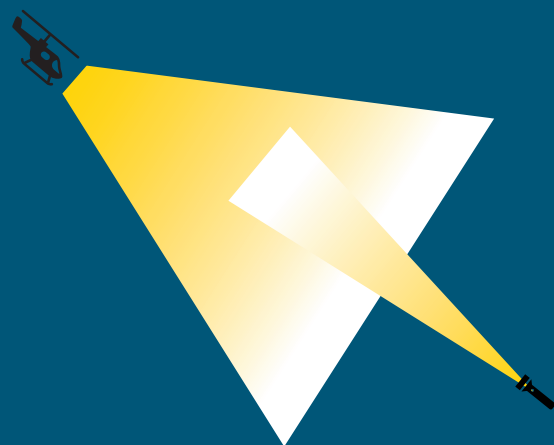# A Pragmatic Approach to Assessing System Change

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Contents

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1 Introduction

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

However, some mature programs are starting to assess system change more effectively. Building on these emerging practices, this paper outlines a process that programs can use to assess system changes regularly and practically. First, it explains how to develop a system change strategy and intervention plans that lay the groundwork for system change assessment, including how to set system boundaries and how to identify the system changes a program aims to catalyse. It then explains how to assess system changes using both an *intervention* lens focused on changes introduced by specific interventions, and a *helicopter* lens that provides a whole system view. By analysing findings from the helicopter lens and the intervention lens together, programs can improve their strategy and report on their contribution to system change. Figure 1 shows how this process fits into a typical program cycle.[1]
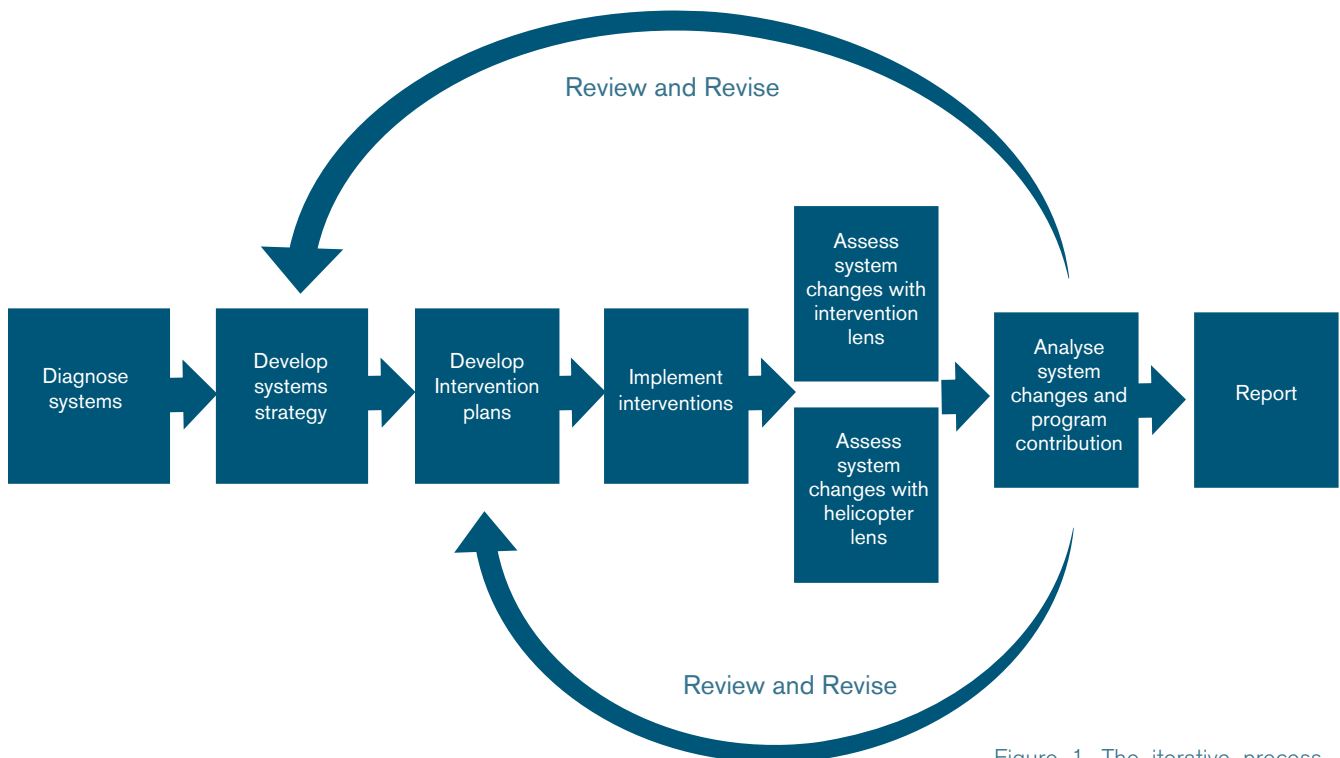

Figure 1. The iterative process of planning, assessing, analysing and reporting system change

[1] This overview is the first of several papers providing guidance on assessing system change. More detailed technical guidance is forthcoming.

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. System change is a change to how the system works and to what happens as a result.[2] Planning for and assessing system change is therefore a strategic management issue, critical for everything from developing a strategy and designing interventions, to adapting strategy, improving implementation and reporting impact.

How this approach can help

The approach in this paper helps programs to structure strategies and intervention plans so that they better guide program management and assessment of system change. The approach also introduces the intervention lens and the helicopter lens for assessing system changes. While the intervention lens is like an investigator tracking a trail of changes that were triggered by interventions, the helicopter lens is like looking at the landscape to take in the whole picture of what has and has not changed in the system.[3] Using the lenses together gives programs a clearer picture of system change than either could provide on its own. By enabling programs to pragmatically identify and assess system changes regularly, the approach equips programs to improve their strategies and interventions more effectively and quickly. This helps programs to better foster system changes that benefit their target groups at scale.
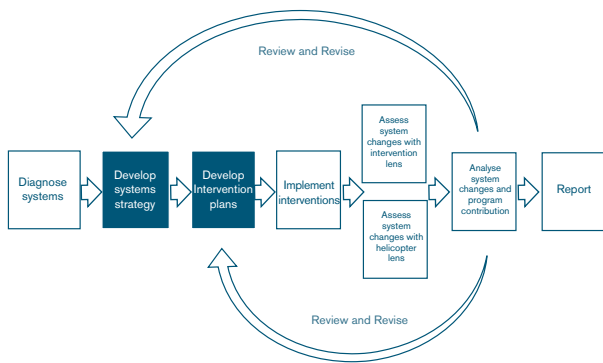
Watch a video of workshop participants reflecting on this pragmatic approach.

[2] For more discussion on system change see the BEAM Exchange website.
[3] The helicopter and intervention lenses resemble the 'Top down/Bottom up' framework. See Itad (2012) GEMS Results Measurement Handbook, GEMS.

2 Develop system strategy and intervention plans

Strategies guide management decisions and implementation activities by outlining how a program expects to promote system changes. Programs need one system strategy for each targeted main system and aligned plans for each of the interventions expected to influence that main system. System strategies provide an overview of the ways the program aims to influence the main system and how the resulting changes are, together, expected to contribute to the program goal. They help programs to develop, manage and revise a portfolio of interventions. Intervention plans guide the implementation of individual interventions by showing how each intervention is expected to contribute to specific system changes (see Figure 2).[4]

The system strategy describes how the support systems (in blue) are expected to influence the main - maize - system (in green) in order to impact 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 which, in this case, show working with seed companies to target two supporting systems – hybrid seeds and related information about Good Agricultural Practices (GAP).
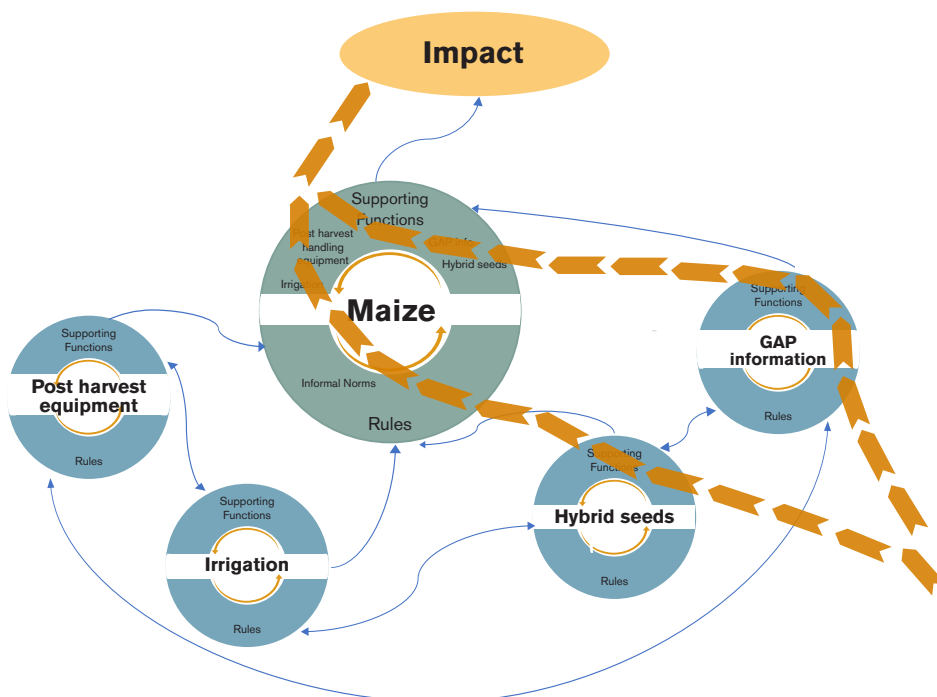

Figure 2. A system strategy and intervention plan using the example of maize as the main system

[4] The examples in this paper are based on PRISMA's work in the maize sector in one area of Indonesia. The examples have been adjusted for learning purposes and do not always accurately reflect the program's work.

System boundaries

Systems don't operate in isolation; any given system is connected to multiple other systems. Programs, therefore, need to delineate the boundaries of the main system they aim to influence, explicitly stating what's included and what's excluded. Clear system boundaries help a program to develop effective strategies and to assess and report system changes relative to the bounded systems.

System boundaries are set according to where opportunities and constraints lie relative to the program goal, and according to what is achievable given the program's timeframe and resources. This includes clearly defining the target group and making choices about which geographical area and which interconnected systems – sometimes called 'supporting systems'[5] – to focus on (see Figure 3).
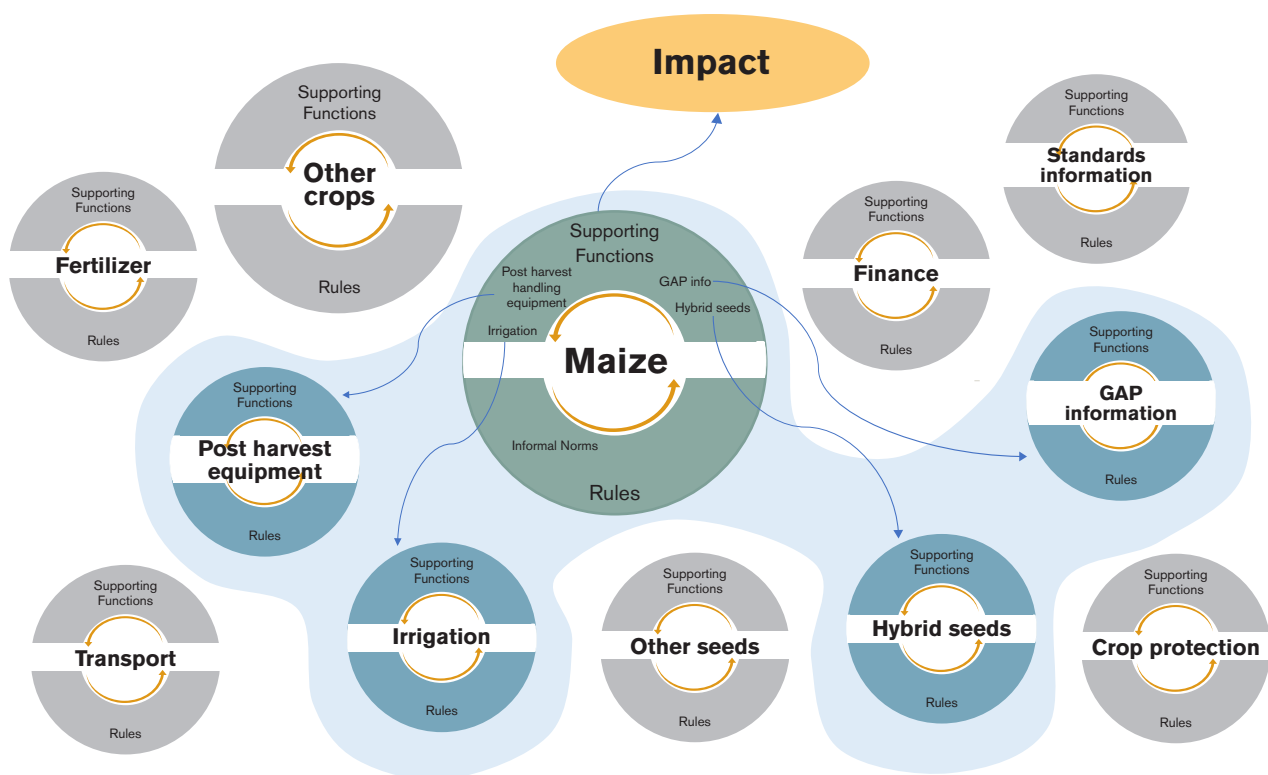
Figure 3. Example of delineating system boundaries. In this case, the program has chosen maize as the main system, excluding other crops, and decided to include four critical supporting systems while excluding the others.

Boundaries may be redefined over time as programs learn more about what is relevant to the changes they aim to achieve.[6]

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[5] The Springfield Centre (2015) The Operational Guide for the Making Markets Work for the Poor (M4P) Approach, 2nd edition funded by SDC and DFID.
[6] Fowler, Sparkman and Markel (2016) Disrupting System Dynamics: A Framework for Understanding Systemic Changes, LEO.

System strategy

A system strategy summarises the *boundaries* of the system, describes the *starting state* and *desired state* for *expected changes* in the system, and explains the *plan* for how the program intends to catalyse those changes. It is helpful to develop the system strategy immediately after system diagnosis, before implementation starts.

The system strategy lists expected changes in both the main system, and in targeted supporting systems. It records data on the *starting state* and describes the *desired state* for each of these expected changes. Questions to guide the articulation of changes include:

- 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?

The system strategy also includes a plan that explains how the program intends to influence the system to achieve the listed changes. It describes how the program plans to catalyse changes within supporting systems through their portfolio of interventions and how these different intervention-driven changes are expected to interact and lead to changes in the main system. It also shows how system changes are expected to benefit the program's target group.

The system strategy can be summarised using a system results chain (Figure 4) and a table (Figure 5). The results chain visualises how a portfolio of interventions could contribute to changes in supporting systems, how changes in supporting systems are expected to change the main system, and how that might affect the target group. Although results chains are a linear picture of complex system changes, they provide a useful framework for thinking through a strategy and planning monitoring activities.

Figure 4. System results chain for the maize example
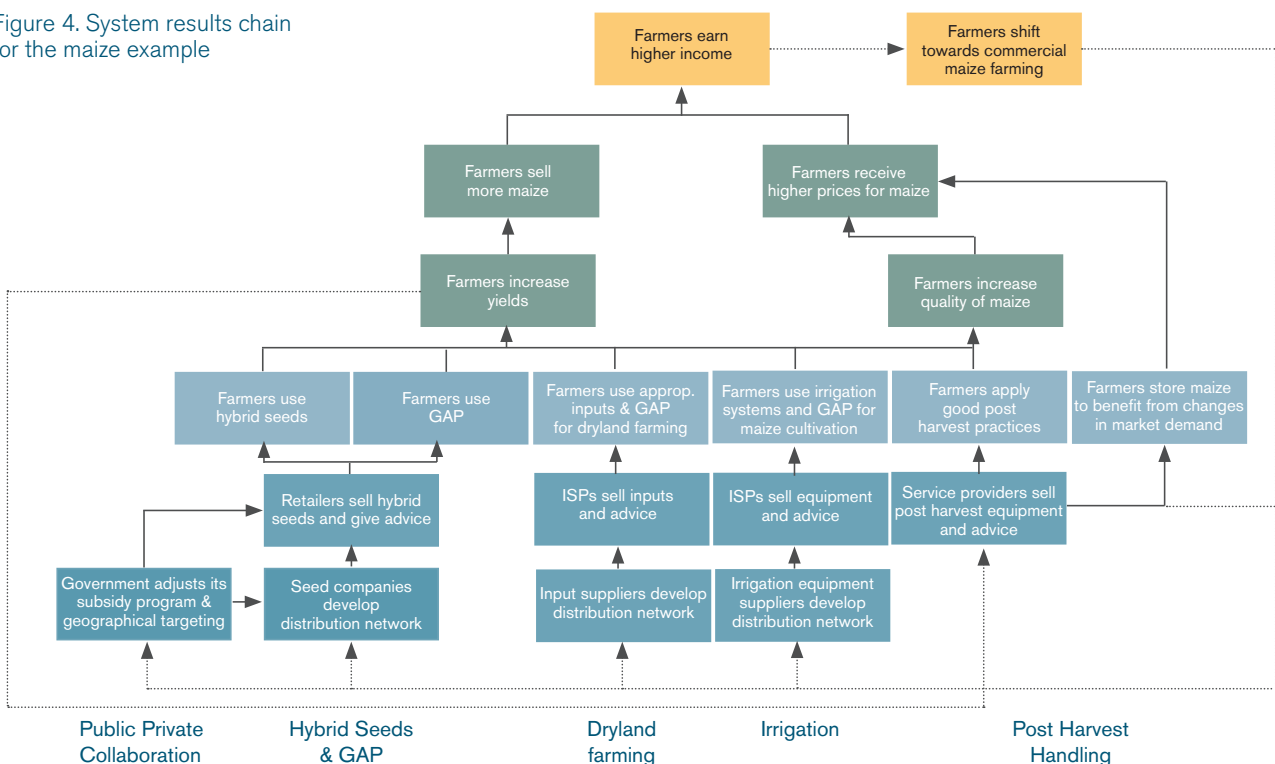
The table sets out boundaries for the main system and records data for the starting state and the desired state for key changes anticipated in the main system and supporting systems. It also shows how interventions are expected to contribute to changes and explains interactions between supporting systems in a way that a results chain can't easily capture.

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. Once farmers start to increase yields, the program will add a focus on reducing post-harvest losses. As farmers start shifting to more commercial production, the program can likely add work in dryland farming and irrigation. Etc.	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
Farmers' perceptions of maize crop	Mainly subsistence		Both subsistence and cash crop
Etc.	Etc.		Etc.
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 farmers with embedded information on GAP, and 2) improve public-private coordination in hybrid seed distribution. These two changes are interdependent. 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. Etc.	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
Farmers' perceptions of hybrid seeds	Risky, unnecessary		Useful, requires right GAP
Etc.	Etc.		Etc.
Supporting system 2, etc.			

Figure 5. Partial system strategy table using the maize example

Programs learn more about the system as they develop and manage interventions and monitor and assess their impacts. System strategies will become more robust as they are revised over time.

Intervention plans

Intervention plans outline how and when interventions are expected to lead to specific changes in one or more supporting systems. They show what is expected to change, for whom, how changes are linked to program activities, and how changes are expected to spread. They also show how changes in the targeted supporting system(s) lead to changes in the main system and contribute to impact for the target group.[7]

Programs usually start interventions by partnering with system actors to influence their behaviour. To increase the likelihood of system change, programs carefully choose partners and design and manage interventions over time to not only influence partners but also other system actors. The goal is that system actors adopt and own new behaviours at scale – relative to the boundaries of the targeted system – and that other changes in the system reinforce the new behaviours, making them more resilient.
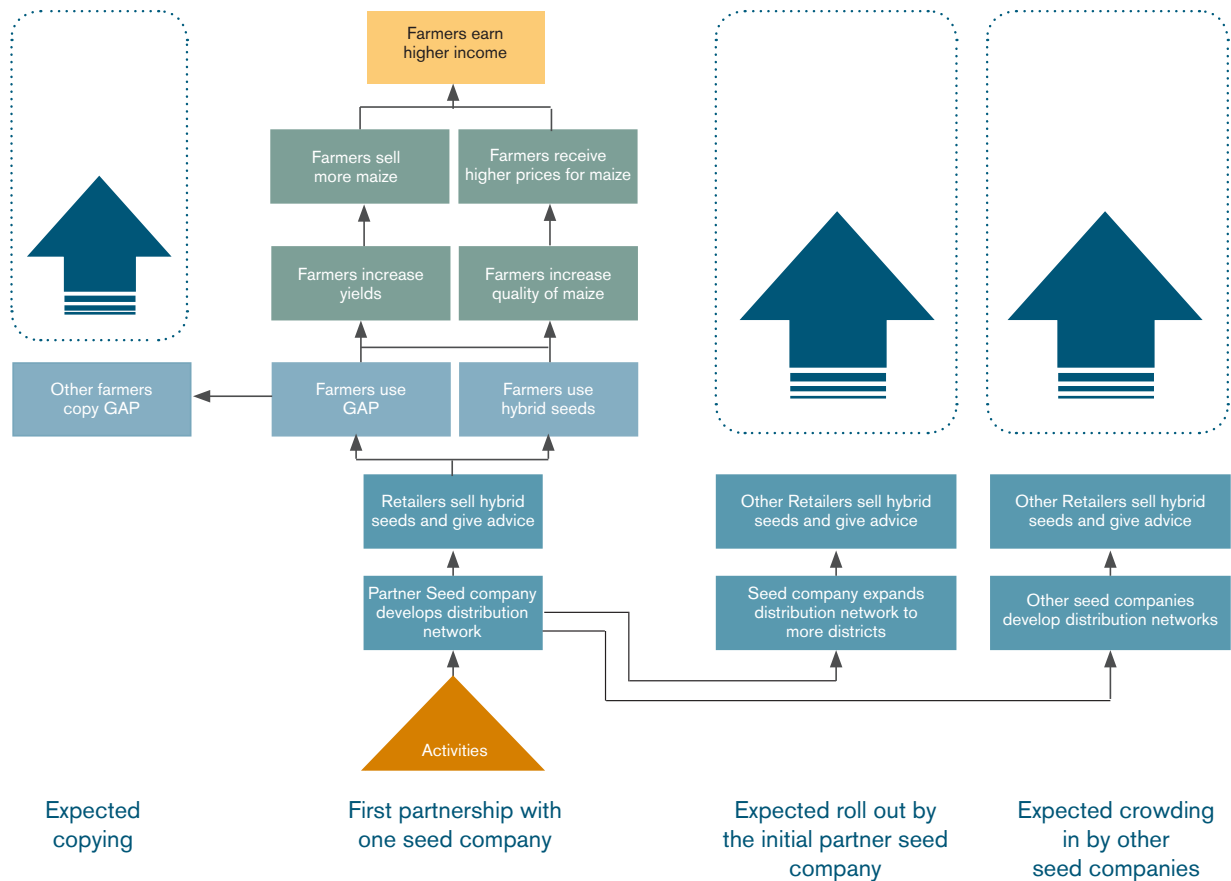
Figure 6. A simplified intervention results chain for the maize example

An intervention plan is typically visualised in an intervention results chain (Figure 6), with associated indicators to assess progress.[8] Intervention plans are developed just before or in the initial stages of intervention implementation and regularly revised based on incoming information.

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[7] Similar partnerships may be combined under one plan; system change rarely occurs as the result of just one partnership.
[8] See Kessler, Sen and Loveridge (2017) Guidance to the DCED Standard for Results Measurement: Articulating the Results Chain, DCED.

3 Use complementary lenses to assess and analyse changes

Programs need to assess system changes using 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 can help a program build a robust understanding of what system changes are occurring and why.
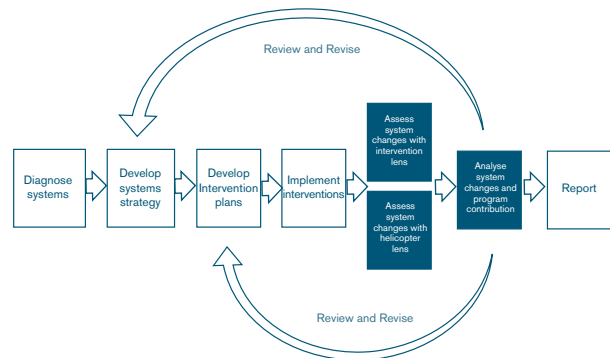
Intervention lens

The intervention lens follows the spread of a specific change introduced by an intervention. It tracks new behaviours from program partners to other system actors, examining how far the change spreads and whether it will stick. Questions include:

- To what extent do market 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, and how, is the change reinforced by other parts of the system?

The intervention lens also examines changes up the results chain. It assesses to what extent changes in the targeted supporting system(s) affect the main system and to what extent those specific changes in the main system affect the target group.

The starting point for assessing system change through the intervention lens is the intervention plan. Most programs have established monitoring and results measurement (MRM) systems that guide program staff to monitor changes and assess impact in accordance with intervention plans.[9] Intervention lens assessments can mostly be combined with these regular MRM activities.

However, it can be difficult to predict exactly how and when a system will change, so programs also need to keep an eye out for possible signs of system change. This requires an investigative approach, obtaining information from diverse sources – including, but also extending beyond, program partners – and recording information regularly. Any signs of change can be probed to better understand the nature and extent of the change, to validate findings with a stronger evidence base, and to further explore the program's contribution to the change.

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[9] See, for example, the DCED Toolkit for Implementing the DCED Standard, available at www.enterprise-development.org

Helicopter lens

The helicopter lens is focused on big picture changes: 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 helicopter lens complements the intervention lens by capturing broader changes. For example, the helicopter lens assesses changes to the volume of maize produced by smallholder farmers across the whole system, whereas the intervention lens only captures changes to the volume of maize produced as a result of specific interventions. Often, system changes are caused by the interaction and accumulation of multiple interventions and may not even be targeted by any single intervention. For example, the helicopter lens might find that maize farmers are becoming more commercially oriented as a result of the combined effect of changes in three different supporting systems. This would not be easily captured by any one intervention lens assessment. In addition, the helicopter lens allows programs to assess changes to systems caused by external factors. Monitoring these changes informs program strategy and supports analysis of the program's contribution to system changes.

The starting point for assessing system change with the helicopter lens is the system strategy. The helicopter lens is used to compare the state at the point of assessment with the starting and desired states for the changes described in the strategy and to look for interactions among changes. The challenge is to focus on the changes included in the system strategy, while keeping an eye open for changes in other supporting systems, and for unexpected effects. Too narrow a focus may lead to missing crucial information; too broad a view may be resource-intensive without adding much relevant information.

A simple assessment plan can help find the right balance. The system strategy and the guiding questions (see the box on page 5) will help to define what changes – expected and unexpected – need to be assessed. The format in Figure 7 provides simple questions to help programs translate each change into specific research questions and to think creatively about information sources and methods. After completing this 'thinking process' for each system change to be assessed through the helicopter lens, programs can combine the actual information gathering required with other MRM activities to avoid duplication.

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 (wide representation across system)	Perceptions and opinions	Poll farmers at farmers' markets	End of season
Are volumes of maize traded increasing across the whole system?	Traders	Information on volume of maize traded	Interview traders by phone	
	District agricultural officers		Interview district officers at annual events	

Figure 7. Partial helicopter lens assessment plan using the maize example

Analyse, interpret and assess contribution

The helicopter lens enables programs to assess broad system changes, while the intervention lens enables them to assess the scale, sustainability and impact of the changes introduced by program interventions (see Figure 8).

Helicopter lens:
What has changed?
How has it changed?
Why has it changed?

Intervention lens:
What has changed as the result of the intervention(s)?
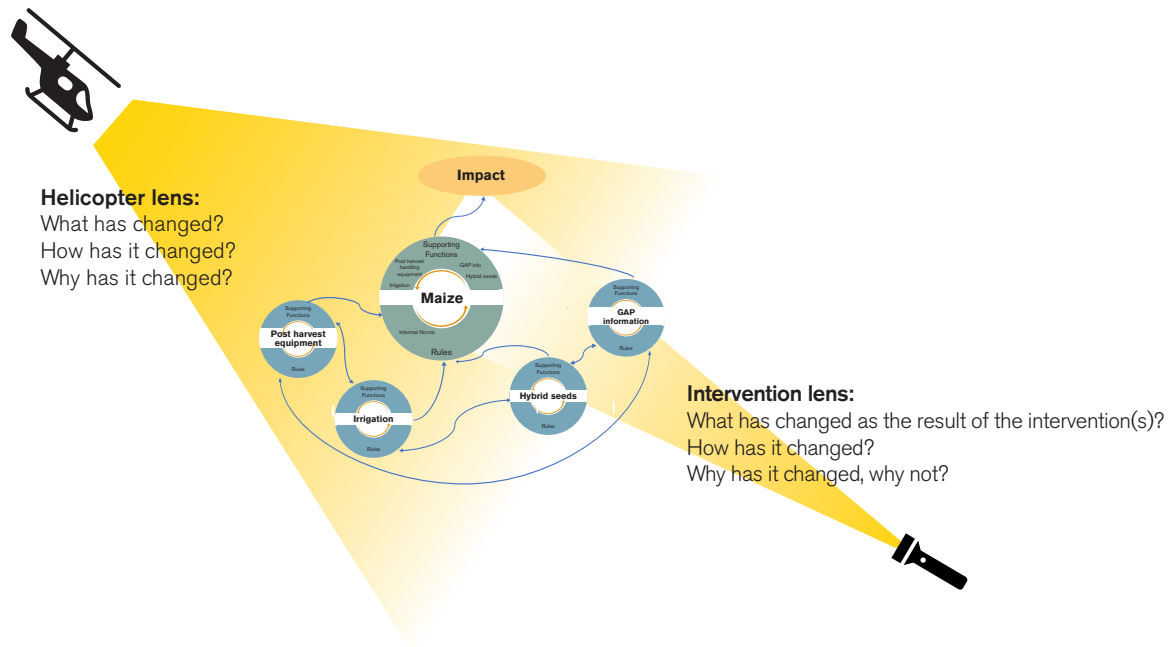How has it changed?
Why has it changed, why not?

Figure 8. The system lens and intervention lens complement one another

By combining findings from both lenses, a program can understand changes in the systems it is targeting and form a credible picture of whether and how it has contributed to changes in the main system. The findings from several intervention lens assessments show how program activities lead to changes in targeted supporting systems, which in turn lead to changes in the maize system and contribute to impact. For example, 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. An impact assessment indicates that farmers' use of the hybrid seeds and increased access to information from both extension officers and commercial seed retailers contributed to higher maize yields.

Meanwhile, the helicopter lens captures the combined effect of multiple changes, including those caused by external factors. For example, findings from the helicopter lens may show that the total volume of maize traded by small 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, due to higher maize yields, more opportunities to sell maize and more access to information.

Taken together the two lenses give a picture of system changes in both the main system and supporting systems, and show how program interventions contributed to these system changes, and therefore to impact. In the maize example, they indicate that the program contributed to the trend of small farmers in Madura increasing their sales of maize. The two lenses also show that the program contributed to two of the key reasons for farmers becoming more commercial: higher maize yields and more access to information. This change in farmers' norms regarding maize is likely to drive further increases in maize sales and farmers' benefits.

A culture of honest enquiry is required to assess if and how program interventions have contributed to system changes. The purpose is not to rigidly classify the significance of the contribution, but to provide a transparent and evidence-based explanation of what has changed, why, and the role of the program in influencing those changes.

4 Review and revise

Systems are dynamic, so it's critical that system strategies and intervention plans are reviewed and revised regularly. The system strategy and intervention plans provide the foundation for assessing system changes, and the assessment findings, in turn, provide the information needed to revise strategies and plans. This creates an iterative process of learning and adaptive management.
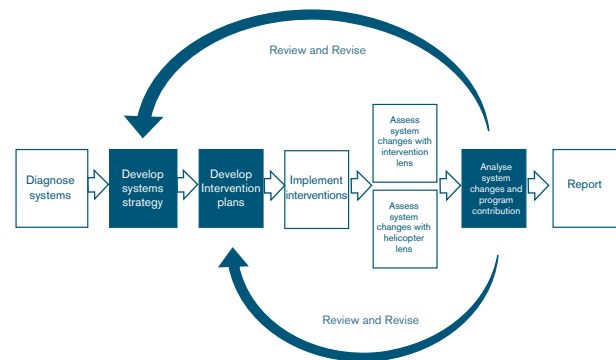
Reviewing and revising intervention plans

Most programs review intervention plans frequently based on information from their regular monitoring activities and impact assessments.[10] It's critical to consider system changes in these regular reviews. The first task is to review the findings from the intervention lens assessment, looking at why, how and how many targeted system actors have changed their behaviour, their degree of ownership over changes, and their ability to respond to future changes. The second task is to revise intervention plans in light of system changes (or lack thereof), both those promoted by interventions and those caused by other factors. Revision can mean adjusting or closing existing interventions or adding new interventions.

Reviewing and revising system strategies

System strategy reviews happen less frequently than intervention plan reviews,[11] and require a different mindset. Reviewing the system strategy involves comparing the current state of the system with the starting state and desired state and assessing whether the interventions are working together to foster the expected changes in the main system and supporting systems. It's about connecting the dots and making a judgement call as to whether the system strategy is working, given the amount of time that has passed. Then, the program can use its improved understanding of the main and supporting systems, and how and why they are changing, to revise the system strategy.

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[10] Frequency depends on the business cycles; most programs review intervention plans 2-4 times per year.
[11] Frequency depends on the business cycles; most programs review system strategies once or twice a year.

5 Report transparently

Most stakeholders want programs to report three things about system change: 1) what changes have happened, 2) to what extent and how the program contributed to system changes, and 3) how the program is responding to a changing context. By using findings from both intervention lens and helicopter lens assessments, programs can report credibly on all three of these.

To report on what changes have happened, programs can use the findings from both lenses to explain changes in supporting systems and the main system in relation to system boundaries. A strong description covers both the results of interventions and how changes to the main system and relevant supporting systems interact and affect systems' performance. Systems are messy, so reporting will necessarily be a simplification. However, a program can report rigorously by drawing on both lenses,

using a mix of qualitative and quantitative indicators, and differentiating between empirical evidence and interpretation.

To report on contribution, a program can use findings from the intervention lens to show how changes to supporting systems link to program activities, and findings from the helicopter lens to explain transparently how changes to targeted supporting systems and other, external factors caused changes to the main system. This enables the program to describe clearly its contribution using evidence from both lenses.[12]

Finally, to highlight adaptive management, a program can explain how it is using findings from both lenses to review and revise its system strategy and portfolio of interventions, in light of both expected and unexpected changes.

6 A pragmatic way forward

The approach laid out in this paper builds on the experience of programs and existing good practices recommended by guidance on market systems development and the DCED Standard for Results Measurement.[13] It can be applied across a range of sectors by programs using a variety of system change frameworks.

The cycle of planning, implementing, assessing, analysing and reporting is already embedded in programs. The approach in this paper helps to structure each step to better guide the achievement and assessment of system change. It shows how to design system strategies and intervention plans so that they break down system change into a series of concrete and measurable changes. It then shows how to assess system changes as they happen. Many programs are already using an intervention lens to track the spread of targeted behaviour changes through a system. This approach adds the helicopter lens to capture also the

broader changes in the targeted systems. Both the intervention lens and the helicopter lens use familiar information gathering processes and methods that can be combined with existing MRM activities. Finally, the approach provides guidance on how to enhance the analysis of findings so that they more effectively inform revisions to the strategy and plans and can be clearly reported to program stakeholders.

Programs that want to use this approach don't need to start from scratch. They can incrementally build the new elements into their existing management cycle. Experience with the approach to date suggests that the payoffs in greater clarity, more purposeful planning and a richer understanding of system change are worth the manageable, additional effort. Ultimately, this approach will help programs to change systems more effectively so that they are more efficient, inclusive and resilient, resulting in wider and deeper benefits for their target groups.

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[12] Systems are too complex and multi-faceted for programs to plausibly claim that changes are solely attributable to them.
[13] More information on the DCED Standard is available at www.enterprise-development.org/measuring-results-the-dced-standard/