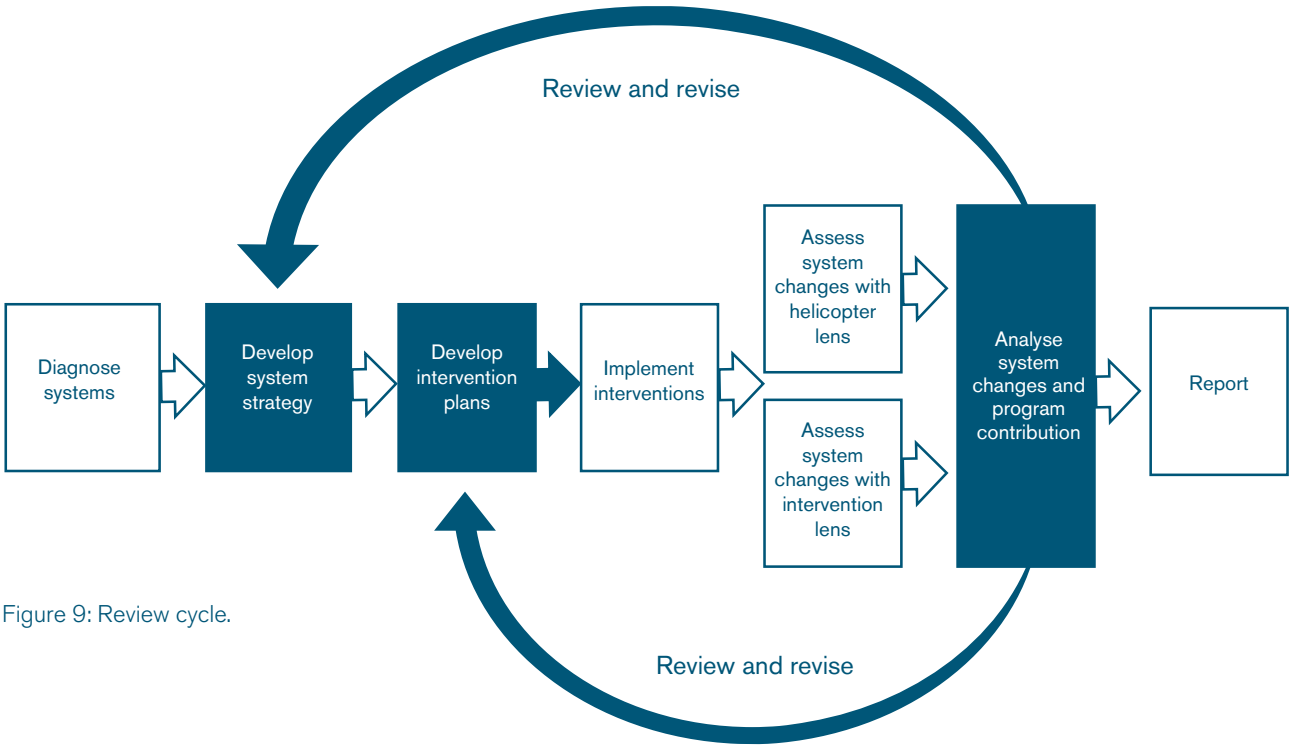


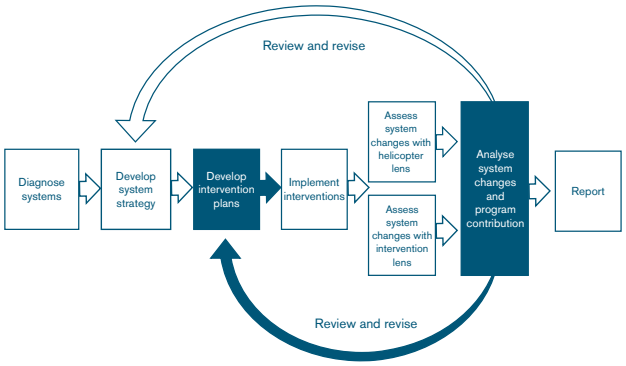
Figure 9: Review cycle.

In dynamic systems, it's critical that intervention plans, system strategies and boundaries are reviewed and revised regularly. They provide the foundation for assessing system changes, and the analysis of the assessment findings, in turn, inform the revision of strategies and plans. This cycle creates an iterative process of learning and adaptive management. This section discusses how to review and revise intervention plans, system strategies and system boundaries.[18]

Watch this video to hear practitioners discuss reviewing and revising strategies and plans.

[18] The DCED Standard provides a framework through which information can be brought into management decision making. For more information, see the guidance on the website or specific case studies on adaptive management.

6.1 Intervention plans



Review intervention plans regularly to assess progress and learn what is working and what is not. As part of the review, analyse if and how system changes are happening and use the findings to adjust the intervention plans.

The review process

Develop a review process and a review schedule early in the program. The frequency depends on business cycles and dynamics of the systems; programs typically review interventions two to four times per year. Cover operational issues as frequently as needed but reserve one or two meetings each year to explicitly focus on discussing system changes.

The key input to the intervention plan review meeting is an analysis of the changes in the supporting system using all relevant information that has been gathered since the last review. This includes the findings from monitoring activities, impact assessments, case studies and information from secondary sources. The information may have been gathered as part of the assessments using the intervention lens for the supporting system or gathered as part of the assessment of the main system using the helicopter lens.

Ensure that participants are informed and familiar with the analysis before the meeting starts. Establish a meeting structure and atmosphere that enables participants to have open discussions on 'what works and what doesn't,' based on evidence.

Use these key questions to structure the review of an intervention plan:

1. **a) Did the expected changes listed in the intervention plan happen, or are they happening?**
   - What is the evidence of system changes in the targeted supporting system(s) since the last review?
   - To what extent is the plan for catalysing change in the supporting system(s) working?
   - Are system changes happening in the main system? Why or why not?
   - Is the target group benefiting? Why or why not?
   - What are the implications of expected changes for the intervention plan?

   b) Did any unexpected changes happen?
   - What were the changes? Where did they occur: inside the supporting system(s), in other supporting systems, or outside the boundaries of the main system?
   - How are unexpected system changes affecting the supporting and main systems? Are they impacting the target group? Are they inhibiting or supporting progress towards the desired state?
   - What are implications of unexpected changes for the intervention plan?

2. **What is the supporting system state now?**
    - How much have things changed?
    - How, how many, and which system actors have changed and not changed their behaviours? Why? How much of the system does the change represent?
    - To what extent do system actors own the new behaviours? Why?
    - Is progress appropriate given the time that has passed? Why or why not?
3. **Why did or didn't changes happen?**
    - Why did or didn't expected changes happen? How are they happening?
    - Why did unexpected changes happen? How are they happening?
    - What were/are the drivers of change?
    - Were the initial analysis and assumptions about the targeted supporting system(s) correct? What was correct and what wasn't? Why?
    - What are the implications for the intervention plan?
4. **Are there signs that the changes are becoming sustainable and resilient?**
    - How resilient are new behaviours likely to be? Why?
    - What is missing? Why?
    - What might reinforce the changes? How?

Use the answers to the above review questions to revise the intervention plan. Revisions can be categorised as:

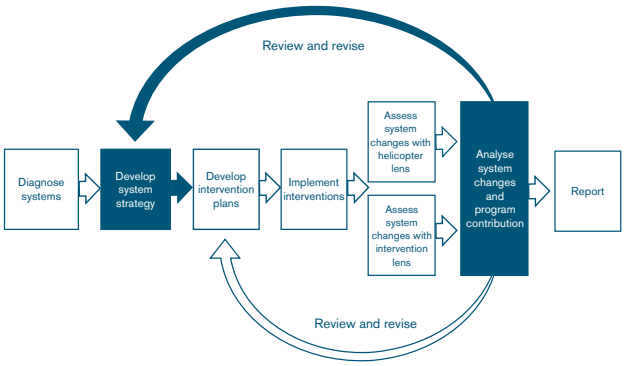
1. The intervention plan is still relevant to achieving the specific expectations for system change; it is effective in creating ownership, scale and resilience. Continue the intervention with no or minor changes.
2. The intervention plan is still relevant to achieving the specific expectations for system change but it does require major changes to be effective in creating ownership, scale and resilience. Continue the intervention but with major changes.
3. The intervention plan is still relevant to achieving the specific expectations for system change but there is a need for additional activities to reinforce system ownership, scale, and resilience. Continue the intervention and develop additional, complimentary intervention(s).
4. The intervention plan is no longer relevant or not effective for achieving the specific expectations for system change, or the system change is no longer relevant to the program goal. Discontinue the intervention.

Revise each intervention plan discussed soon after the meeting. Ensure the revisions are reflected in the intervention results chain, the intervention plan, the list of indicators, and the desired state. Note the reasons for the changes in the intervention guide.

Read an example of revising an intervention plan from the maize case.

Read an example of revising an intervention plan from the VET case.

6.2 System strategy and boundaries



Reviewing the system strategy involves comparing the changes that are happening to the expectations for system change outlined in the strategy. Review the system strategy regularly; most programs review strategies once per year. Compare the current system state to the starting state and the desired state. Reflect on the reasons for change or lack of change. Consider the implications for the system strategy going forward, including reviewing the system boundary.

The key input to the system strategy review meeting is an analysis of the changes in the main system using relevant information that has been gathered since the last review through helicopter lens and intervention lens assessments.

Ensure that participants are informed and familiar with the analysis before the meeting starts. Establish a meeting structure and atmosphere that enables participants to have open discussions on 'what works and what doesn't,' based on evidence. Stay focused on the big picture of how to achieve system changes in the main system through key changes in supporting systems, rules, and norms. Review if there is a need or an opportunity to revise the system boundaries by including or excluding essential supporting systems or changing geographical areas.

Use these key questions to structure the review of the system strategy:[19]

1. **What is the system state now?**
   - How much have things changed?
   - Where are the main differences between the current state, and the starting and desired states in the main system?
   - Where are the main differences between the current state, and the starting and desired states in targeted supporting systems?
   - Is progress appropriate given the time that has passed? Why or why not?

2. **a) Did the expected changes listed in the strategy happen, or are they happening?**
   - What is the evidence of system changes since the last review?
   - To what extent are changes in each targeted supporting systems happening or not? How is this affecting the overall strategy?
   - To what extent are system changes happening in the main system?
   - How, how many, and which system actors have changed and not changed their behaviours? Why? How much of the system does the change represent?
   - To what extent do system actors own the new behaviours? Why?
   - To what extent is the target group benefiting?
   - What are the implications for the system strategy?

[19] Note that the order of questions 1 and 2 is reversed here – system strategy – as this reflects the order often followed in review meetings. The order of the questions doesn't matter (see section 4.3).

b) Did any unexpected changes happen, or are they happening?

- What were the changes? Where did they occur: inside the system boundaries or outside the system boundaries?
- How are unexpected system changes affecting the targeted supporting and main systems?
- Are they impacting the target group?
- Are they inhibiting or supporting progress towards the desired state?
- What are implications for the system strategy?

3. Why did or didn't changes happen?

- Why did or didn't expected changes happen? How are they happening?
- Why did unexpected changes happen? How are they happening?
- What were/are the drivers of change?
- Were the initial analysis and assumptions about the main and targeted supporting system(s) correct? What was correct and what wasn't? Why?
- To what extent is the plan for catalysing changes in the main system through specific changes in supporting systems working as a whole? Are changes happening and working together as expected? Why or why not?
- To what extent is the plan for benefiting the target group working? Why or why not?
- How are other factors supporting or inhibiting progress towards the desired state?
- What are implications for the system strategy?

4. Are there signs that the changes are sustainable and resilient?

- How resilient are new behaviours likely to be? Why?
- What is missing? Why?
- What might reinforce the changes? How?

Use the answers to the above review questions to revise the system strategy. Revisions can be categorised as:

1. The system strategy is still relevant to achieving the expected system changes and program goal; it is effective in catalysing the desired changes in the main and targeted supporting system. Continue with the strategy with no or minor changes.

2. The system strategy is still relevant to achieving the expected system changes and program goal but it requires major changes, including changes to the system boundaries, to be effective in catalysing the desired changes in the main and targeted supporting systems. Continue with the strategy but with major changes.

3. The system strategy is no longer relevant or not effective for achieving the expected system changes and program goal in catalysing the desired changes in the main and targeted supporting systems. Discontinue the strategy, offering opportunities to use resources to create system change in other systems; search for alternative systems that are relevant to the program goal.

Revise the system strategy soon after the meeting. Ensure the revisions are reflected in the system results chain and strategy table. Note the reasons for the revisions in the system strategy as well. The system strategy table can be expanded to succinctly record findings and reasons for revisions. To do this, simply add columns to the table to record information about the current system state. Add a row to document the reasons for change (or lack of change) and add additional rows to the table to include any unexpected changes at the bottom of the relevant section. An example of the table format is shown in Figure 10. As the program progresses, additional columns and rows can be added to the table for each review, enabling the program to track changes over time. The more the program learns about the system, the more comprehensive and informative the table becomes.

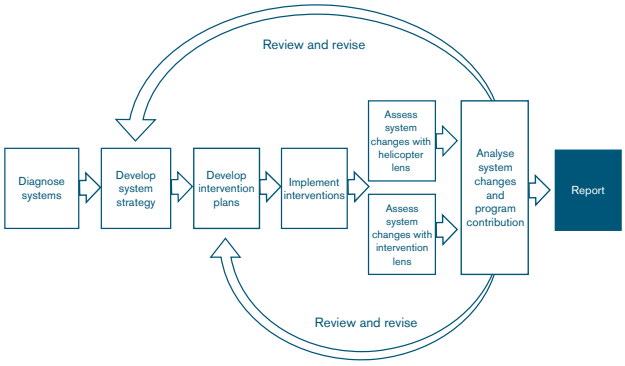
Boundaries				
Indicators	**Starting system state**	**Current system state**	**(Revised) Plan**	**Desired system state**
Changes and reasons for key changes:				
Supporting system 1:				
Changes and reasons for key changes:				
Supporting system 2, *etc.*				

Figure 10: System strategy table with current status, revised plans and reasons for changes.

Read an example of revising a system strategy from the maize case.

Read an example of revising a system strategy from the VET case.

7 Report transparently



This section describes how to report on system change to program stakeholders. It covers describing what system changes are happening and why, and explaining how the program is responding to those changes. When reporting on system change, it's important to draw on both lenses, using a mix of qualitative and quantitative indicators, and differentiating between empirical evidence and interpretation.

When findings indicate that the program has contributed to system changes, stakeholders want to understand how the changes occurred and how the program has contributed to them.[20]

Watch this video to hear practitioners discuss reporting system changes.

7.1 What should be in the report

Irrespective of the targeted audience and the reporting format, a report has to provide the answers to four main questions.

1. What system changes have happened?

Use the strategy table and results chain to structure a description of the changes in the main and supporting systems.

Provide the starting, current, and desired states for all qualitative and quantitative indicators in the system strategy table to create a detailed overview of all system changes during the program implementation period. Describe the importance of the changes in each supporting system and how these changes in supporting systems interact. Describe if and how these changes are leading to performance changes in the main system and how these changes have benefited or are expected to benefit the target group. Start and focus on the key changes in the main system. Then, elaborate more on the changes in the supporting systems, using both qualitative and quantitative indicators. Summarise key changes in a table (See Figure 11) or narrative in the main text, and add more detailed tables and descriptions in annexes, possibly structured around supporting systems.

In the maize case, such a description would summarise key performance changes in terms of volumes and quality of maize, changes in the distribution network, and the perceptions of farmers. It would further describe how the improved supply of hybrid seeds leads to higher productivity and production, creating a base for investments into post-harvest equipment.

[20] For further guidance on reporting, see Kessler, Sen and Loveridge, (2017), Guidelines to the DCED Standard for Results Measurement: Reporting Costs and Results, DCED.

Main system:			
Indicators	**Starting system state**	**Current system state**	**Desired system state**
Supporting system 1:			
Supporting system 2, *etc.*			

Figure 11: Using elements of the system strategy table to summarise system changes.

2. Why have system changes happened?

The description of the changes above is factual; the analysis of why the changes have occurred is an interpretation of the evidence. Describe which changes were expected and reflected in the strategy. Explain the analysis of the reasons for those changes and the evidence to support it. Also describe which changes occurred that were not expected in the main or supporting systems and changes that occurred in supporting systems or geographical areas outside the system boundaries. Explain the analysis of why they happened and the evidence to support it. Highlight the impact these changes had on the strategy.

For the maize case, for example, the program might explain that a global price increase for maize increased demand from the poultry sector for cheaper, locally produced maize and resulted in a higher local maize price. It might also describe that in the transport system, outside the program's system boundaries, prices decreased due to rapid investments and improvements in the roads infrastructure, leading to lower costs for input suppliers and better input prices for maize farmers.

When describing the analysis of why a particular change happened, highlight when several factors combined catalysed a change. From the maize case, for example, this could be a summary of the different factors that are leading to a change in farmers' perceptions of maize farming.

3. To what extent and how did the program contribute to system changes?

Some of changes will have been driven by external factors that are not related to program interventions. The program may have played a minor role in catalysing other changes. For some other changes, the program may have made a substantial contribution to catalysing them, though it is unlikely that system changes will ever be solely attributable to program interventions. Share a summary of the contribution analysis for each major change, and report transparently how the program has contributed to the change and the significance of that contribution in relation to other factors contributing to that change.

For the maize case, the program might describe how the increase of maize production and sales is the result of three key changes: an increase in demand due to global prices, reduced transportation costs, and improved yields due to the use of hybrid seeds. The program would then further describe its role in catalysing the distribution and use of hybrid seeds in terms of scale and ownership resulting from the initial partnerships with seed companies.

4. How is the program responding?

Describe how the program has used the information on expected and unexpected system changes inside the system together with relevant changes outside the system boundaries to review the system strategy. Explain if, how, and why the program has revised its system strategy and what the consequences are for the program in terms of resource allocation, desired states, and timelines. Describe if and how changes in the system strategy led to changes in the intervention plans for supporting systems and summarise the consequences for resource allocation and intervention plans.

7.2 When and how to report

Develop a reporting format and process early in the program. Report the system changes that are happening, even if there is no program contribution to those changes yet. Describe the changes, the apparent causes, and how the program is responding. Once there are signs that the program is contributing to system changes, integrate a longer explanation that analyses the program's contribution to them.

Develop a report structure that matches the understanding and expectations of the audience that it targets. Some may find it more informative to structure the report around each key change in the main system by combining the above four questions into one story for each change or for each main and supporting system. Others may find it more useful to provide information on all changes, answering each of the above four questions for all changes in one go. Whichever structure, and whatever graphs, tables, and other communication tools are used, maintain them from report to report so that comparisons on system states can be made throughout the implementation period. Consider keeping the main report lean and adding more detailed information in annexes.

Annex A

Maize in East Java, Indonesia case

This case is from PRISMA in Indonesia.[21] It was used in the Advanced Training Workshop in Results Measurement for Private Sector Development in 2019. Please note that while the case is real, it has been significantly modified for learning purposes. Therefore, the case description should not be construed as accurately depicting the context, strategy or progress of the actual program. Thank you to PRISMA for allowing us to use and adapt this case.

[21] For more information, see www.aip-prisma.or.id

1 Maize case background

The Australia-Indonesia Partnership for Promoting Rural Income through Support for Markets in Agriculture (PRISMA) is part of the Government of Indonesia's midterm development strategy to accelerate poverty reduction through inclusive economic growth. The program aims to achieve a 30% increase in the net incomes of 300,000 male and female smallholder farmers in Eastern Indonesia. PRISMA is active in many systems across Eastern Indonesia. This case focuses on PRISMA's work in the maize system in East Java.

1.1 Maize case system context

Maize is expanding dynamically both in Indonesia and internationally. Indonesia is the largest maize producer in Southeast Asia and has the second highest production growth rate in the world. After rice, maize is the second most important cereal crop in Indonesia and plays a significant role in Indonesia's food security policy. The demand for maize in Indonesia has been increasing at an annual rate of 5.6% with much of the growth fuelled by the rapidly expanding poultry industry. Animal feed has surpassed human consumption as the main use for maize in Indonesia. Both the animal feed and poultry industries are projected to continue experiencing robust growth as population and incomes increase. While feed millers prefer locally produced, hybrid maize, the local supply of maize is highly seasonal. As feed mills require continuity of supply year-round, they continue to rely on imports to supplement locally sourced maize.

The government has ambitious goals for Indonesia to be self-sufficient in corn, rice, and soybean. In order to meet these goals, the government plans to make significant improvements to supporting infrastructure (particularly irrigation, warehouses, and post-harvest facilities). Alongside these investments, the government also plans to expand seed production and free seed distribution, increase fertiliser distribution and subsidies, encourage the development of cooperatives, improve access to agricultural financing, and initiate land reforms.

East Java is the province with the highest production of maize, accounting for around 30% of national production. There is an abundance of commercial actors (traders, feed millers, and seed companies) along the maize value chain on the mainland in East Java. (See Figure 12 for a value chain map of maize in East Java.) However, there are several districts within East Java that experience very low yields, principally some districts on Madura Island. Despite being the leading producer of maize and having the largest total harvested area in Indonesia, average yields in East Java were only 5.07 tonnes/ha in 2016 and are significantly below potential. West Java and West Sumatra have the highest average yields (8.17 tonnes/ha and 7 tonnes/ha respectively).

In comparison to the East Java mainland, there is limited commercial trading of maize in Madura. The local Madura variety of maize is usually consumed by households or sold as kernels to collectors who own general goods stores. Farmers often use the proceeds from the sale to purchase common food items from the same shopkeeper or to finance other household needs. These collectors tend to sell the maize to small or medium poultry farms or to the local market as feed for birds. Madura has average maize yields as low as 3-4 tonnes/ha. The number of maize farmers is high (approximately 377,000), creating an attractive market with high potential to improve the lives of many households.

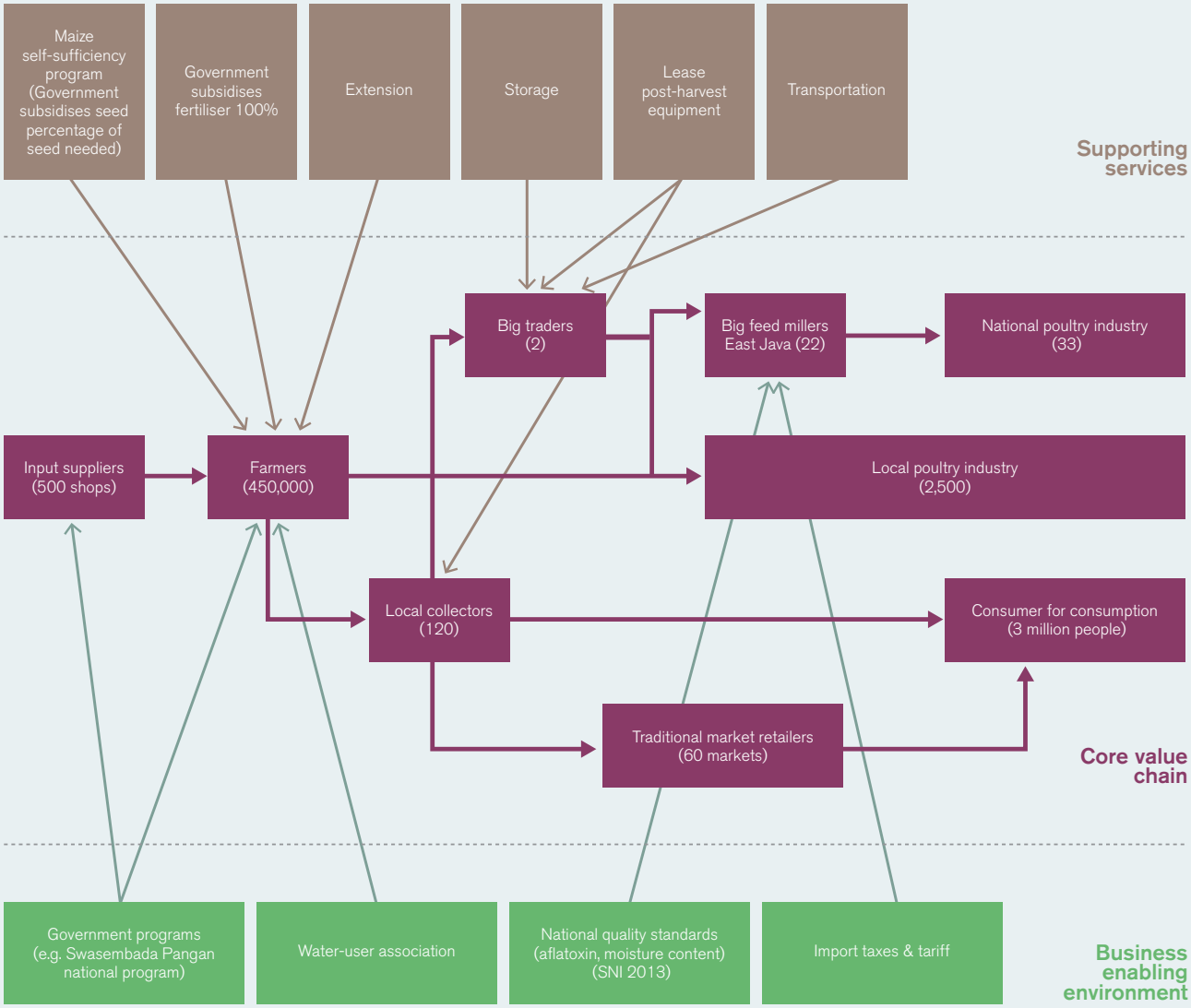


Figure 12: Maize East Java value chain map.

2 Maize case constraints analysis

1. **Farmers in Madura experience low productivity because they mainly use local seed varieties.** There are three types of seeds that are used in maize farming in Indonesia—local varieties, composite/open pollinated varieties, and hybrids. Farmers in Madura tend to use local maize varieties, and most of their seeds are retained from the previous harvest. The local seed variety is characterized by low yields, small kernels, and small-sized cobs. It is not preferred by the feed milling industry. There are several reasons why relatively few Madurese farmers have adopted hybrid seeds. Many do not see or understand the potential benefits of using hybrid seeds. Maize has traditionally been farmed as a subsistence crop in Madura. Moreover, hybrid varieties have a number of disadvantages compared to local maize varieties; a longer growing period, a different taste, and an inability to be stored for extended periods without becoming infested by weevils. Consequently, specific agricultural practices (such as spacing, seed utilisation, proper application of chemical inputs, planting, and harvesting schedules – referred to collectively as 'good agricultural practices' or GAP) are particularly important when shifting to hybrid maize since the production of hybrids requires more advanced practices. Farmers have limited access to information on good agricultural practices. They have also had poor experiences with hybrid seeds that were distributed under the government seed subsidy program. This has left some farmers under the impression that hybrid seeds are of lower quality than local varieties.

2. **Farmers receive low prices because they employ poor post-harvest practices.** Farmers and traders are penalised by feed millers for excessive moisture or foreign materials in the maize. Poor quality maize can be attributed to insufficient knowledge of good post-harvest practices and maize quality standards, along with limited access to good post-harvest-handling equipment. Most farmers and collectors are still using traditional methods and facilities to dry and store corn kernels. Post-harvest practices also vary significantly between Madura and the mainland, with farmers on Madura more likely to store maize on-farm for longer periods. For the local maize variety, Madurese farmers will sun-dry the corn for two days while it is still completely enclosed in the husk. Farmers will store it for up to one year and will use it for household consumption or as seed for the next cultivation. Drying and storage practices used for local maize are not well suited to hybrid maize, which farmers well know. When using hybrid seeds, the lack of adequate storage technologies at the farm level means that farmers sell their entire crop after the harvest and are therefore unable to reap the benefits of storing and selling maize when price conditions are better.

3. **Farmers experience difficulties in increasing maize production during the dry season in non-irrigated dryland areas.** It is common for dryland farmers to attempt a second maize crop after the rainy season. Dryland farmers who plant a second maize crop in areas that lack access to irrigation or alternative water sources are more susceptible to crop failure or experience poor yields as a result of insufficient water. In addition to lacking access to water and irrigation services, these farmers also have limited knowledge and information on the most appropriate seed varieties and practices for dryland farming.

4. **The Government subsidy program is not supportive of sustainable market development.** There are challenges in designing and managing a distribution system that effectively targets (poor) farmers in districts where there are no commercial hybrid seed distribution channels. It often leads to delivery promises that can't be kept due to supply chain problems. This is one of the reasons farmers have not had access to quality hybrid seeds. When delivery does happen, it is often to the farmers previously served; the program is not expanding to service more and other farmers.

   Furthermore, the delivery of hybrid seeds is not coupled with information and advice on how to use the hybrid seeds, leading to disappointing low yields or worse. The government extension services have limited resources: there are too few agents relative to the number of farmers and many of these agents are not sufficiently trained or do not have specific expertise in maize. The uncertainty of what the government will do in the future prevents seed companies from setting up commercial distribution channels, which could be undermined by free seed distribution.

3 Maize case system strategy and intervention plans

3.1 Maize case system boundaries

PRISMA's goal is to improve the system that affects the supply and demand of maize produced by farmers on Madura Island. Figure 13 shows the boundaries of the system that PRISMA targets. PRISMA has chosen maize as the main system (highlighted green), excluding other crops. It has decided to include four critical supporting systems (highlighted blue) while excluding the others (highlighted grey).[22]

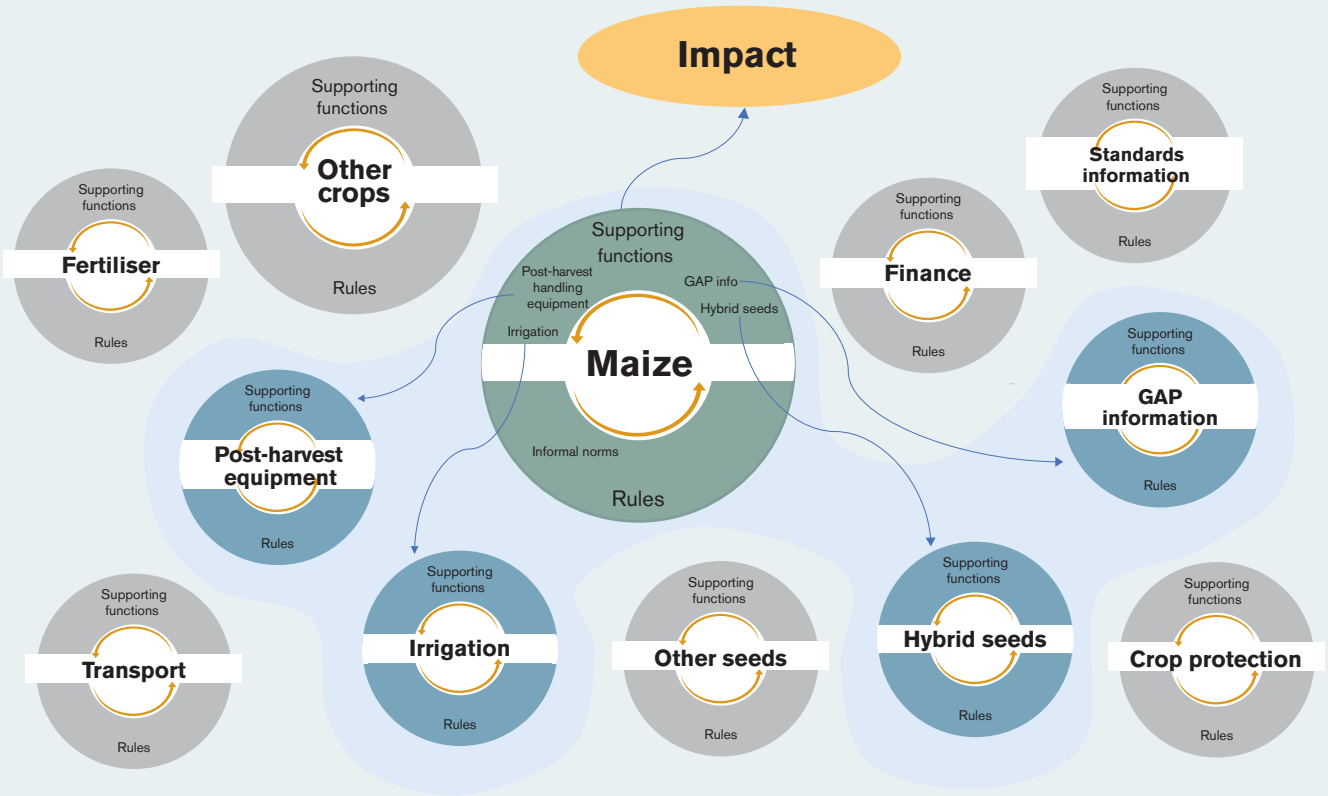


Figure 13: Boundaries of the system PRISMA targets.

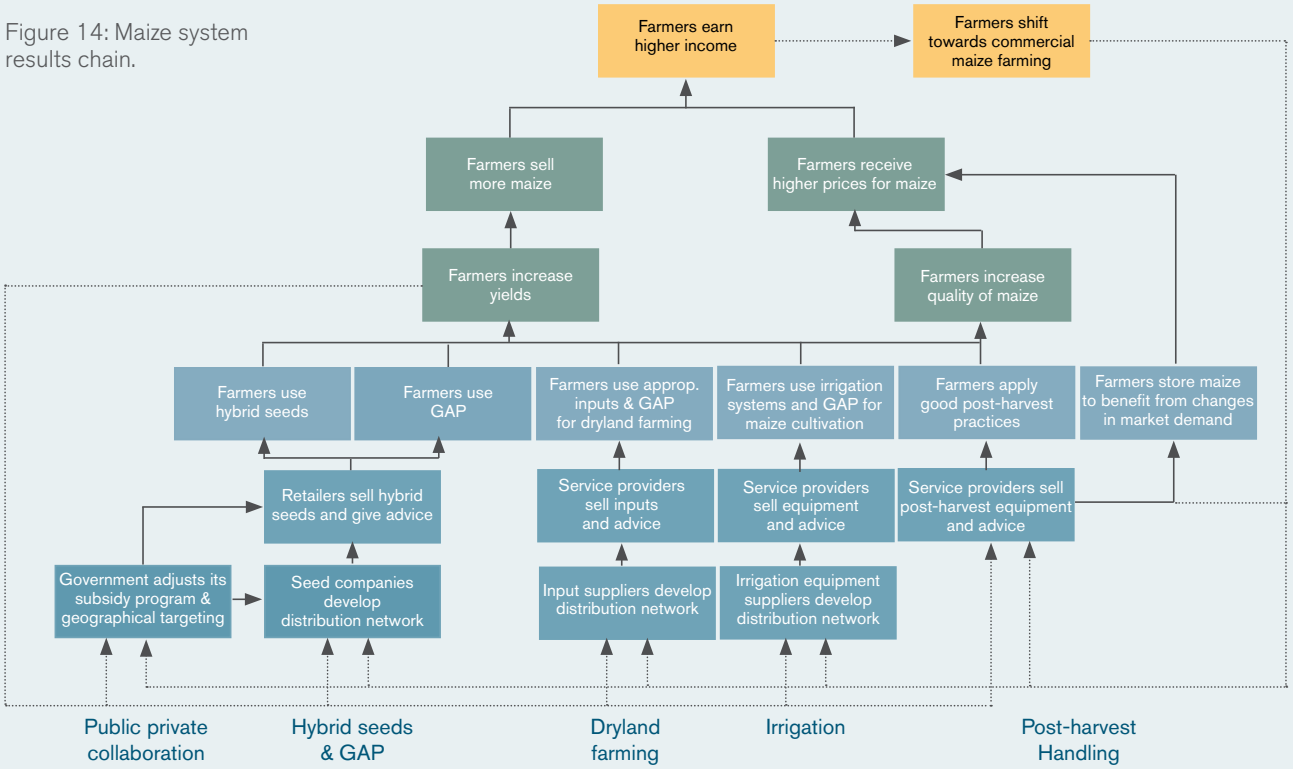
[22] It is not necessary for programs to make this type of diagram. It is included here as a useful visualisation of system boundaries.

3.2 Maize case system strategy

System results chain

Figure 14 shows the maize system results chain.

Figure 14: Maize system results chain.



At the top of the results chain is PRISMA's objective: higher incomes for farmers. The system results chain also shows a key system change that is a program goal – that farmers' norms shift away from only subsistence maize farminga towards commercial maize farming. Famers are expected to be able to earn a higher income through a combination of selling more maize and of selling better quality maize which fetches higher prices. The program expects these changes to be driven by changes in farmers' production practices (e.g. 'farmers use hybrid seeds,' 'farmers use irrigation systems…'). Another changed practice – the use of better storage – is also expected to directly improve farmers' ability to sell their maize for a better price. Changes in farmers' production practices require a combination of changes in supporting systems, such as retailers making hybrid seeds and irrigation services accessible to famers and providing them with better information about how to use them. As farmers become more commercial, they will have a higher capacity and more incentives to invest in irrigation, improved seeds and better maize storage. This will, in turn, enable them to further improve the quality and yield of the crop and become more profitable, which is likely to shift farmers even further towards commercial maize farming.

There are a number of factors that will influence if the causal links in the results chain happen:

- Farmers' appetite for commercial maize cultivation is influenced by the price of maize relative to the prices of alternative crops farmers could be investing in. Plummeting tobacco prices have already increased interest in maize farming. However, availability of land is limited. Therefore, most farmers will have to change their crop patterns or substitute other crops with maize in order to increase maize cultivation.
- Maize prices in Indonesia follow the global prices, because the majority of maize is imported. A recent move by the government to restrict imports during the peak season has increased local prices, encouraging maize cultivation.
- Millers have the option to shift to purchasing wheat rather than maize for poultry feed if wheat supply conditions are more attractive than maize. Therefore, maize demand is influenced by the performance of the wheat system.
- Seed companies may have more rewarding options to expand to other areas outside East Java.
- The political climate will highly influence the implementation of the Public Private Coordination model.

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System strategy table

Boundaries	Maize that is, or could be, produced and sold by smallholder farmers on Madura Island.		
Indicators	**Starting system state**	**Plan 2020-2025**	**Desired system state**
Main system: Maize			
Volume of maize sold from target area	395,000 tonnes	The program will first focus on increasing the supply of hybrid seeds and embedded information on good agricultural practices (GAP) for small farmers from private and public actors. The resulting increase in yields and interest in transacting with small farmers is expected to drive changes in other supporting systems and encourage small farmers to become more commercial. Farmers' increasing commercialisation is expected to encourage both input and equipment suppliers and maize buyers to target Madura Island. More opportunities to sell and greater availability and variety of inputs is, in turn, expected to encourage more farmers to cultivate maize commercially. This cycle is expected to drive productivity and income increases for farmers. The program will encourage companies to target both women and men farmers in their marketing and interactions as a way to increase their own sales or sourcing. It is expected that as more companies recognise and target women farmers, this will gradually become the norm.	500,000 tonnes
% of maize sold that is highest quality grade	5%		15%
Private companies target small farmers as buyers/suppliers	Unusual, 2 companies		Becoming the norm; at least 8 companies
Private companies' recognition of women and men farmers	Assume farmers are men and focus on them		Recognize women and men farmers and focus on both
Farmers' perceptions of maize crop	Mainly subsistence		Both subsistence and cash crop
Etc.	*Etc.*		*Etc.*

Indicators	Starting system state	Plan 2020-2025	Desired system state
Supporting system 1: Hybrid maize seed			
Volume of hybrid seeds sold on Madura Island	150,000 kg	The program will work to 1) increase private sector investment in the commercial distribution of hybrid seeds to small women and men farmers with embedded information on GAP, and 2) improve public-private coordination in hybrid seed distribution. These two changes are interdependent. 1. The program will partner with two seed companies in one district. Enabling the partner companies to demonstrate the feasibility of selling in the target area will trigger them to expand in in the target area by adjusting or rolling out the tested model. It will also attract more seed companies to enter the market, probably in adjacent districts in the target area and/or on the mainland. The program will encourage partner seed companies to target women as well as men with seeds and info, which will influence other market actors to also recognise and target women. 2. The program will target relevant district authorities in two to three districts. The program will assess their policy and practices and support them to adjust so that they coordinate with companies on the targeting of women and men farmers. The program will support the development of both public and private extension workers. It is expected that better outreach to farmers and more opportunities for private companies will encourage other district authorities to also coordinate with companies in targeting women and men farmers. The program will also encourage a greater flow of information about hybrid seeds in order to influence informal norms and increase demand. Improved access to irrigation and post-harvest services will support, but not drive, changes in the seed system.	375,000 kg
Number of farmers buying hybrid seeds	30,000 Farmers (8%)		75,000 Farmers (20%)
Number of companies selling and advising on hybrid maize seeds	1		4
Number of companies targeting women and men farmers with info and hybrid seeds	0		3
Number of districts where supply is coordinated between public and private sector	0		6
Farmers' perceptions of hybrid seeds	Risky, unnecessary		Useful, requires right GAP
Etc.	*Etc.*		*Etc.*
Supporting system 2			
Etc.			

Figure 15: Partial system strategy table using the maize example.

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Examples of indicators related to changes in the context

In addition to monitoring changes the program aims to influence, PRISMA monitors indicators for several aspects of the system that the program does not expect to influence but are critical to understanding changes in the system context.

- Global maize prices are one factor that will significantly influence the maize system in Madura. So, changes to global maize prices are included as a change the program needs to assess periodically.
- The program identified transportation as critical to smallholder farmers producing maize in Madura but decided not to target it. So, changes to the prices, availability, and efficiency of transport are included as one change the program needs to assess periodically.


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3.3 Intervention plans

Example of why actors would adopt a change

PRISMA's analysis suggests that private companies have not started supplying hybrid seeds in Madura because the government subsidy program creates uncertainty, undercutting their commercial incentives. Meanwhile, the government does not coordinate with the private sector because they do not know how distributing seeds through companies' distribution channels could help them reach more poor farmers with the subsidy program. One of PRISMA's interventions helps the relevant government agencies to see how coordinating hybrid seed distribution with private companies will help the government to reach more poor farmers. When the government coordinates subsidised seed distribution with private companies, the companies have certainty about which areas and farmers the government will reach and, therefore, which areas and farmers the companies can profitably target with commercial seed distribution in Madura.

Example of how actors would adopt a change

The program partners with two seed companies in one district, providing them with market research that suggests a strong market for hybrid seeds that are appropriately marketed to smallholder farmers and that are sold through retailers who provide information on GAP. The program also subsidises the costs of setting up and testing this new distribution channel. Through another intervention, the two companies and the government have agreed the companies' sales in this district will not be undermined by subsidised government seed.

The two partner companies are both persuaded to test this new sales model and in doing so get sufficiently encouraging signs that one invests in hiring and training sales agents to support retailers, and the other company expands its testing to a second district. Sales are sufficiently high that the following season both companies roll out the model across Madura Island.

Other seed companies learn about the market opportunity from the government (partly due to the government's greater coordination with seed companies in seed distribution) and from the successful seed companies. One other seed company hires an agronomist from one of the program partner seed companies and thus gets information on how to establish a similar model. As the seed companies are large, they are able to use profits from other areas to invest in establishing distribution of hybrid seeds on Madura Island.

Example of how a behaviour change can become resilient

Key changes that will help embed the behaviour change – farmers use hybrid seeds and GAP:

- Seed companies and retailers targeting smallholder farmers and proactively providing information on GAP becomes the norm.
- Government extension workers become better informed and more able to advise farmers on maize farming.

As more smallholder farmers start to buy and use hybrid seeds, new, linked business opportunities could emerge that make this change more resilient. For example:

- A microfinance institute launches a new financial product providing credit to farmers, enabling more farmers to buy seeds (and existing customers to buy greater quantities).
- A farm-equipment dealer introduces a new, low-cost method of storage which gives farmers higher net margins (that they can spend on seeds) and a way to safely store the large maize yield.
- The local government observes the increased interest in hybrid seeds and cracks down on a small number of disreputable suppliers fraudulently selling local seeds in hybrid packaging.

As more and more farmers use hybrid seeds, norms around seed use also shift, which also leads to more demand from farmers, and further private sector investment.

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Intervention results chain

Figure 16 provides a simplified results chain for PRISMA's intervention to encourage private companies to invest in the distribution of hybrid maize seeds accompanied by information on GAP in Madura. The results chain shows how PRISMA expects the changes to reach scale.

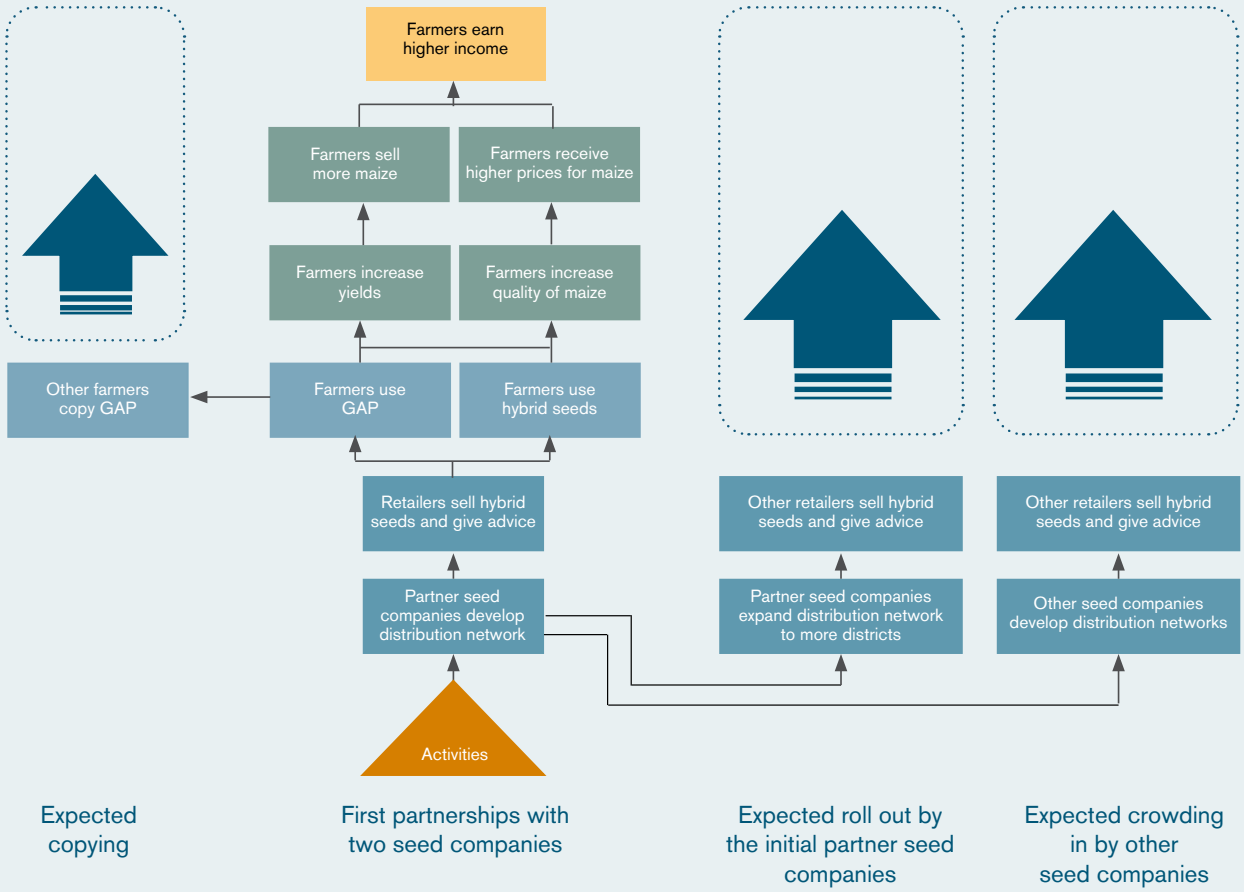

Figure 16: Simplified results chain for PRISMA's intervention on private sector hybrid maize seed and GAP information.

Examples of intervention plan indicators

The following are examples of indicators for PRISMA's intervention to encourage private companies to invest in the distribution of hybrid maize seeds and provide embedded information on GAP in Madura:

- Number (and percentage) of seed companies selling hybrid maize seed
- Number (and percentage) of retailers selling hybrid maize seed
- Number (and percentage) of farmers buying hybrid seeds
- Number (and percentage) of farmers using hybrid seeds
- Amount and depth of information retailers provide to farmers on GAP
- Perception of hybrid seed among farmers
- Inclusiveness of seed companies' marketing and information provision
- Number (and percentage) of farmers applying at least three of five GAP
- Volume of hybrid seed sold annually

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4 Maize case plans to assess and analyse system change

4.1 Maize case intervention lens assessment plan

Figure 17 shows part of PRISMA's thinking on how to assess system changes catalysed by the intervention to encourage private companies to invest in the distribution of hybrid maize seeds. It covers only the provision of hybrid seeds; additional questions would be needed to assess the provision of embedded information on GAP. This thinking can then be integrated into any existing assessment plan format. Figures 18 and 19 show a few lines of the intervention Monitoring and Results Measurement plan and the corresponding assessment plan.

1 What do we aim to assess? *If, why, and how have seed companies developed distribution channels for hybrid seeds? How many? Where?*				
2 Indicators and questions	**3 Who has information about this?**	**4 What type of information do they have?**	**5 How to collect this information?**	**6 When and how often to collect this information?**
1a. Number of companies selling hybrid maize seeds 1b. Volumes of hybrid maize seeds sold 2. Reasons why partner seed companies continue (or not) 3. Reasons (and how) partner seed companies expand to other districts or adapt their distribution channel (or not) 4. Reasons why other seed companies are (now) selling and advising on hybrid maize seeds (or not) 5. How other seed companies are (now) developing their distribution channels (or not) 6a. Number of retailers selling/not selling hybrid seeds including volumes of hybrid/non-hybrid seeds 6b. Retailers' sources for hybrid seeds (if selling) 7. Number of districts with local retailers for hybrid maize seeds (and level of availability/ competition) 8a. Number of seed companies and number of retailers targeting women and men farmers with hybrid seeds 8b. Extent and how seed companies and retailers are targeting women farmers	Ministry of Agriculture	Number of (new) companies, number of retailers, sales volumes, and their perceptions of why that is happening	Partnership agreement with Ministry of Agriculture or reports/statistics if available/ reliable, and interviews (for perceptions)	End of each season
	Partner seed companies	Market intelligence of partner: numbers, volumes, reasons, how and to whom marketing	Partnership agreements (interview and business records)	End of each season and included in regular (intervention related) visits
	Retailers	Sales volumes, information on supply (companies) and demand (farmers), how and to whom marketing	Include topic in monitoring visits for interventions and impact assessment	Interviews end of each season and included in regular (intervention related) visits
	Other seed companies	Facts and opinions on what, why, and how they started developing distribution channels and how and to whom marketing	Interview CEO and head of operations and observe in the field.	When there are signs that it is taking place, signs to come from above info gathering activities
	Women and men farmers that use and that don't use hybrid seeds	Opinions on the availability, choices, and targeting/ marketing for hybrid seeds per district	Include questions in monitoring and impact assessments	At least once at end of each season

1 What do we aim to assess? *If, why, and how smallholder farmers increasingly use hybrid seeds? How many farmers are using hybrid seeds now? Who is and who isn't?*				
2 Indicators and questions	**3 Who has information about this?**	**4 What type of information do they have?**	**5 How to collect this information?**	**6 When and how often to collect this information?**
1. Number of farmers buying hybrid seeds 2. Number of farmers receiving hybrid seeds via public channels 3. Number of farmers buying hybrid seeds through distribution channels for partner seed companies 4. Number of farmers buying hybrid seeds through distribution channels for other seed companies 5. Number of farmers not buying and not using hybrid seeds 6. Profiles of farmers that buy/use, and that don't buy/use hybrid maize seeds (gender, volumes, location). Reasons for purchase/ non-purchase. 7. Perception of women and men farmers on hybrid seeds (quality, satisfaction, reason to continue or not) 8. Financial and non-financial benefits of using hybrid seeds 9. Positive and negative effects on workload, access, and usage for women and men.	Ministry of Agriculture	Data on seed companies supplying hybrid seeds in the area Data on the use of hybrid seeds among farmers if available	Partnership agreement with Ministry of Agriculture or reports/statistics if available/ reliable	End of each season
	Ministry of Agriculture – extension workers	Perception and opinions of why women and men farmers use or don't use hybrid seeds and will continue using them or not	Include in monitoring and impact assessments Interviews with extension workers	At least once at end of each season
	Partner seed companies	Customer numbers Perception and opinions of why women and men farmers use or don't use hybrid seeds	Partnership agreement with partners (market intelligence – see above)	End of each season
	Other seed companies	Approx. customer numbers Perception and opinions of why women and men farmers use or don't use hybrid seeds	Interview	Start of each season
	Women and men farmers that use and that don't use hybrid seeds	Opinions and perceptions on using hybrid seeds; benefits and effects on workload, access, and usage	Include questions in monitoring and impact assessments	At least once at end of each season
	Retailers supplied by partners and by other seed companies	Customer numbers and profiles Perception and opinions on why women and men farmers use or don't use hybrid seeds and if they will continue or not	Include topic in monitoring visits for interventions and impact assessment	Interviews at end of each season and included in regular (intervention related) visits
1 What do we aim to assess? *Is the change – private companies selling hybrid seeds in Madura and smallholder farmers buying and using them – becoming sustainable and resilient? If so, why and how? If not, why not?*				
Etc.	*Etc.*	*Etc.*	*Etc.*	*Etc.*

Figure 17: Part of thinking on how to assess system change from the private sector hybrid seeds intervention.

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Data collection plan						
Code	**Source**	**Data collection method(s)**	**Sampling/ sourcing method**	**Frequency of measurements**	**Timing**	**Who?**
1	Ministry of Agriculture Head of Statistics	Key informant interview. Copy of statistics if possible	Program Head of Results Measurement has a relationship	Bi-annual	Planting/ harvest	Results Measurement team
2	Ministry of Agriculture extension workers	Key informant interview	Intervention managers have relationships	Bi-annual	Planting/ harvest	Intervention team
3	Partner seed company	Unstructured or semi-structured interview Copies of sales data if possible	Likely able to speak to CEO, Head of Marketing, Head of Sales and/or Head of Operations	Regular, in course of intervention management	Any time	Intervention team
4	Retailers	Informal interviews during field visits	Ad hoc	Regular, in course of intervention management	Ideally during planting season	Intervention team
5	Retailers	Questionnaire (impact assessment)	Randomised	Annual	Planting season	Results Measurement team
6	Other seed companies - CEO	Semi-structured interviews	Ideally speak to CEO and to sales agents	Annual and as signs emerge	Planting season	Intervention team
7	Female farmers	Survey	Randomised	Bi-annual	Planting/ harvest	Results Measurement team
8	Male farmers	Survey	Randomised	Bi-annual	Planting/ harvest	Results Measurement team
9	Program staff	Observations of the market/sector	N/A	Regular, in course of intervention management	Ad hoc	All

Figure 18: Partial intervention assessment plan.

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Results chain box	Indicators	Assessment plan code
Other seed companies develop distribution networks	Number and proportion of companies selling hybrid maize seeds	2, 3, 4, 5, 6, 7, 8, 9
	Total volume of hybrid maize seeds sold on Madura Island by seed companies	1, 3, 6
	Reasons for other seed companies to 'crowd in' to new model	6
	Other seed companies' models for new distribution channels	6
	Number of seed companies targeting women and men farmers with hybrid seeds in marketing	3, 6, 7, 8, 9
	Extent to which female farmers are targeted and appropriateness of marketing campaigns aimed at women	7, 9
	Etc.	*Etc.*
Other retailers sell hybrid seeds and give advice	Number and proportion of retailers selling hybrid seeds	1, 2, 4, 5, 7, 8, 9
	Total volume of hybrid maize seeds sold on Madura Island by retailers	1, 4, 5
	Number of districts with local retailers for hybrid maize seeds	1, 2, 4, 5, 7, 8, 9
	Level of availability of hybrid maize seeds by district	7, 8, 9
	Number of retailers targeting women and men farmers with hybrid seeds in marketing	4, 5, 7, 8, 9
	Extent to which female farmers are targeted by retailers and appropriateness of marketing campaigns aimed at female farmers	4, 5, 7, 9
Etc.	*Etc.*	*Etc.*

Figure 19: Partial intervention Monitoring and Results Measurement plan.

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4.2 Maize case helicopter lens assessment plan

Figure 20 presents how PRISMA will use a helicopter lens to assess system changes in the maize system. The example shows only part of the assessment plan, specifically two out of a number of questions that the program would assess: 1) Are maize farmers shifting from subsistence to commercial maize farming? 2) Does an increase in maize production lead to more demand for post-harvest equipment?

The first table shows step 1: defining what to assess, identifying who has information, and describing when and how to collect that information. The second table shows step 2: integrating the answers to the questions in the first table into an operational monitoring plan.

Helicopter assessment plan step 1

1 What do we aim to assess? *Are maize farmers shifting from subsistence to commercial maize farming?*				
2 What do we need to know?	**3 Who has information about this?**	**4 What type of information do they have?**	**5 How to collect this information?**	**6 When and how often to collect this information?**
How do maize farmers perceive maize farming?	Smallholder farmers	Perceptions and opinions	Poll farmers at farmers' markets	Annually end of season
	Traders		Interview traders by phone	
	District agricultural officers		Interview district officers at annual events.	
Are volumes of maize traded increasing across the whole system?	Smallholder farmers	Information on volume of maize traded	Poll farmers at farmers' markets	
	Traders		Interview traders by phone	
	District agricultural officers		Interview district officers at annual events.	
Etc.				
1 What do we aim to assess? *Does an increase of maize production leads to more demand for post-harvest equipment*				
2 What do we need to know?	**3 Who has information about this?**	**4 What type of information do they have?**	**5 How to collect this information?**	**6 When and how often to collect this information?**
Do farmers that use hybrid seeds aim to invest into maize or into something else? Do they invest into post-harvest equipment or something else to increase maize farming?	Traders	Perceptions based on what farmers ask them	Interview a few maize traders	Annually end of season at wholesale point
	Retailers	Perceptions based on what farmers ask them	Interview a few retailers	Combine with interviews to assess changes for hybrid seeds interventions end of each season
	Smallholder farmers	What do women and men farmers invest in?	Interview women and men farmers	Combine with interviews to assess changes for hybrid seeds interventions end of each season
	Ministry of Agriculture	Statistical data by district on number of farmers that use post-harvest equipment	Partnership agreement with Ministry of Agriculture	Annually in July

Helicopter assessment plan step 2

Who?	Research question?	What?	How?
July			
Ministry of Agriculture	Do farmers that use hybrid seeds aim to invest into maize or into something else? Do they invest into post-harvest equipment or something else to increase maize farming?	Statistical district data on number of farmers that use post-harvest equipment	Partnership agreement with Ministry of Agriculture stipulates for them to provide the date
End of season			
Smallholder farmers (women and men)	How do women and men maize farmers perceive maize farming?	Perceptions and opinions	Poll farmers at farmers' markets
	Are volumes of maize traded increasing across the whole system?	Volume of maize traded	Combine with interviews to assess changes for hybrid seeds interventions end of each season
	Do women and men farmers that use hybrid seeds aim to invest into maize or into something else? Do they invest into post-harvest equipment or something else to increase maize farming?	What do farmers invest in?	
Traders	How do maize farmers perceive maize farming?	Perceptions and opinions	Interview traders by phone and at wholesale points
	Are volumes of maize traded increasing across the whole system?	Information on volume of maize traded	
	Do farmers that use hybrid seeds aim to invest into maize or into something else? Do they invest into post-harvest equipment or something else to increase maize farming?	Perception based on what farmers ask them	
District agricultural officers	How do maize farmers perceive maize farming? Are volumes of maize traded increasing across the whole system?	Perceptions and opinions Information on volume of maize traded	Interview district officers at annual events.
Retailers	Do farmers that use hybrid seeds aim to invest into maize or into something else? Do they invest into post-harvest equipment or something else to increase maize farming?	Perceptions based on what farmers ask them	Combine with interviews to assess changes for hybrid seeds interventions

Figure 20: Partial helicopter lens assessment plan.


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4.3 Fictitious example of capturing unexpected system change

Unexpected changes are sometimes captured in the course of regular monitoring activities. For example, PRISMA had thought through the potential implications of their work on women's economic empowerment. The program had worked with partner hybrid seed companies to ensure that hybrid seed demonstrations were held where and when women could attend and were marketed gender-inclusively. An assessment found that these measures increased female farmers' access to hybrid seeds and information on GAP proportionately to male farmers'.

The same assessment also captured two unexpected changes related to women's economic empowerment. Firstly, some smallholder farmers had replaced a very labour-intensive crop with maize, which reportedly reduced women's workloads. Secondly, some farmers – all women - had started applying some of the GAP they had learned for maize to other crops. They reported that this had improved the yields of the other crops as well. The program decided to follow up these findings with an investigation into how widespread these changes were, why some farmers were adopting these changes and others weren't, and how the changes related to gender. This investigation would help the program determine if they could further support these changes and, if so, how.

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5 Maize case analyse, interpret, and assess contribution

5.1 Fictitious example of assessing the reasons for a change in behaviour of one actor in a targeted supporting system

Program staff conducted a validation check with a seed company that has recently started a model very similar to the one that the program originally supported. The staff asked the manager why the company had started selling hybrid seeds and providing information on GAP to smallholder farmers on Madura Island. The manager said that it was her own idea and she had wanted to sell hybrid seed for a while. She indignantly denied that she had copied the idea from others. However, the program found that the business owner had recently hired an agronomist who used to work for the program's partner, providing a clear mechanism through which the idea could have been transmitted. The company was using a similar model as the program partners of sales agents working with retailers to target smallholder farmers and providing them with information on GAP. Moreover, the new seed company had only started selling hybrid seeds after the success of the program's partner was observable. The programs' regular key informants said that neither the government nor other donors were yet encouraging other seed companies to invest in hybrid seed distribution on Madura Island. Taking these pieces of evidence together, they concluded that it is likely their activities with the program partner contributed to the behaviour change in the new seed company.

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5.2 Fictitious example of assessing contribution for a change identified in the main system

In the maize case, findings from the helicopter lens show that the total volume of maize traded by smallholder farmers in Madura has increased from 395,000 tonnes to 450,000 tonnes. The helicopter lens assessment also suggests that maize farmers in Madura are becoming more commercially oriented. Attitudes toward maize are changing and the proportion of famers who are growing maize to sell, rather than only use for subsistence, has grown year-on-year for the last two years. The helicopter lens assessment indicates that this emerging change among farmers is primarily due to higher maize yields, more opportunities to sell maize and more access to information on GAP. The increased opportunities to sell maize are mostly linked to the expansion of the poultry sector in the area, which is driving up demand for maize.

Meanwhile, intervention lens assessments show that one intervention successfully encouraged private seed companies to invest in distributing hybrid seeds in the area and another strengthened extension officers' knowledge (as part of improving public/private coordination). An impact assessment found that the yields (volume per hectare) of smallholder farmers using hybrid seeds are increasing. While this is partly due to better weather in the last year compared to recent years, farmers' use of the hybrid seeds and increased access to information from both extension officers and commercial seed retailers had a significant, identifiable impact on yields compared to farmers who do not use hybrid seeds. The impact assessment further showed that farmers' access to information from extension officers was encouraging farmers to become more commercial.

Taken together, the two lenses indicate that the program contributed to the trend of smallholder farmers in Madura increasing their sales of maize and becoming more commercial. The key factors driving farmers to become more commercial were higher maize yields, more access to information, and increasing demand for maize resulting from the expanding poultry sector. The program contributed to the first two of these key factors.

Given this evidence on the trend towards commercialisation and the fact that several changes in the main system are supporting this change, it can be expected that the norm of smallholder farmers' reasons for growing maize will continue to shift towards greater commercialisation driving further increases in maize sales and benefits to farmers.

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6 Maize case review and revise

6.1 Example of reviewing and revising an intervention plan from the maize case

The program's intervention to increase private seed companies' distribution of hybrid maize seeds in Madura has largely been successful. The two partner companies are increasing their sales of hybrid maize seeds in Madura and expanding to additional areas. One other company has started selling hybrid maize seeds in Madura; monitoring indicates that another company is considering it. However, while the two partner companies show signs that they will continue to support their retailers in providing information to smallholder farmers on growing hybrid maize, the new company is not supporting retailers to provide information to smallholder farmers. This represents a risk to the expected changes because the new company may be able to undercut the partner companies' prices due to lower costs, but farmers will get poorer yields and the reputation of hybrid seeds as a good investment may be damaged. Therefore, the program will reach out to the new company to understand why they do not provide embedded information. Depending on the discussions, the program may propose a partnership and work with the company to address this information gap risk. The program will also increase its efforts in another intervention that aims to increase the knowledge of public extension workers on hybrid maize seeds to counter the risk.


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6.2 Fictitious example of reviewing and revising a system strategy from the maize case

Following from the analysis in section 5 above, a review meeting among the program's team came to the following conclusions about how to revise the maize system strategy:

- Maize sales from smallholder farmers are increasing and farmers are becoming more commercial due in part to increases in yields from using hybrid seeds and information. There are signs that these changes are becoming embedded and resilient. Therefore, the program can shift its focus in these supporting systems to publicising and encouraging the spread of these changes rather than forming additional partnerships with firms and the government. This will involve a less intense effort than before.
- The resources no longer needed for hybrid seed interventions can be shifted to interventions that will enable farmers to reduce their post-harvest losses. It can be expected that, with higher yields, farmers will be receptive to investing in improvements in post-harvest processing and storage. There are farm equipment suppliers for maize storage silos in other districts that could expand to Madura and provide embedded information to farmers on appropriate post-harvest practices.
- It is still too early to focus on irrigation and dryland farming as these changes would require significant farmer investment and most smallholder farmers will not have sufficient savings from better sales of maize yet. In addition, the program cannot afford to spread its efforts too thinly given resource limitations.

- While the increase in demand for maize is encouraging, the fact that it is largely driven by the poultry industry presents a risk, given the risks in the poultry industry such as global price volatility and avian flu. The program will gather information on the risks and other possible markets for maize to investigate whether they should consider adding another supporting system on market diversification into their system strategy. As this would be a substantial addition to the strategy, they will assess if it is likely to markedly increase the resilience of farmers' shift towards growing maize commercially and raise farmers' incomes over the long term given other shifts in the markets for maize and other crops.

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Annex B

Vocational Education and Training (VET) in Albania case

This case is from S4J Albania.[23] It was used in the Advanced Training Workshop in Results Measurement for Private Sector Development in 2019. Please note that while the case is real, it has been significantly modified for learning purposes. Therefore, the case description should not be construed as accurately depicting the context, strategy or progress of the actual program. Thank you to S4J for allowing us to use and adapt this case.

[23] For more information, see www.skillsforjobs.al

1 VET case background

Skills for Jobs (S4J) supports Vocational Education and Training (VET) schools in Albania to improve performance and positioning, mainly by developing and offering more demand driven training. The overall assumption is that strengthened private sector involvement in VET and an increasing supply of qualified employees will lead to a more competitive and growing economy. [24]

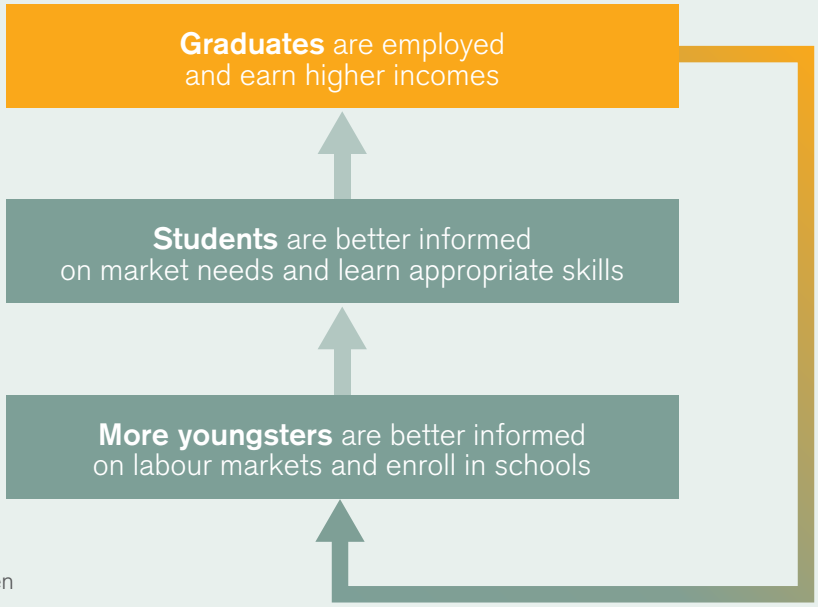

Figure 21: Vision: VET schools offer effective and labour market-driven education.

The Albanian government has formed several partnerships with development organisations to support the development of the VET sector. Some of the partnerships (like the one with S4J) target a limited number of schools to test innovations to improve school performance, while others support the government at the national level to adjust policies and to build capacities.

In its pilot phase, S4J focused on selected, individual VET institutions,[25] to address constraints and improve their performance. It helped the selected VET schools to establish 'development units' to test and implement new ways of working. In its scale up phase, S4J aims to achieve nation-wide system change. The program promotes successful innovations from the pilot phase, called 'products,' to encourage adoption by other schools. The program also promotes the products to the relevant national agencies and influences and supports them to adopt and roll out the products across the national VET system.

[24] This document uses both 'sectors' and 'directions' when referring to sub-sectors in the economy (such as Tourism & Hospitality).

[25] S4J partners with 9 Vocational Educational Schools and one Vocational Training Centre. In this document 'schools' is used referring to both types of institutions.

2 VET case constraints analysis

1. **The VET schools don't offer training that meets the needs of the private sector.**
    a. The public VET sector continues to follow a traditional, input-oriented approach; curricula and training programs are designed and delivered without much industry participation
    b. Education professionals and enterprises do not traditionally cooperate (in fact, they are often perceived – and perceive themselves – as at odds with one another).
    c. There is limited participation by the private sector in defining the scope of training courses and designing the training curricula.
    d. Companies don't offer work based learning opportunities (like apprenticeships).

2. **There is limited flexibility at VET provider level.**
    a. The VET governance system is centralised and inefficient. Financial systems are based on inflexible standards and ineffective allocation of (limited) resources.
    b. VET school funds are allocated according to the number of students at each provider. No financial incentives are in place for delivering or assessing quality training.
    c. Performance-based quality assurance is not taking place at the VET provider level. There are insufficient resources for providers to improve the quality of the training program.

3. **Teachers' qualifications are insufficient and inappropriate.** This relates to both technical skills and pedagogical skills.
    a. Pre-service training for teachers is weak and upgrading skills during employment is not feasible.
    b. There are few opportunities to introduce new ways of learning (pedagogics) or to upgrade teachers' technical skills (using modern technologies) due to a lack of resources.

4. **Poor positioning of the VET providers.**
    a. VET is regarded as a dead-end by youngsters and parents, not offering opportunities for further education nor prospects of decent employment and attractive career paths. Students prefer white-collar jobs to the blue-collar jobs VET Providers equip them for.

3 VET case system strategy and intervention plans

3.1 VET case system boundaries

S4J has defined the boundaries of the main system it focuses on based on its analysis of key constraints and the most feasible approach to achieving system changes:

- Given the context and its mandate, S4J focuses on public (and not private) VET schools.
- S4J focuses on Vocational (and not Technical) Education and Training.
- S4J focuses on influencing the VET system by supporting schools to improve their performance and then promoting successful innovations to other schools and national VET agencies; SJ4's analysis shows that this is a more feasible route to national system change compared to working on changing national policies first.
- S4J focuses on improving VET schools' performance so that recent graduates get jobs; it does not focus on in-company training of the existing workforce.
- S4J does not aim to influence the funding of the schools as this was not deemed feasible, but it does support improvements in the management and the facilities of the schools because addressing constraints in these areas is expected to improve schools' positioning and performance.
- S4J does not aim to change education policies and practices that limit the access to VET as these are not a key constraint, but it does aim to improve the positioning and reputation of VET by working with VET schools to better appeal to youngsters.
- S4J targets training methods, apprenticeships and curricula, mainly with the input and support of the private sector so that graduates will be better equipped to meet the needs of companies and more likely to get higher paying jobs.

Figure 22 shows these system boundaries visually.

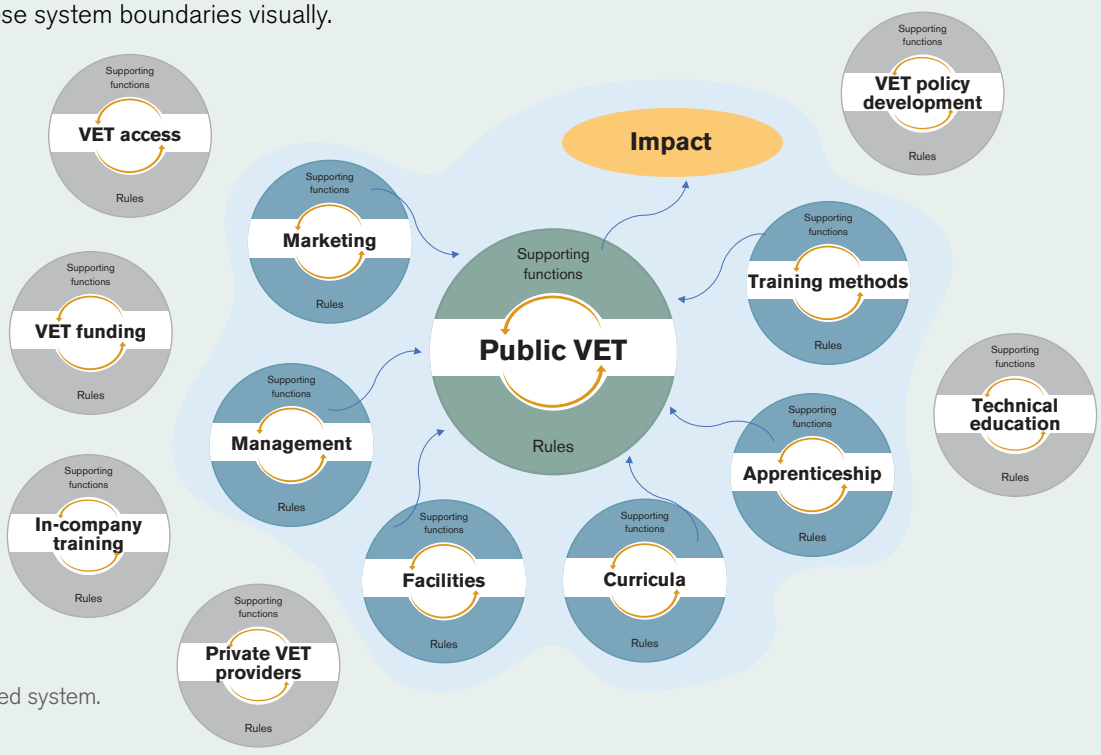

Figure 22: S4J's targeted system.

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3.2 VET case system strategy

System results chain

S4J aims to improve (in the blue boxes) the management, facilities, training methods, and marketing processes of VET schools and aims to make the training more demand driven. The latter is addressed by introducing apprenticeships and adjusting curricula in partnership with the private sector. As a result, students will be better informed and better skilled, enabling them to find employment and earn higher incomes. This will, in turn, lead to more youngsters enrolling in the schools (yellow and green boxes).

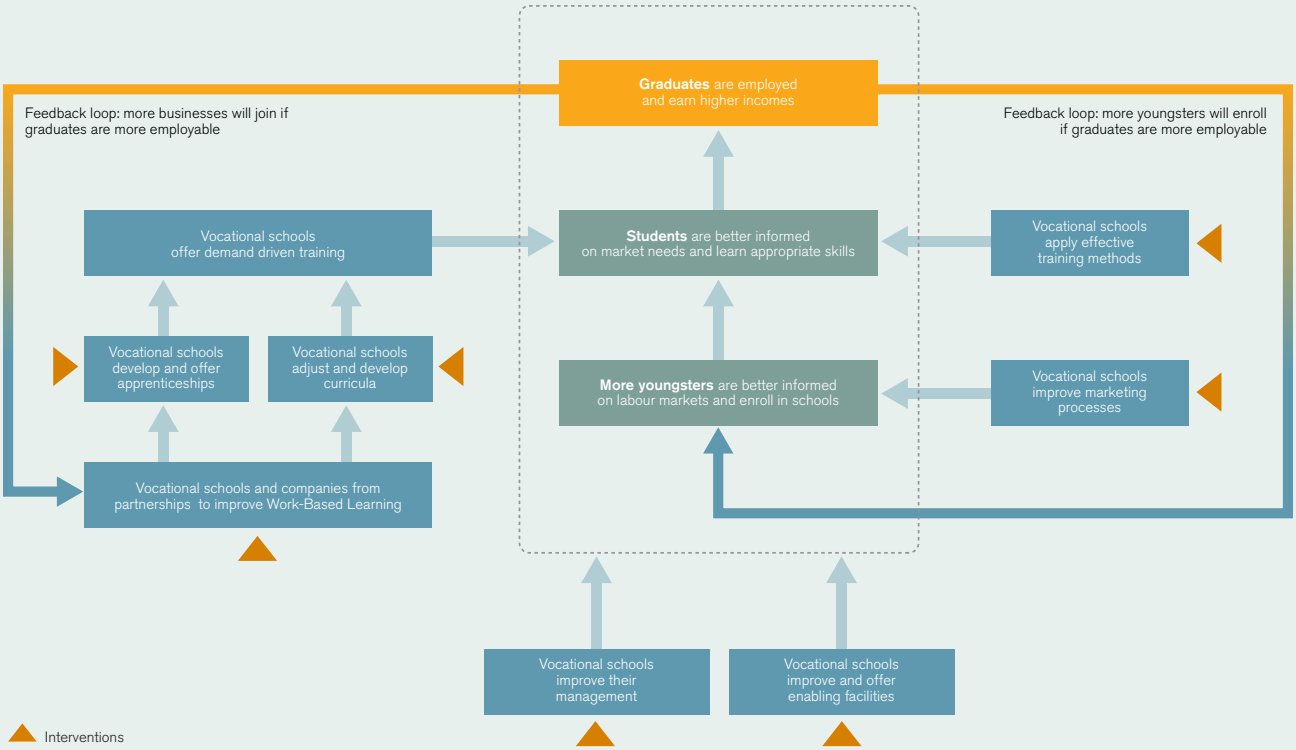

Figure 23: S4J's system results chain.

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System strategy table

Boundaries	Public Vocational Education and Training in Albania		
Indicators	**Starting system state**	**Plan 2016-2023**	**Desired system state**
Main system: Public Vocational Education and Training			
Number of graduates per year	3000	**Pilot:** S4J will first support 7 schools in 5 regions to test and roll out new ways of working in order to offer more demand-driven training suitable for regional labour markets. The program will assist schools to establish 'development units' to test and implement new ways of working. Support will focus on increasing the involvement of the private sector in the regions, to determine needs, to assist in the development of curricula, and to increase participation in training delivery. The pilot will identify new ways of working that improve student recruitment, performance, and hiring. It will also generate interest among other VET providers and national government in making changes and will encourage more private companies to get involved with VET providers. S4J will develop successful tools and approaches from the pilot into 'products' that can be implemented by other schools. **Scale-up:** S4J will disseminate the products to schools throughout Albania and will organise events for managers and staff of all schools, to exchange experience, discuss challenges, and learn about innovations. S4J will offer additional support to all schools, but on a needs-basis and for specific products that these schools want to implement. S4J will also lobby national stakeholders to create flexibility and conditions for schools to adopt the products, such as creating development units at all schools, allocating more resources, and making regulations more accommodating. It is expected that greater private sector involvement in work based learning in schools will increase the level and relevance of graduates' skills, resulting in more graduates getting gainful employment quickly. This will improve the reputation of VET which will boost enrolment. Increased enrolment will increase resources for schools and encourage them to improve training methods, marketing, and facilities. Over time, private sector involvement in schools will become the norm, driving regular updates and improvements in schools. It is expected that the development units of individual schools will continue to drive innovation and that these innovations will be shared and encouraged by the schools themselves together with the national VET agencies.	4000
Number of graduates finding gainful employment	30% of employed graduates are employed in the sector and trade they were trained for		60% of employed graduates are employed in the sector and trade they were trained for
Average time to employment for graduates	Average time to employment is 9 months		Average time to employment is 3 months
Reputation of VET among school leavers and parents	Majority view VET as a last-resort option		Majority views VET as an acceptable or prime career option
	Less than 10% of the school leavers apply to VET schools		More than 20% of the school leavers apply to VET schools
Reputation of VET among private sector employers	Less than 30% of companies in sectors that VET schools cover actively recruit graduates from VET schools		More than 60% of the companies actively recruit graduates from VET schools
	Hiring managers perceive VET training as 'irrelevant' 'out-of-date' and 'poor quality,' very few exceptions		A third or more of hiring managers perceive VET training as increasingly relevant, up-to-date and effective.
Students' views on labour markets	Majority of students have no realistic understanding of labour market needs		Majority of students have a realistic understanding of labour market needs
	20% of the schools provide information on the labour market		80% of the schools provide information on the labour market
Students learning relevant skills	30% of students consider that the skills they learn are relevant		60% of students consider that the skills they learn are relevant
	25% of the curricula are taught using technologies used by the industry		50% of the curricula are taught using technologies used by the industry
Etc.	*Etc.*		*Etc.*

Indicators	Starting system state	Plan 2016-2023	Desired system state
Supporting system 1: Curricula			
Curricula meet the needs of the private sector	Less than 20% of the sector curricula across schools rated as good or excellent on average by private sector companies	**Pilot:** S4J will work with schools based on both need and opportunity. S4J will work initially with management, teachers, and support staff who are most skilled and most motivated to revise curricula for sectors and trades. Changes among this group will spark others. S4J will then support and encourage others in order to institutionalise this process within the development units of each pilot school. **Scale up:** Dissemination of this 'product' will enable other schools to apply a similar process. **Pilot:** S4J will help schools search for companies within specific sectors in the regions that may be convinced to provide information to the schools on specific labour force needs and to provide input to design or revise curricula. S4J will support schools to institutionalise this process within the development unit of each school. **Scale up:** Dissemination of this 'product' will enable other schools to apply a similar process. It is expected that companies offering apprenticeships will become more involved in the curricula development process for those sectors. Involvement by prominent companies will also encourage others to join. **Scale up:** S4J will lobby the national agencies to allow flexibility and create conditions for all schools and the private sector in each region to develop curricula that meet regional labour market needs. Recognition of this product by the national VET agencies will support roll out across schools and encourage continued partnerships between schools and companies to drive future innovations in the curricula.	50% of the sector curricula across schools rated as good or excellent on average by private sector companies
	12% of the schools (4 out of 34) review their curricula based on labour market information		60% of the schools (20 out of 34) review their curricula based on labour market information
Curricula focus on the needs of emerging sectors and trades	Majority of curricula focus only on traditional sectors and trades		Curricula address the needs of emerging sectors and trades
	6% of the schools (2 out of 34) develop curricula for emerging sectors and trades		40% of the schools (14 out of 34) develop curricula for emerging sectors and trades
Curricula development process	Curricula are revised by national VET agencies in isolation		Schools revise curricula based on input from companies on local labour needs
Curricula: skills	School-based curricula are the norm and practical learning is performed mainly in class		Work based learning (WBL) is integrated in the curricula and has become the norm for both VET schools and the private sector
	Schools don't integrate apprenticeships in their curricula		60% of schools (20 out of 34) integrate apprenticeships in at least 15% of their curricula
Etc.	*Etc.*		*Etc.*
Supporting system 2, *etc.*			
Etc.	*Etc.*	*Etc.*	*Etc.*

Figure 24: Partial system strategy table using the VET example.

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3.3 VET case intervention plans

During the pilot phase, S4J supports schools to develop, test, and apply new 'products' in each of the selected supporting systems, such as new marketing tools, improved curricula development processes, improved teaching methods, etc. In the scale up phase, these 'products' are then developed into a 'ready package' to be disseminated to other schools that can then apply the tool. The program also lobbies with relevant national agencies to review and adopt the products so that they provide support to all schools to apply the products. Figure 25 shows how the program promotes system change related to each of the products that were successful during the pilot phase.

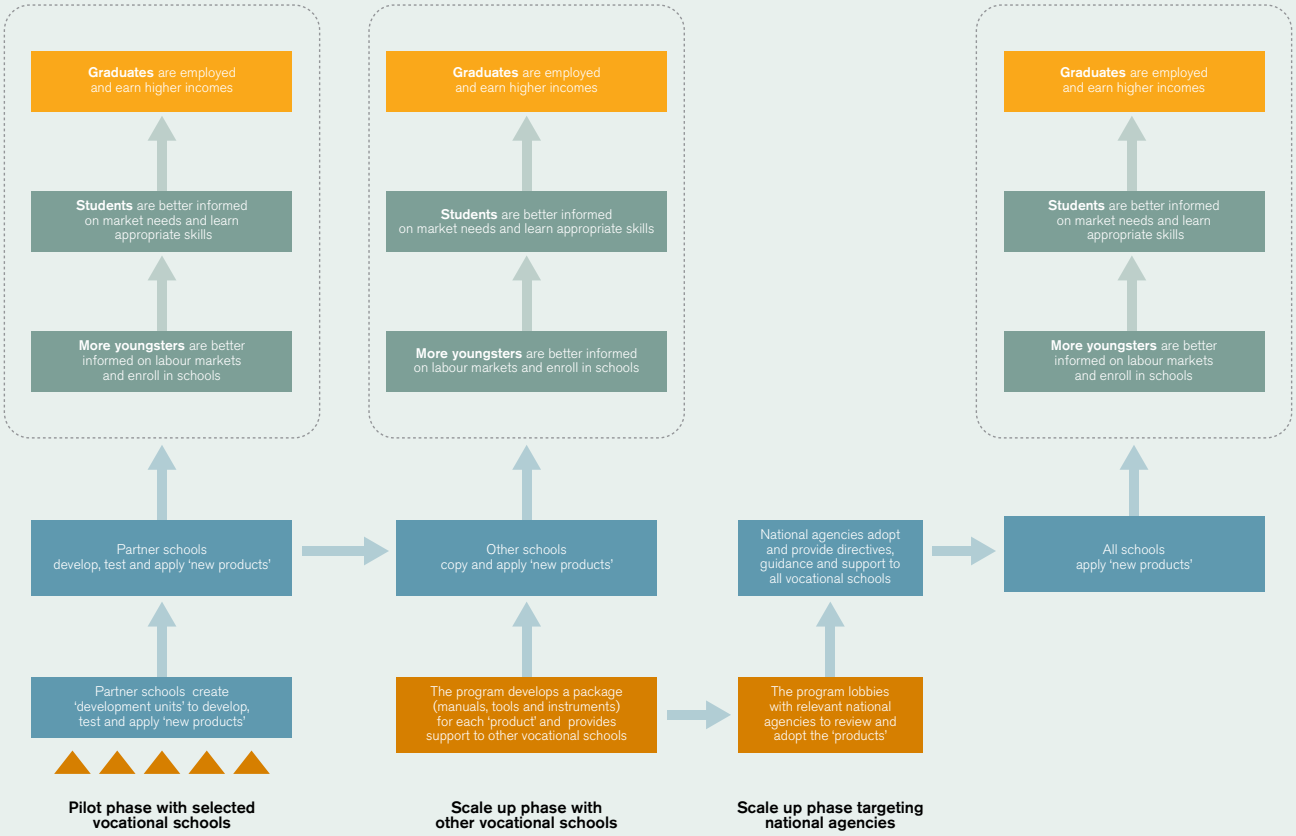

Figure 25: Results chain showing how individual 'products' are scaled up and the expected results for the VET case.

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4 VET case plans to assess and analyse system change

4.1 VET case intervention lens assessment plan

Figure 26 shows an intervention lens assessment plan for an intervention to embed an apprenticeship model in schools and their partner companies.

1 What information do we need? *If, why and how are schools developing apprenticeship programs? How many schools are/ aren't?*				
2 Indicators and questions	**3 Who or what could be sources of information about this?**	**4 What type of information do they have?**	**5 How to collect this information?**	**6 When and how often to collect this information?**
1. Number of partner schools with apprenticeship programs (number of students, number of companies, per trade, per school, per region) 2. Number of other schools with apprenticeship programs (number of students, number of companies, per trade, per school, per region) 3. Reasons why and explanations of how other schools have developed apprenticeship programs (or why not) 4. Are there causal links for schools developing apprenticeship programs with other supporting systems (curricula, marketing, training methods)?	Partner schools	Opinions on why and how to continue and expand (or not) apprenticeships, and number of trades, number of companies, and number of apprentices, signs of other schools developing apprenticeship programs	Semi-annual data reports as per partnership agreement; annual survey of all partner schools (as part of overall support program) In-depth interviews (heads and teachers) on why/how	Include in monitoring system (semi-annual) Annual survey (date to be decided, likely mid-way through school year)
	National VET agencies	Opinion and perceptions on if and why schools start, expand, or improve apprenticeship programs	Key informant interviews with representatives	Once a year (mid-way through the school year)
	Other schools	Opinion and perceptions on reasons for starting, expanding, or improving an apprenticeship program, how it is developed and applied, and number of trades, number of companies and number of apprentices	Semi-structured interviews with heads and teachers	During national events where VET staff gather, and when there are signs that it is taking place, signs to come from above info gathering activities
	Companies in relevant sectors and regions (first via BMOs)	Opinions and perceptions, reasons for offering (or not) apprenticeships, satisfaction and plans to roll out (or not)	Semi-structured telephone interview, sampling through 'snowball' recommendations from schools and through BMO list	When there are signs that it is taking place, signs to come from above info gathering activities

What do we aim to assess? *If, why, and how are the national agencies responding to these initiatives?*				
Indicators and questions	**Who or what could be sources of information about this?**	**What type of information do they have?**	**How to collect this information?**	**When and how often to collect this information?**
1. Type of responses from national agencies; neutral, restrictive, enabling, supportive? 2. Allocation of resources: human resources, financial resources	National agencies	Opinions and perceptions of top, senior, and operational staff Changes in financial and human resources allocation, guidance, and policy papers	Key informant interviews with representatives, secondary data from publications and instructions to schools	Regular, at least once per year (towards the end of the school year)
	Partner schools	Opinions and perceptions Budgets and staffing plans	Semi-annual data reports as per partnership agreement; annual survey of all partner schools (as part of overall support program)	Include in monitoring system (semi-annual)
	Other schools	Opinions and perceptions Budgets and staffing plans	Semi-structured interviews with heads and teachers	When there are signs that it is taking place, signs to come from above info gathering activities
What do we aim to assess? *If, why, and how are companies participating in these initiatives? How many companies?*				
1. Number of companies engaged in apprenticeship programs (per region, per trade) with partner schools 2. Number of companies engaged in apprenticeship programs (per region, per trade) with other schools 3. Reasons why and how companies offer apprenticeships (or why not) 4. Perceptions of companies about apprenticeship programs (from those involved and those not involved) 5. Are there causal links for companies' involvement with other supporting systems (curricula, marketing, training methods)?	Partner schools	Perception and opinions, number of trades, companies, apprentices	Semi-annual data reports as per partnership agreement; annual survey of all partner schools (as part of overall support program)	Include in monitoring system (semi-annual)
	National VET agencies	Perceptions, opinions, signs/leads	Key informant interviews with representatives	Regular, at least once per year (towards the end of the school year)
	Business Member Organisations	Perceptions, opinions, signs/leads	Key informant interviews with BMO leaders	Regular, at least once per year (towards the end of the school year)
	Other schools	Perception and opinions, number of trades, companies, apprentices	Semi-structured interviews with heads and teachers	When there are signs that it is taking place, signs to come from other info gathering activities
	Companies engaged in apprenticeship programs with partner schools and with other schools.	Opinions and perceptions, reasons, satisfaction, and plans to roll out (or not)	Semi-structured telephone interviews, sampling through 'snowball' recommendations from schools and through BMO list	Once a year (towards the end of the school year)
	Companies not engaged in apprenticeship programs with partner schools and with other schools	Opinions and perceptions of apprenticeship programs, reasons for not investing, future plans	Semi-structured telephone interviews, sampling through BMO list and 'snowball' recommendations	Once a year (just after usual apprenticeship sign ups)

What do we aim to assess? *If, why, and how are the students responding to these initiatives?*				
Indicators and questions	**Who or what could be sources of information about this?**	**What type of information do they have?**	**How to collect this information?**	**When and how often to collect this information?**
1 Opinions of students on apprenticeship programs	Current VET students and recent VET graduates	Reasons for joining (or not), perceptions and opinions of apprenticeship programs, satisfaction	Annual survey – all students and recent graduates given opportunity to respond	Once a year (near end of apprenticeships)
2 Are there causal links for students' involvement with other supporting systems (curricula, marketing, training methods)?	Secondary school students	Opinions about apprenticeship programs in VET schools	Annual survey of students and recent graduates; all students and recent graduates given opportunity to respond	Once a year (near end of apprenticeships)

Figure 26: Intervention lens assessment plan for apprenticeships in the VET case example.

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4.2 VET case helicopter lens assessment plan

The tables in this section show how S4J plans to assess system changes with the helicopter lens in their selected system. The example shows only part of the assessment plan, specifically two out of a number of questions the program would assess): 1) Have school-leavers and parents changed their perception of VET? 2) Is work based learning integrated in the curricula and has it become the norm for both VET schools and the private sector?

The first table shows step 1: defining what to assess, identifying who has information and describing when and how to collect that information. The second table shows step 2: integrating the answers to the questions in the first table into an operational monitoring plan.

Helicopter assessment plan step 1

1 What do we aim to assess? *Have school-leavers and parents changed their perception of VET?*				
2 What do we need to know?	**3 Who has information about this?**	**4 What type of information do they have?**	**5 How to collect this information?**	**6 When and how often to collect this information?**
How do school-leavers perceive VET?	School leavers	Opinions and perceptions	On-line survey using social media (Facebook)	Annually in May
	Parents		Polls at college parent meetings	Annually in January
	College teachers		Online survey using panel of teachers	Annually in January
	Individual VET schools & teachers		Include in annual survey amongst VET schools	Annually in June
Are the enrolment rates changing?	National VET agency	Enrolment and early drop-out rates	Partnership agreement with VET Agency to provide for all schools	Annually in September and January
	Individual VET schools		Partnership agreement to provide access to Management Information Systems (MIS) of supported schools	
Etc.				
1 What do we aim to assess? *Is work based learning (WBL) integrated in the curricula and has it become the norm for both VET schools and the private sector?*				
Is work based learning integrated in the curricula?	National VET Agency	# revised curricula # curricula with WBL	Partnership agreement - VET Agency to provide for all schools	Annually in January
	Individual VET schools	# revised curricula # curricula with WBL	Partnership agreement allows access to MIS of supported schools	Annually in January
Has work based learning become the norm?	National VET Agency	Opinions and perceptions	Interviews	Annually in January
	VET schools & teachers	Opinions and perceptions	Include in annual survey amongst VET schools	Annually in June
	Students	Opinions and perceptions	Include in annual survey amongst VET schools	Annually in June
	Business Member Organisations	Opinions and perceptions	Interviews with selected members during their annual meetings	Annually in March
	Participating companies	Opinions and perceptions	Online survey using BMO membership data & support	Annually in March
	Non-participating companies	Opinions and perceptions	Online survey using BMO membership data & support	Annually in March
Etc.				

Helicopter assessment plan step 2

Who?	Research question?	What?	How?
January			
National VET Agency	Are the enrolment rates changing? How?	Enrolment and early drop-out rates	Partnership agreement VET Agency to provide for all schools
	Have school-leavers and parents changed their perception of VET? How?	# revised curricula	
	Is WBL integrated in the curricula?	# curricula with WBL	
	Has WBL become the norm?	Opinions and perceptions	Interviews
Individual VET schools	Are the enrolment rates changing? How?	Enrolment and early drop-out rates	Partnership agreement allows access to MIS of supported schools
Parents	How do school-leavers perceive VET?	Opinions and perceptions	Polls at college parent meetings
High school teachers	How do school-leavers perceive VET?	Opinions and perceptions	Online survey using panel of teachers
March			
Business Member Organisations	Has WBL become the norm?	Opinions and perceptions	Interviews with selected members during their annual meetings
Participating companies	Has WBL become the norm?	Opinions and perceptions	Online survey using BMO membership data & support
Non-participating companies	Has WBL become the norm?	Opinions and perceptions	Online survey using BMO membership data & support
May			
School leavers	How do school-leavers perceive VET?	Opinions and perceptions	On-line survey using social media (Facebook)
June			
Individual VET schools & teachers	How do school-leavers perceive VET?	Opinions and perceptions	Include in annual survey amongst VET schools
	Has WBL become the norm?	Opinions and perceptions	
Students	Has WBL become the norm?	Opinions and perceptions	
September			
National VET agency	Are the enrolment rates changing?	Enrolment and early drop-out rates	Partnership agreement - VET Agency to provide for all schools
Individual VET schools	Are the enrolment rates changing?	Enrolment and early drop-out rates	Partnership agreement allows access to MIS of supported schools

Figure 27: S4J's helicopter lens assessment plan.

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5 VET case analyse, interpret and assess contribution

5.1 Fictitious example of analysing findings and assessing contribution for a change identified in the main system from the VET case[26]

In the fourth year of the program, a helicopter lens assessment revealed that, overall, the reputation of VET among school-leavers and their parents was improving and enrolment in VET schools was increasing. The assessment also found that the reputation of VET schools as a source for labour was improving among companies. However, the assessment found considerable regional and sector disparities in the data.

In several areas of Albania, tourism was booming. In these areas, enrolment in VET schools for the tourism sector and the reputation of VET schools among students, parents, and companies had increased significantly. In other areas, the improvements in enrolment and reputation among students and parents were more modest and the improvement among companies was minimal. The helicopter lens assessment indicated that in both types of areas the improved perception among students and parents was influenced by information they had received about the potential for well-paying jobs for VET graduates. In the areas with growing tourism, the potential for jobs in the tourism industry was a significant factor for students and parents. Tourism companies were looking for employees and were finding VET schools an increasingly good place to find them.

Meanwhile, intervention lens assessments showed that improved marketing among most of S4J's partner schools was beginning to influence attitudes among students and parents in their respective areas. Other VET schools had also started to copy some of the improved marketing.

Intervention lens assessments also showed that changes related to work based learning (company-based apprenticeship programs and private sector involvement in curricula design) were taking off in the areas with booming tourism. Partner schools in these areas had all started apprenticeship programs in the tourism and hospitality sector and a few other schools were considering it. Two partner schools had also expanded their apprenticeship programs to other sectors.

While all partner schools had initially approached BMOs as a way to get the private sector involved in curricula development, in the booming tourism areas, this had quickly changed to partnerships between individual VET schools and individual businesses. In these areas, tourism businesses were keen to invest in getting more employees through offering apprenticeships and providing input to schools to ensure that VET curricula were geared towards students graduating with the skills they needed. An impact assessment of the apprenticeship model in several schools showed that apprenticeships led to graduates being employed earlier, earning more, and feeling more secure in their positions than graduates from schools without apprenticeships in the same sectors.

The program concluded that better marketing and more cooperation with the private sector in tourism areas contributed to the improved reputation of VET among students and parents and higher enrolment in VET. In these areas, the growth of the tourism industry was also a very significant factor in these improvements.

The program concluded that the improved reputation of VET schools among the private sector was initially driven by the growth of the tourism industry. However, the VET schools in those areas had been able to capitalize on and contribute to improving VET's reputation among companies. The key to this contribution was changing the way schools worked with the private sector from a focus on BMOs to partnerships with individual companies and, in particular, by expanding their apprenticeship programs.

The program concluded that in other sectors, better marketing was a key factor improving the reputation of VET among students and teachers but that the program was not yet making a difference to the reputation of VET among companies.

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[26] Some of the information for this example comes from S4J (2020) Launching and Developing an Apprenticeship System in Albania, Swisscontact.

6 VET case review and revise

6.1 Example of reviewing and revising an intervention plan from the apprenticeship model intervention in the VET case[27]

Following the introduction of apprenticeship programs in tourism and hospitality in two VET schools in 2016-2017, S4J saw rapid pick up of this model in the following year. One of the original schools expanded its apprenticeship program to two additional sectors and three more schools started apprenticeship programs.

Assessment through the intervention lens found that, while both students and companies appreciated the apprenticeships, they were not satisfied with the scheduling of the apprenticeships. The apprenticeships were originally scheduled year-round for one to two days a week. However, during the off season in the tourism and hospitality sector, for example, there isn't that much work and not that much to learn, whereas in the peak season, businesses welcome apprentices and they have the opportunity to learn and practice more. S4J realized that adjusting the scheduling of the apprenticeships would not only increase satisfaction among the businesses and students currently participating but would also help additional schools introduce apprenticeship programs because businesses would be keen to have extra assistance during their peak periods.

So, S4J worked to adjust the scheduling with its partners as well as ensured the package promoting apprenticeships to other schools included this aspect of working with businesses on apprenticeships. S4J also realized that there were many tips that schools with apprenticeship programs could offer schools that wanted to start them. Therefore, the program also strengthened peer-to-peer learning between schools as part of their scale up work for the apprenticeship model.

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[27] Some of the information for this example comes from S4J (2020) Launching and Developing an Apprenticeship System in Albania, Swisscontact.

6.2 Fictitious example of reviewing and revising a system strategy from the VET case

Following from the analysis in section 5 above, a review meeting among the program's team came to the following conclusions about how to revise the VET system strategy:

- The program's efforts in marketing and work based learning (apprenticeships and private sector involvement in curricula development) are improving the reputation of schools, increasing enrolment and improving job prospects. Work based learning and, particularly, apprenticeships are improving the reputation among companies and encouraging companies to hire graduates into well-paying and secure jobs. Improved management and training materials in VET schools are needed to support these efforts. However, improvements in facilities have not played as significant a role in improving VET school performance. There is less need to invest in improved facilities at schools when students are using modern equipment in companies during their apprenticeships. Therefore, shift resources now spent on facilities into expanding the roll-out of 'products' in marketing and work based learning.
- Shift from encouraging schools to work with the private sector through BMOs to encouraging them to form partnerships with individual businesses because it is proving more effective. Develop a short explanation for schools on why to work with individual businesses. Reconsider involvement of BMOs in another year, particularly in sectors other than tourism.
- Review and gather more information on how to increase the involvement of companies in VET schools in sectors other than tourism.
- Increase efforts to roll out the apprenticeship model in the tourism and hospitality sector to more schools in areas with a growing tourism industry.
- Increase efforts to start apprenticeship programs in schools in other areas and sectors, and document what is essential to make them work in these areas and in various sectors.


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Annex C

Additional Guidance

Common mistakes in setting boundaries and how to avoid them

Mistake	Examples	Why it's a mistake	How to avoid it
Setting the main system boundaries too broadly	Setting the main system boundaries to cover the entire country, when interventions are focused on smaller areas. Setting the main system boundaries to cover entire sectors (e.g. 'fruit and vegetables'), when interventions are focused on specific crops.	It will be difficult to identify any contribution to system change as the influence of the program will be overwhelmed by the contribution of other factors.	Set the main system boundaries considering what might plausibly be influenced through the interventions. If this is not known early on, continue to revise and refine the system boundaries as the program evolves.
Setting the supporting system boundaries too narrowly	Including just a small proportion of the total actors in the supporting system.	Even if achieved, changes to the supporting system (narrowly defined) will be unlikely to influence the main system.	When setting system boundaries, start by including all the actors playing a similar role in the system. Set tighter boundaries around the supporting system if needed as more is learned about how supporting systems (and the actors in them) influence the main system.
Not setting the boundaries of both main and supporting systems	Setting the boundaries of the main system (e.g. maize) but not of the supporting systems (e.g. seed inputs) that are expected to drive changes in the main system. Clearly setting boundaries for supporting systems – such as defining a supporting system as 'the supply of a particular grade of hybrid seed to retailers on Madura Island' - but being vague about the main system they relate to.	It will be difficult to articulate a clear strategy. The supporting systems show the issues the program will work on and identify what needs to change; the main system shows what the program ultimately aims to affect.	Choose specific main and supporting systems and be clear about what the program means by 'the system' for all of them.


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What does 'performance' mean?

The performance of a system refers to the price, quality, quantity, and timeliness of the product or service the system produces, relative to the wider market. For many systems, this equates to competitiveness. For example, the maize system PRISMA is working on is not competitive if the *price* of the maize produced is too high, or the *quality* too low, relative to the wider market. The concept of performance is relevant to systems that are not commercial too. For example, in public health care systems, if the *quality* of vaccines is poor, or if they are not available in a sufficiently *timely* manner to be effective, the system is underperforming.

Performance also refers to the system's inclusivity. For example, if high-quality, affordable VET is available, but people of colour are systematically excluded from accessing it, the system is underperforming because of its lack of *inclusivity*.

Some organisations incorporate resilience in their definition of performance too, though this can be challenging to assess.

In short, if system change is a change to how a system works and to what happens as a result, performance refers to the "what happens as a result" bit.

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Common challenge: Monitoring too much

There are multiple ways to influence a system and multiple things it might be useful to monitor, so it is no surprise that many programs end up setting too many indicators and struggling to monitor all of them.

There is no easy answer to this challenge, so it is critical to be aware of it from the beginning. Keep the list of indicators as short as possible, always asking whether it is necessary to include any new indicators before adding them to the list. Check that the list of indicators to monitor is not greater than the program's capacity for measurement. Finally, always be aware that the list of indicators will be incomplete, so it is important to keep an eye out for unexpected changes too.

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Examples of how changes in supporting systems might influence other supporting systems and the main system

- More successful businesses in some supporting systems contribute to a more positive perception of the main system among investors and government, which leads to higher investment in the main system and other supporting systems.
- Businesses better recognizing and targeting women as suppliers and consumers in some supporting systems and the main system contribute to a broader recognition of women's roles and potential as trading partners throughout the main system and other supporting systems.
- Greater use of improved hybrid seed contributes to a greater demand for fertiliser, agricultural machinery, and other agricultural inputs, leading to higher productivity in maize.

- The incorporation of more and better information into a number of business models in supporting systems contributes to improving the overall flow of information in the main system, which leads to supply chains better delivering what consumers want and therefore increased sales in in the main system.
- More equal power dynamics between producers and inputs suppliers in some supporting systems contribute to a more equal power dynamic between producers and traders in the main system and other supporting systems, which leads to more efficiency in supply chains and/or producers getting a greater share of the financial benefits.


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Common challenge: Getting information from system actors

Because system change takes time and programs' agreements with partners are time-bound, programs need to get information from partners after completing the partnership activities with them. Because system change is not only about partners but also about other actors, programs need to get information from actors who the program is not partnering with. Both of these can be challenging.

Some tips from practitioners, which help to address this challenge include:[28]

Getting information from partners after the end of the partnership:

- **Be clear from the beginning**. Before the partnership agreement is signed, be clear with the partner that the program goals are to facilitate change in the market – not just to support their business. Explain that the program wants to ensure sustainable, large-scale change, and that long-term monitoring contributes to that goal.
- **Include post-partnership monitoring in the partnership agreement**. Partnership agreements typically include a monitoring schedule. If possible, include monitoring after the end of the partnership, not just during it.
- **Reduce the intensity of monitoring**. During partnership activities, partners often submit six-monthly or quarterly reports, covering a wide range of indicators. This level of reporting cannot be expected once the partnership has finished. Instead, focus on a small number of key indicators, reduce the frequency of monitoring, and rely on in-depth interviews to supplement this information.

Getting information from non-partners:

Partners are not the only source of relevant information about a system. It is critical to also get information from other actors who can offer complimentary viewpoints. For example, this might be those with a relationship with the program partners, such as suppliers, consumers, or competitors. It could also include other companies, public agencies, or organisations involved in the system. In order to get information from these actors:

- **Build – and value – good relationships**. The most important determinant of a program's ability to get information from non-partners is the quality of their relationships. If intervention managers are trusted by system actors, talk to them regularly, and are seen as neutral facilitators, it will be easier to get information than it otherwise would be.
- **Provide something back**. As a facilitator, a program can provide value to system actors, even if there is no formal partnership. A program can provide information, offer connections to supporting networks and associations, or just give ideas and advice.
- **Be realistic about what information others can share**. It is often not feasible to get sensitive, commercial information from actors without a partnership agreement. However, it is still possible to get useful information, such as the number of farmers an organisation works with, the number of employees in their business, and their perceptions of system change.


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[28] For more tips, see Miehlbradt and Posthumus (2018), Practitioners' Notes on Monitoring and Results Measurement: Gathering Information from Businesses.

Assessing benefits for the target group

Many programs have established systems for assessing impact when they work with a specific partner and a defined target group. In the maize case, for example, PRISMA plans to conduct a survey of smallholder farmers buying hybrid seed from their partner company and other smallholder farmers not buying hybrid seeds, in order to assess changes in yields and incomes.

Whenever possible, plan to investigate the benefits for the target group from behaviour changes among other system actors. For example, this might be understanding the benefits for the target group from others adopting a similar business model, from changes in attitudes towards smallholder farmers, or from changes in rules and regulations.[29]

It is often not possible to get the same depth of information on these impacts. This is because the program has less engagement with the market actors and target group members involved, and impacts are often unpredictable. However, it may be possible to get some information, such as approximate changes in system actors' sales or the number of customers they engage with. This information will help the program to understand the scale of the benefits for the target group.

In some cases, it is also possible to get information from target group members who have interacted with system actors who changed their behaviours other than the program partners. This information will help the program understand if the depth of benefit for target group members is similar to the results gathered during impact assessments among those interacting with program partners.

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How to keep helicopter lens assessment plans realistic and practical

Programs investigate big questions with the helicopter lens, which can quickly become a lot of work. In order to keep information gathering practical, consider the following:

- **Focus.** Concentrate on the 'need to know' versus the 'nice to know.' One common pitfall is that the plan to assess system change becomes too ambitious. Unrealistic assessment plans are demoralising and create fatigue. They tend to get abandoned for other priorities or sometimes provide too much information that is not really used.
- **Lean.** Think creatively about how to obtain relevant information in a way that doesn't exhaust your resources. Do you need to conduct large surveys, or is secondary information almost as informative? Do you need to interview all (and similar) actors, or can you obtain information about them from another source?
- **Timely.** Align information gathering with the review cycles for intervention plans and system strategies so that information, processed and analysed, is available on time for the review meetings.
- **Practical.** Spread the data collection over time to avoid a 'research-peak'. Information can be collected when changes occur or at convenient times; not all data collection needs to happen shortly before the review is scheduled. Spread the data collection tasks among staff too. All intervention staff are active in and familiar with the system. With the appropriate support, they can collect valuable information whether or not they are trained in research methods.

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[29] For an example of measuring the benefits for target group members of companies copying the business model of partners, see Sen N. and Hafiz W. (2015) Measuring Systemic Change – The case of GEMS1 in Nigeria, DCED.

Different options for helicopter lens assessment methods

To assess how much farmers in the target area have increased maize production, a program could:

- organize a representative survey among all farmers in the system;
- use secondary data on maize production and number of farmers that is collected by the government; or
- use average productivity (based on intervention assessments) and estimate overall sales volume by seeking information from traders, combining that with estimated sales volumes of seeds, and using all of that to calculate average production per farmer.

The last two options are less robust than the first but, in some contexts, may be sufficient and more doable.


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How to avoid unrealistic claims of contribution

Some programs claim contribution to significant changes in systems without making clear the extent of the program's contribution. This can be misleading and reduce the program's credibility. To ensure that contribution claims remain credible:

- Ensure that the aim of the team is finding out why changes happened, rather than seeking confirmation that changes happened because of the interventions. The aim affects how staff members ask questions and how they understand the answers.
- When interviewing, first ask what changes have occurred. Then ask why, without suggesting possible reasons. This is much more likely to uncover various reasons for change than asking businesses if they changed in response to a specific event or asking first if they know about changes directly caused by the program. It can be valuable, sometimes, to use unfamiliar faces to conduct interviews!
- Before going to interview people, make a list of possible reasons why a change might have happened, using the team's knowledge of the system. Then, following initial open-ended questions, ask interviewees explicitly about the influence of these other, non-program factors on the changes observed.
- Think critically about how much the program may have contributed. The question is not just whether the program contributed or not, but also the extent to which the program contributed. The team's qualitative judgement will help to frame information gathering and analysis.


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