# Six Steps to assess systemic change (and improve your strategy)

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# INTRODUCTION

Various frameworks have been developed that seek to describe or define systemic change.[3] Each uses a slightly different set of intangible concepts to articulate what makes change 'systemic'. So it is fortunate that we don't actually need any of these frameworks to go about the actual empirical work of assessing systemic change.

For there is a simple reality hiding behind the frameworks. Whatever you think 'systemic change' is, the task of assessing whether it has happened on the ground remains more-or-less the same. All we need to know to assess systemic change is the prevalence of people in your system doing things differently, and the extent to which they benefit from and maintain these behaviour changes. This paper sets out a set of practical steps you can take to help figure that out.

After following these steps, you can then slot the resulting assessment into whatever systemic change framework you prefer. And, as an added bonus, you'll be left with a better understanding of the system that is likely to improve your efforts to change it.

## CONCEPTS

Though we do need some concepts to talk through the process of assessing systemic change, we only need tangible concepts that correspond closely to the reality on the ground. We do not need high-level, abstract concepts that are difficult to define let alone measure. Four very basic concepts are enough for assessing systemic change.

| Tangible concepts | Intangible concepts |
|---|---|
| ✓ Actions | ✗ Resilience |
| ✓ Actors | ✗ Emergence |
| ✓ Behaviour change | ✗ Adaptation |
| ✓ Resources | ✗ Innovation |
| | ✗ Norms |
| | ✗ Rules |
| | ✗ Supporting function |
| | ✗ Institutions |
| | ✗ Complexity |

- ACTIONS: The things people do.
- ACTORS: The people (including companies, government departments etc.)
- BEHAVIOUR CHANGES: The things that actors do differently.
- RESOURCES. The things that actors have.[4]

That's it, that's all we need. This is not to say that the intangible concepts set out in the table above are unimportant for other purposes. For instance, supporting functions and rules are tried-and-tested effective concepts for providing a high-level overview of what is important in a system.[5] But there is a job of translation to the actor and action level to do to make these concepts useful for measurement. Because unless and until they are defined in tangible terms, they do not contribute usefully to empirical assessments of systemic change.

The concept of 'system' here refers to a defined set of actions that a defined set of actors are doing with a defined set of resources. This is a helpful way to think of systems, because we can measure actions, and we can measure actors, and we can measure resources, so we'll know if the system has changed.

[3] See, for instance, Adopt Adapt Expand Respond (Nippard et al 2014, Lomax 2021), Disrupting System Dynamics (MarketShare Associates 2016), Systemic Change Pathways (MDF 2015), and Cunningham and Jenal (2016).

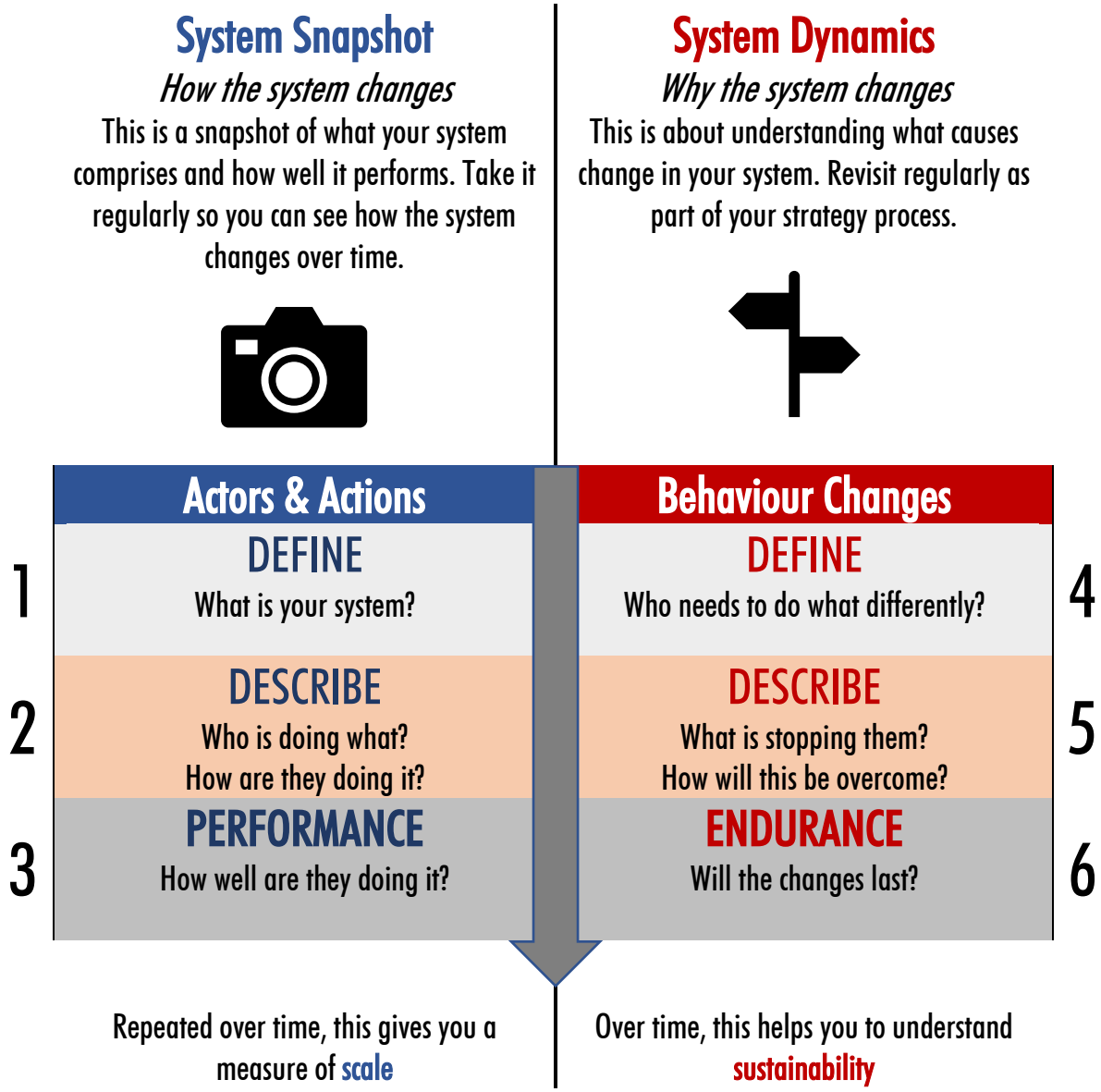
[4] Resources are not just money! It includes information, human resources like skilled employees and family members, physical resources like tractors, crops and buildings, natural resources like land and water, as well as cash and credit.

[5] See Springfield's (2015) Operational Guide for more information.

## OVERVIEW OF THE SIX STEPS

The first three steps of our process will involve taking a 'System Snapshot' – seeing how it looks and how it is performing at any given point in time. This involves first defining then describing the actors and actions that comprise the system, then assessing the resources that the actions produce.

Then, looking at behaviour change the subsequent three steps involve understanding the processes that cause the system to change. Again, we define, then describe, then assess whether or not the changes will last. Taken together, and repeated through time, these six steps will provide a clear representation of the aspects of systemic change that really matter for most development programming, and that can be operationalised to improve programme strategy. The figure below summarises the six steps for assessing systemic change. [6]

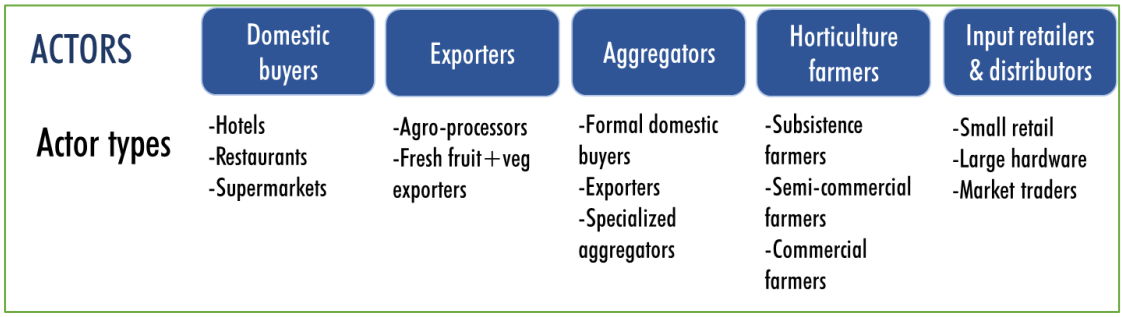



[6] Students of English history will be familiar with a way of remembering the fate of Henry VIII's six wives: divorced, beheaded, died, divorced, beheaded, survived. Our six steps follow the same pattern.

# SYSTEM SNAPSHOT: HOW THE SYSTEM CHANGES

## STEP 1: DEFINE ACTORS & ACTIONS

Here you specify what you want to include in your system and define its basic structure. You start with choosing what actions to include[7], and you find out what sets of actors perform those actions. You can further define subsets (or types) of those actors for each of the actions – for instance, women-owned leather goods manufacturing businesses, or domestically-owned car producers, or workers aged 18-35, or farmers with less than one acre of land, and so on. While you may refine the system you are working in to only include actions pertaining to certain of these actor types (e.g. youth labour markets), this should only be done for substantive reasons and it will remain important to keep an eye on the wider picture. Your list of actors and actor types might be structured along the lines of the example below (from a fruit & vegetable system):




Then check back to the actions you've listed and match them to their corresponding actors. When doing this you'll notice that the actions in your system are usually either *production* (transformations of a resource) or *exchange* (transfers of ownership of a resource). For example, farmers are producing maize and they are selling it. Hardware companies are importing seeds, distributing them, and selling them. Finance companies are hiring people and designing credit products and advertising those products by transferring marketing information to potential clients.

The actions that are exchanges will usually form the connections between actors in your system. These connections are important and should be highlighted.

### To do list:

- ✓ List the actions that are included in your system
- ✓ List the actors and actor types that perform these actions that you will include in your system.
- ✓ Map the exchange-based connections in your system.

For more information on how to define actions and actors (and how to deal with 'destructive' actions like disease, crime, natural disasters, conflict etc), see: Mechanisms of social change: outline of a conceptual framework. Appendix 1 includes an example diagram of the actions in a system with connections mapped, which is taken from Actions & Actors System Mapping: a practical guide to delineating systems.

[7] You should follow a rigorous system diagnostic process to decide which actions to make sure that you are including important root causes of system underperformance. See Springfield (2015) for guidance.

## STEP 2: DESCRIBE ACTORS & ACTIONS

Step 1 set out at a high-level the actions and actor types. Now we move from the general to the specific. To describe the system we are working on in detail we will set about answering two key questions. What are the important characteristics of how the actions are performed in this system? And who, exactly, are the actors performing those actions in this system?

Why are we answering these two questions? Because systemic change will be reflected in people doing things differently, so we want some kind of repository of information of *who* is doing what and *how* they're doing it. As in Step 1 there are choices to be made. For *how*, you are the one choosing what is important about how they are doing it – we don't need to know everything about how things are done. It's likely you'll describe in detail only those things that are already intending to change, or that you might want to change, or that might significantly affect your programming. Similarly, for *who*, you'll have to decide what to include about the actors. For instance in case new firms setting up or existing ones going out of business might be an important aspect of change we might want our description to include the names of these firms in the system (if there aren't too many).

Example questions might include:

- *How (describing actions)*: How are farmers planting the seeds? Who do female farmers sell to? Who do farmers in District X get information from? How do tractor owners negotiate lease arrangements?
- *Who (describing actors)*: How many seed importers are there? What is their relative market share? How many seed importers are also distributors? What are the names of these specific companies? How many farmers practice zero-tillage?

An important point to remember is that you're looking at the *whole* system, which is defined on the basis of *actions* you're interested in. So, for example, we don't want to describe only the two seed importers you've been working with, we also want to know about the other six established seed importers, the new one that registered a couple of months ago, as much as we can about any illegal seed importers, and anyone else who is bringing seeds into the country.

### To do list:

- ✓ Describe any important characteristics of the actions for each set or subset of actors in terms of how they are doing it.
- ✓ Analyse who (if anyone) is doing things the way you want them done, and who is not.
- ✓ Describe the actors. How many are there in your system? Are there any other distinctions between the types of actors doing things that we need to emphasise?
- ✓ Where realistic, name all of the actors (probably firms, organisations or government departments) performing a given action. And where it is important, look at relative market share.

For more information about characteristics of actions that you may be interested in describing, see Appendix 2, which presents the typology from What is behaviour change? Towards a working typology.

## STEP 3: ASSESS PERFORMANCE OF ACTORS' ACTIONS

The final part of the system snapshot is some assessment of how well the actions are being performed. Performance is assessed by looking at the outputs of actions. Each production action has a resource output for the producer. Growing crops gives farmers a harvest. Studying school textbooks gives students knowledge. Exchanges, though, have two outputs – one for the seller, one for the buyer. In selling the harvest the farmer gets cash and the buyer gets crops.

In either case there is probably something about the resource output of each of the actions in your system that you are trying to change. You might be trying to improve the quality, or quantity, or yield (price if it's an exchange), or timing, or type of your output.

- Quality of output – is it good enough?
- Quantity of output – how much is produced or exchanged?
- Productivity – what is the yield in production?
- Price of output – what is the price in exchange?
- Timing of output – is the output supplied in time for when it is needed?
- Type of output – is the output what is needed?

Once again, we must make some choices. We are only looking at the performance types that are important for your programming. For example, if you are interested in improving the quality of seeds imported, we don't necessarily need to look at the punctuality of import relative to planting season. If we're interested in improving wage rates for young labourers, we might also need to look at the quantity of employment, assuming we are after increased overall incomes.

### To do list:

- ✓ Specify what the important parameters of performance are for each of the actions.
- ✓ Assess the important aspects of performance for each of the actions for each of the sets of actors.
- ✓ Analyse comprehensively the performance difference between those who are doing things the way you want them to and those who are not, with particular focus on the outcomes for the actor themselves.

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### TAKE A BREAK! You're halfway there. But before you start eating your KitKat, remember:

- Repeat step 1 as often as is necessary – as you change the system, or as the system changes around you, you often will find that other actions or actors are important. Add in new actions as their importance becomes apparent.
- Repeat steps 2 & 3 – it is only through regularly repeating the System Snapshot that you will understand how your system changes through time [although you can do retrospective analysis if necessary]. How often is appropriate may vary for different sets of actors and actions, but considering annual repetition might be a good starting point.
- You'll have some idea where you want this system to go. Who you want to be doing what on an ongoing basis when the system is working as it should. If you're following MSD principles you'll call this your *vision*. This vision can be expressed in the same terms used in Step 2 or Step 3 depending if you have a vision about how well things are done, or how they are done, or who is doing them, or all three. While you don't need a vision to *assess* systemic change, you really ought to have one if you're trying to *achieve* systemic change. And having one will help for subjective decisions made in the System Snapshot steps, and also inform the System Dynamics steps.

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# SYSTEM DYNAMICS: WHY THE SYSTEM CHANGES

Now let's focus on who needs to do what differently to change the system.

## STEP 4: DEFINE BEHAVIOUR CHANGES

We start again with definitions, and again there are choices to make. We're not analysing *everything* that anyone in your system does differently, we're only looking at the behaviour changes you are intending to introduce [or other behaviour changes that stem from your work]. So the first thing to do is list, for each actor type, what new or different thing(s) you need them to do in order to bring about your desired changes.

At some point in this process it will become apparent that there are two forms of behaviour change. Some are changes in behaviour that need to be maintained on an ongoing basis in your system. These 'ongoing' behaviour changes should correspond to your vision for who performs system actions, and how. [Check back to Step 2 and see how they connect.] A second form of behaviour change is the 'one-off' interim changes that need to be made in order to get to the ongoing changed actions in your vision.

Note that for both one-off and ongoing behaviour changes there may be steps that build up to the desired behaviour change. For instance, before a distribution company invests in setting up operations in a new market, they may take conduct market surveys, have meetings with a range of possible retail outlets, analyse prior competitor experience in the market, and so on. Or before farmers fully adopt a new seed, they may examine how it performs for neighbours, test it on a smaller area, and so on. It is useful to set out these steps, and to be as detailed as you can.

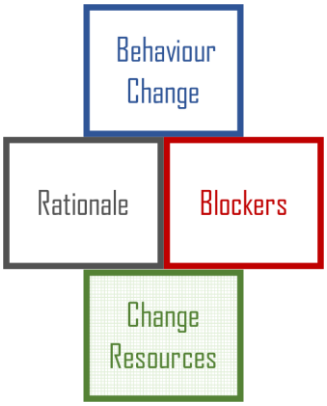
### To do list:

- ✓ List the behaviour changes required by each set of actors in order to get to the position you want the system to be in. Be detailed and specific, setting out steps required. *Note: also add in the 'behaviour changes' of your programme – you're not going to achieve anything without doing something new and different yourself! Include other development actors if appropriate.*
- ✓ Put behaviour changes in a logical order and call it a results chain, or check it against your existing results chain.
- ✓ Label those behaviour changes that we need to continue 'ONGOING', and those we don't 'ONE-OFF'. Think about this critically. How long will the effects of one-off behaviour changes last?

Note that important behaviour changes will likely occur amongst actors and/or actions that are not part of what you considered your system in Step 1. You are likely to want to keep track of these only if they are a result of your work, and/or they significantly impact on the changes you are trying to achieve. Consider revisiting Step 1 to include these actions in your system, and follow Step 4 for these new additions too. Similarly, where a planned ongoing behaviour change represents a new action in your system that no one was doing before, make sure you add it in to Step 1.

For more information on the various types of behaviour change see Appendix 2.

## STEP 5: DESCRIBE BEHAVIOUR CHANGES




With respect to each of the intended behaviour changes, we are interested in describing three things that determine whether we will succeed or fail to drive that change. Describing the **Rationale**, **Blockers**, and **Change Resources** adds substance to the theory in your results chain.

1. **Rationale**: What are the reasons that actors might consider changing behaviour? What do they get out of it?
2. **Blockers**: Why, given the rationale for change, have actors not in fact changed behaviour?
3. **Change Resources**:
    a. what resources do we *anticipate* actors will require in order that they change behaviour? (E.g. new information? reduced risk? peer pressure? legal changes?)[8]
    b. what change resources are *actually* invested or accessed by our partners and other system actors? For partners: what change resources are invested in the behaviour change? Which of these are introduced by one-off behaviour changes by your programme or others? For other actors: what change resources are accessed? Which of these are dependent on one-off behaviour changes by your programme or others?

**To do list:** (For each of the behaviour changes specified in Step 4)

- ✓ Calculate the rationale or 'business case': work out the expected financial costs and benefits, and look at wider costs and benefits including social or reputational factors. Keep this updated as your understanding improves.
- ✓ Set out the blockers. Differentiate by actor type if appropriate. Think about how these will differ for 'first movers' in a particular change against those who can copy or observe outcomes of what others are doing.
- ✓ Set out the change resources that we anticipate, ex ante, will be *required* to drive behaviour change.
- ✓ Set out, ex post, the change resources that were *supplied,* who supplied them, and any dependency of this supply on one-off behaviour changes.
- ✓ Record who actually changes behaviour and how. *Note: for any ongoing behaviour changes these should correspond with the system snapshot next time you do Step 2.*
- ✓ Record why these actors changed behaviour. Once actors change behaviour, you can check your analysis of rationale, blockers and change resources required. Don't miss this opportunity! [It will help with your attribution of impact as well as adaptation of intervention design].

For more information on rationale, blockers and change resources analysis, see: The Building Blocks of programme theory: how to get better at driving behaviour change. For an application of this thinking in analysing systemic change see: Sustainable Change of Market Actors' Behaviour at Scale: Lessons from AIP-Rural.

[8] I said in the introduction that we didn't need the concepts of norms and rules to assess systemic change. However, they are often important blockers of behaviour change. Put in the language of this paper, rules and norms are information resources about social or formal consequences of certain actions, and, as such, also an important guide to other actors' behaviour. If rules change but this isn't reflected in changed behaviour of actors in the system, it would not be captured in the 'snapshot' assessment of systemic change.

## STEP 6: ASSESS ENDURANCE OF BEHAVIOUR CHANGES

Now it gets a bit trickier. The final step is to look at how likely it is that the behaviour changes we have classified as ongoing will last in the future. This depends on two things: (1) that the actors continue to benefit from having changed behaviour, and (2) that the change resources that sustain the ability to continue the changed behaviour remain available.

Much of the information to assess this will be produced by Step 3 – the system performance assessment. Once the ongoing behaviour changes are made, the outcomes of these changes, both for the actor themselves and their suppliers and buyers, are incorporated in the performance assessment of the corresponding action.

However it is desirable to dig a little deeper than this. Performance changes may be built on sand. Because, like everything else in life, the change resources introduced into the system won't last. They'll succumb, eventually, to one of the Seven D's that derail sustainable development.

- **Dated**: Best farming practice information is superseded by better farming practice information. New technologies become old technologies. Good ideas become bad ideas as the system around you changes.
- **Departed [**or **died]**: Staff with the requisite skills and information leave. *[Note: this can be useful in spreading change resources between different firms in system but may also cause vulnerabilities, especially if they leave the system].* Or the new fancy foreign pigs you had imported all died in the first drought.
- **Depleted**: Cash resources supporting the change dry up, energy and enthusiasm wane. Groundwater resources run out. Information about best practice is forgotten.
- **Destroyed**: Through vandalism or war, or through natural disasters
- **Deteriorated**: Industrial machinery stops working, tractors break down, brain function declines with aging.
- **Degraded**: Natural weathering processes mean roads become potholed and irrigation systems become blocked, etc. Vandalism that comes short of destroying may be considered here.
- **Deficient**: Resources become insufficient to sustain change because supply cannot meet demand, or co-dependent resources dry up, profit margins reduce, and so on.

We don't have a crystal ball, so we just need to get the best indication we can as to the extent to which the changes we have introduced are sustainable. To do this, for each of the change resources required for ongoing behaviour changes in Step 5, you'll need to think about how long it might be before they become susceptible to one of these 7D's.[9] We need to know the extent to which change resources supplied as a result of ongoing behaviour changes in the system will overcome the effects of the 7D's on those resources that enabled the ongoing behaviour changes.

The 7D's are countered by actions to *protect existing* and *produce new or additional* change resources. Protection occurs through maintenance, through insurance, through repair and conservation. New or additional change resources are produced through additional *investment* by those already producing, *imitation* as other producers join in, *improvement* (of existing) or *innovation* (of new) change resources, or *institutionalisation* as regulation or licensing reduces risk. Or resources may be *introduced* by those outside the system, as your programme did, though this raises questions over sustainability. Which of these is important depends on your 7D context.

[9] Ideally we'd also consider the 7D's in relation to other resources that your change relies on, not only those you introduced. However analysing these comprehensively will be challenging, and it may be sufficient to think about the most obvious potential problems – for instance if you are promoting increasingly intensive agriculture, how does this affect degradation of the soil?

To do list:

- ✓ Start with those change resources you are providing directly. Examine if partner-level behaviour changes will be sustained in the absence of your support. For each of your partners' behaviour changes, set out what change resources they received from you or others, and which they provided themselves. Establish if their behaviour change produces sufficient benefit that they will reinvest to continue the behaviour change (or make new related behaviour changes), accounting not only for the absence of further external change resources, but for countering the effects of the 7D's on those already provided.
- ✓ List any new actions and new actors that will be required to protect existing or produce new change resources to counter the 7D's. Be as comprehensive as you think necessary to sustain change. Add these in to Step 1.
- ✓ Check through the rest of the change resources for ongoing behaviour changes set out in Step 5. These are likely to be sustainable if your partner-level change is, but only if you've fully thought through all the relevant actions required in your system and added them in. *For example: Think about the impact of tropical cyclones on the large greenhouses your new seedling nurseries are building. Think about who is going to maintain those mini-tillers you are trying to get an import license for. Will they know how to maintain them? How will they find out how to? Try to find out what diseases those new seeds might be susceptible to, and the ability of system actors to deal with any new diseases.*

For more information on how to define systemic change and a more comprehensive analysis of what comprises systemic change, see: What is systemic change? Three components of a measurable definition.

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TAKE ANOTHER BREAK! You're done! But before you crack open the champagne, remember:

- Use your System Dynamics analysis to update your next System Snapshot:
  - Make sure your system definition is comprehensive and will support sustainable change. Are actions and actors related to renewal and maintenance of change resources included?
- Keep checking back to Steps 4 & 5
  - As system actors change behaviour they may leverage change resources provided (or those accrued through their new experience) to change behaviour in ways that are not necessarily within your programme logic. You can keep track of any that are of interest.
  - Other actors not in your system may start producing relevant change resources – licensing authorities may regulate, standards may be set, service providers may emerge, complementary financial products may be designed. Whether or not you are responsible for these behaviour changes, you should keep track of anything that impacts on the supply of relevant change resources for your desired behaviour changes. These don't need to happen as a result of your intervention in order to be an important component of systemic change.
- Repeat your analysis of System Dynamics regularly to update your understanding of what is blocking change in the system in light of new evidence, and to update your sustainability analysis as the behaviour of system actors changes.

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# CONCLUSION

Following these steps is all that is needed to assess systemic change on the ground. The sequential System Snapshots provide an assessment of the scale of change, both in terms of the numbers and types of people doing things in a certain way and how much these people benefit from their own behaviour changes or those of others. While assessment of sustainability relies ultimately on changes that will be reflected in the System Snapshot, getting the Snapshot right depends on the deeper understanding of what determines sustainability of change conducted through the System Dynamics assessment. So the Dynamics assessment makes sure our Snapshot camera is pointing at the right things: it informs what actions need to be in our system in order for it to be sustainable. Taken together, the System Snapshots and System Dynamics assessments give the information that would inform most judgments as to whether or not change is 'systemic'.

Following the Six Steps outlined here should not entail much more work than most programmes are already doing. If you are mapping the system, diagnosing system constraints rigorously, and keeping this regularly updated, then you'll have most of the information required for the System Snapshot. If you have a detailed, behaviour-change based theory of change that incorporates a comprehensive understanding of the system, a monitoring and results measurement (MRM) system that extends to changes in the wider system, and you update strategy frequently as the system changes, then you'll have most of the information needed for assessment of System Dynamics.

The Six Steps outlined here seek only to provide more transparency on what is actually required for assessing systemic change. This should allow existing system measurement work that programmes are already doing to be effectively leveraged, and any gaps filled, while permitting the attainment of systemic change to be communicated more consistently and effectively.

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# APPENDIX 1

An example Actions & Actors system map including actors, actor types and actions. The exchange actions that form connections are represented as sideways arrows with supply or demand side specified, and production actions represented as up arrows.

| | Actor sets: | Vegetable buyers | Vegetable farmers | Input retailers | Aglime producers & importers |
|---|---|---|---|---|---|
| | Actor types:<br><br>Actions | -Formal domestic buyers<br>-Exporters<br>-Specialized aggregators | -Subsistence<br>-Semi-commercial<br>-Commercial | -Small retailers<br>-Large hardware stores<br>-Market traders<br>-Gov. extension agents | -Concrete companies<br>-Importers |
| 8 | Farmers sell vegetable crops | D➔ | ⬅S | | |
| 7 | Farmers produce vegetable crops | | ↑ | | |
| 6 | Farmers purchase vegetable crop inputs | | D➔ | ⬅S | ⬅S |
| 5 | Farmers access aglime information | | D➔ | ⬅S | ⬅S |
| 4 | Distribution of aglime | | | ↑ | |
| 3 | Retailers access aglime | | | D➔ | ⬅S |
| 2 | Retailers access aglime information | | | D➔ | ⬅S |
| 1 | Production or import of aglime | | | | ↑ |

Source: Lomax (2022).

# APPENDIX 2

The table below sets out a working typology of behaviour change. The various elements of the 'how' description in Step 2 are included in the Action changes A1-A7 and/or Resource changes in R1. 'Who' descriptions in Step 2 are included in S1-S4.

Step 4 may include behaviour changes of any of the types set out below – it may be useful to use this typology to be more precise about the nature of each of the behaviour changes.

| **Who…** | | |
|---|---|---|
| **Start/Stop (actor) changes** | | **[who does]** |
| S1 | Start | Start doing an action for the first time |
| S2 | Stop | Stop doing an action |
| S3 | Recommence | Recommence an action that had been done previously and stopped. |
| *S4* | *Continue* | Continue doing an action – especially new actions, actions subject to shock, etc. |
| **…does what…** | | |
| **Action changes** | | **[does what] this is a change to the existing actions undertaken** |
| A1 | Δ How | Do the action **differently**, new techniques, new business models.<br>This might be a change in the way the input is processed, or the nature of the exchange. |
| A2 | Δ How much | Decide to invest to increase the **scale** at which the activity is undertaken, or reduce investment to decrease the scale. |
| A3 | Δ How often | **Do action more frequently**<br>**Do action less frequently**<br>This might be an absolute number, or a proportion of times action is done.<br>*Smoking less, washing hands more often, growing crops twice a year instead of once.* |
| A4 | Δ When | Do the action **earlier** than previously.<br>Do the action **later** than previously.<br>This is related to timing of the action and production of output, rather than timing of inputs (see below) |
| A5 | Δ With whom | Change actors involved in exchange actions<br>*Sell to different type of buyer, buy from different type of supplier, etc.* |
| *A6* | *Δ Where* | **Start doing** an existing action in a **new location**<br>**Stop doing** an action (that is continued elsewhere) in a **current location**<br>This is doing the action somewhere else, in more/fewer areas, in remote areas, etc. |
| *A7* | *Δ With what* | Do the action with a **different type [not quality] of resource,**<br>i.e. diversification; more profitable crops, etc. Buy and sell different products, produce different products. This may be captured in S1, depending how the action is defined. |
| **…to what using what.** | | |
| **Resource changes** | | **[to what, using what] – this is a change in the input resources,** whether **primary** (the main resource being produced or exchanged) or **secondary** resources (other necessary resource inputs). There are often interrelationships between these resource changes – e.g. better quality has a higher price, etc. |
| R1 | Δ QQRT **primary** or **secondary** resources | **Quality improvement** – actor produces, allocates, or accesses better input resources<br>**Quality decline** – actor produces, allocates, or accesses worse input resources<br>**Quantity improvement** – actor produces, allocates, or accesses more input resources<br>**Quantity decline** – actor produces, allocates, or accesses fewer input resources<br>**Rate improvement** – input resources are more plentiful due to lower price [accessed resources] or greater yield [own produced resources]<br>**Rate decline** – input resources are more scarce due to higher price [accessed resources] or lower yield [own produced resources]<br>**Timing improvement** – input resources are increasingly available when needed due to improved market availability [accessed resources] or improved timing of production [own produced resources]<br>**Timing decline** – input resources are increasingly unavailable when needed due to decline in market availability [accessed resources] or worsened timing of production [own produced resources] |