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D6.5. From archetypes and principles for enabling resilience to roadmaps: considerations for ROADMAP development and implementation

Work Performed by P3 (ILVO)

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1 Introduction

In SURE-Farm, a systems thinking analysis was performed in the systemic behaviour that results from actors' decision on how to use their resources. This has led to the development of 6 key principles for enabling resilience, which should be followed in order to stimulate resilient farming systems. These were presented in Mathijs et al. (2021). In SURE-Farm's case studies, a policy dialogue was initiated in the form of a stakeholder workshop, in order to translate the principles into concrete roadmaps, i.e. sets of actions and strategies to improve the resilience of farming systems. Ideally, this policy dialogue (or roundtable or task force) would be continued after SURE-Farm. In this deliverable, we briefly explain how systems thinking in general and archetype in particular can be used to further continue such policy dialogue (or to implement such policy dialogue beyond SURE-Farm's 11 case studies).

2 Background

2.1 System archetypes impeding farming system resilience

2.1.1 Archetype 1: Fixes that fail / Shifting the burden

A challenge triggers a coping reaction in which the enabling environment provides external interventions to mitigate the symptoms generated by the challenge rather than providing a structural solution to the challenge (fixes that fail). Moreover, such interventions may produce a side-effect that undermines the structural solution in the long run (shifting the burden).

This pattern occurs when the following conditions prevail:

- The challenge cannot be sufficiently absorbed by the farming system or economic actors in the enabling environment without substantial loss of income (insufficient coping capacity), triggering a request to the enabling environment to mobilise resources or change rules
- The financial losses are large enough and interests of those hurt are represented well enough to trigger action by government (form of connectedness)
- Responsive capacity is insufficient, which can have several reasons: solutions are not known, adjustment costs are too high, vested interests in the status quo, etc.

Actions are primarily taken by government, based on the financial reserves they can mobilise or the amount of leeway that exists to temporarily change certain regulations. This may be enough when the challenge is temporary and/or the impact is relatively small, but when the challenge persists or reappears, the problem also reappears (e.g., extreme weather events, price drops, lack

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of labour). But also actions by some private actors may result in a status quo due to the vested interests they have in maintaining production at current levels.

Moreover, mobilising resources or changing rules to cope with the challenge actually undermines the implementation of structural solutions. Strictly speaking this is always the case, as resources mobilised for developing symptomatic solutions cannot be devoted for developing structural solutions. However, we could argue that as long as effects are not irreversible, such resource allocation only results in a delay, not in the impossibility of the structural solution. Hence, an important condition for a shifting-the-burden pattern to occur is that the coping strategy involves actions with relatively irreversible implications (for instance, the destruction of certain resources or the creation of technical, economic or institutional lock-ins that are difficult to break).

2.1.2 Archetype 2: Eroding goals

A challenge creates a gap between a goal and the actual condition. Rather than taking actions to improve conditions, actors adjust the goal (e.g., downplaying the challenge, redefining or reinterpreting the problem differently) in order to justify lack of action.

This pattern occurs when the following conditions prevail:

- The challenge is a trend, the impact of which has not materialised yet into income loss, because the impact is absorbed by the FS
- Why the impact is perceived as small can have several reasons: the cause-effect relationship between trend and income loss is ambiguous because of other conflating factors, the trend itself is being underestimated, resources are invested in shielding the FS from the challenge

The pattern not only involves a lack of anticipatory capacity (by not adequately picking up a challenge), but also the deliberate actions to try to remove or mitigate the challenge itself. A typical result is shifting the deadline of reaching a goal to delay action or in the hope that the problem will "go away". The danger is that this pattern results in a situation that ultimately cannot be solved anymore (which is why it is often referred to as the boiling frog archetype).

2.1.3 Archetype 3: Limits to growth

Actions taken by the farming system, for instance to address challenges, are inhibited or slowed down by actions in the enabling environment.

In this pattern, FS actors are willing to take coping or responsive actions, but they are inhibited by actions taken by the enabling environment, for instance because of too much red tape, insufficient resources invested in the proposed solutions, etc.

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2.1.4 Archetype 4: Success to the successful

Resources are allocated to a limited number of apparently successful actions—and thus not in other actions. A side-effect may be that investing too much into one solution may backfire into a fix that fails.

Here, the enabling environment allocates resources unequally to different solutions or actors. For instance, allocation of resources may depend on being able to demonstrate earlier success. As a result, there will be underinvestment in other solutions and actors, which may backfire if the supported solution turns out to be insufficient or even detrimental. This archetype can also create path dependencies where it becomes difficult to change the course of action

2.2 SURE-Farm's key resilience principles

- Principle 1. When a FS cannot sufficiently cope with a challenge, the enabling environment should provide temporary resources to cope with the adverse consequences of the shock, but only to buy time while working on the real remedy.
- Principle 2. When shocks have occurred, resources should be shifted towards building anticipating capacity as well as responsive capacity, to prevent addiction to external solutions and to increase future coping capacity of the FS.
- Principle 3. The enabling environment should assist the FS to detect, assess and address long-term trends that challenge the FS, in a way that increases future robustness, including through adaptation or transformation to that trend in the long run.
- Principle 4. The enabling environment should foster a potential diversity of responses, rather than focusing too much on a limited set of actions strengthening resilience.
- Principle 5. The ensemble of the FS and its enabling environment should develop a sufficient degree of ambidexterity, that is, find a balance in putting resources in immediate versus future challenges.
- Principle 6. There needs to be more systemic in-depth analysis of the root causes of challenges on the one hand, and of the drivers of vulnerability to these challenges on the other hand, to avoid a redefinition of the problem and the implementation of solutions that do not fix the real problem.

2.3 Implementing the principles : need for a policy dialogue

The systems analysis has led to six principles to guide FS and enabling environment actors how to stimulate resilience. Translating these principles into concrete recommendations needs to be done through a regional and/or FS specific approach. Recommendations will mainly relate to actors, resources and institutions. Actors are those within the FS and within the environment of the FS. These actors make decisions on how to use resources (e.g., financial resources, human

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capital, social capital) and several principles refer to these decisions. Principle 1, for instance, suggests that resources should be used less for symptom-oriented solutions and more for causal solutions. Institutions include formal (e.g., regulation, policy instruments, directives) and informal institutions, which are socially shared ruled, usually unwritten and created and enforced beyond formal channels. They can refer to attitudes, routines, ideologies and habits, especially regarding how actors interact with each other. These institutions influence either directly or indirectly which decisions actors are making, amongst other with respect to the use of resources. Hence, concrete recommendations for implementing the principles in practice will also include recommended changes to formal and informal institutions.

The approach for moving from principles to recommendations should be on co-creation with the variety of actors that are relevant for a specific FS and its approach has to be based on the guidelines of a policy dialogue (see Wauters et al., 2021). A policy dialogue is part of the policy and decision-making process and intends to develop and/or implement a change following a round of evidence-based discussions/ workshops/ consultations on a particular subject. Policy dialogues bring diverse interest groups to the table, focus on a regulatory, policy, or planning issue that is of common interest, and seek to formulate practical solutions to complex problems. Policy dialogues, often called roundtables or task forces, are not entirely new, and are in some countries even common practice. We advocate to set up a resilience enhancing policy dialogue gathering all relevant actors from a FS and its environment.

Several success factors for an effective policy dialogue have been described. First, they should have a collectively agreed purpose, in this case, improving the resilience of FSs. It is further important that the issue is 'ripe', meaning that all stakeholders around the table have experienced or at least observed the problem sufficiently and have become frustrated by repeated manifestations of the issue. This means that a policy dialogue to improve the resilience of FSs – hence to improve its anticipating capacities, coping capacities (robustness) and responsive capacities (adaptability and transformability) – should not be confused with a policy dialogue to stimulate adaptations and/or transformations to improve its sustainability. Convincing stakeholders that supporting resilience is more than supporting robustness and protecting the status quo, through evidence and data, will be crucial, otherwise the policy dialogue will not be based on a common understanding of the problem and a shared goal. This aspect will likely be the most critical part of a policy dialogue, since some of the identified system archetypes and the proposed principles suggest that actors will find it difficult to agree on what the issues are and hence what the proposed solutions need to be. Principle 6, for instance, suggests that often a too superficial analysis of the problem or even a deliberate reframing of the problem is being done, leading to fixes that fail. The identification of the widespread existence of system archetype 'Eroding goals', whereby actors devote resources to downplaying societal pressure and political

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restrictions, suggests that not all actors agree that the fundamental issue that challenges their resilience is that the FS does not comply with societal expectations, but rather the societal expectations themselves.

Second, it is imperative that the preparation of the policy dialogue includes the gathering of information and data. The presentation of these data can give rise to the co-creation of evidence through a reflection process in which the data is interpreted in a collaborative manner. As such, the co-produced evidence will help justify the implementation of change, referring to the point above, and will help in identification possible directions of change. The evidence for a policy dialogue to improve the resilience of FSs should be based on a systemic assessment of resilience in its many forms, as described in the framework for analyzing resilience by Meuwissen et al. (2019), of which many examples can be found in this book. Specific attention should be given to enhancing trust in data and evidence through improving its' quality, internal and external validity and reliability, to avoid that different stakeholders use certain evidence to support their own position and disregard or even discredit evidence that is not in favour of their position.

Third, the policy dialogue should be formalised and have a commonly agreed time-frame. It should be formalised in order to stimulate subsequent implementation of the changes so that it does not remain a voluntary exercise. An a-priori agreed time-frame will help in setting priorities, devoting resources and keeping stakeholders engaged. There can (and should) be room for informal dialogues and working groups outside the formal channels and meetings but they should all feed into the formal processes. It should avoid taking decisions outside the official platform.

Fourth, a monitoring and evaluation framework should be agreed in order for stakeholder to being able to monitor progress, receive early feedback and observe results of the implemented changes. The policy dialogue should be used to agree on desired changes and key performance indicators as measures of success. The monitoring and evaluation framework should pay attention not to privilege interests that can easily be linked to clearly measurable – and often pre-existing – indicators, such as profits or production volumes, but also consider aspects such as social well-being, biodiversity and mental health

3 Using the archetypes for implementing roadmaps towards resilience

Below we approach steps and guidelines on how to manage the most occurring system archetypes in farming systems that impede their resilience, as they were identified previously. These steps and guidelines are based on systems thinking theory and management. More specifically, the framework described below draws heavily on Kim and Anderson (1998).

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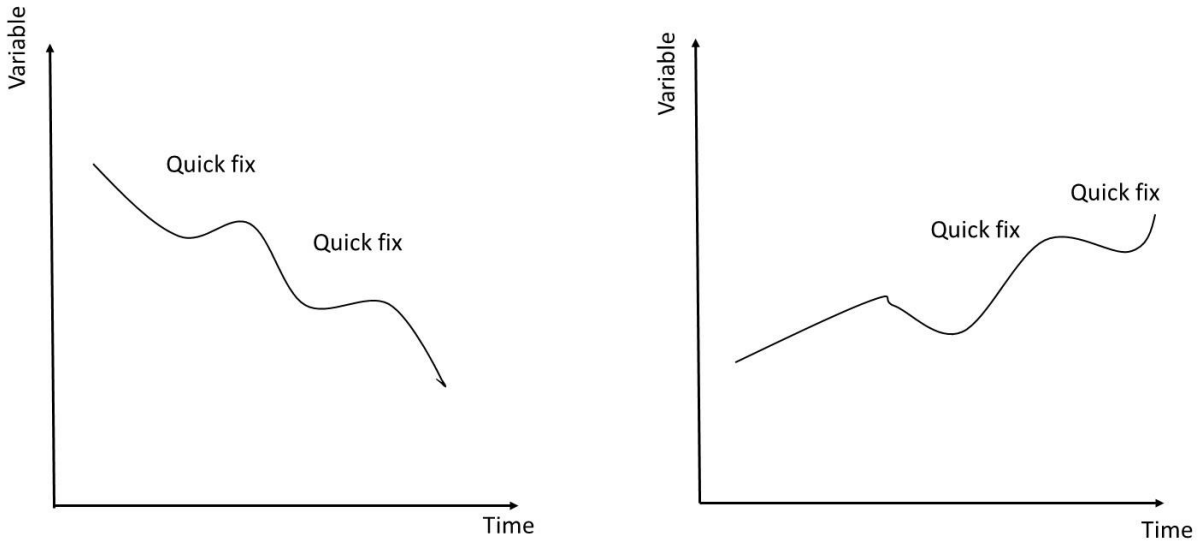
3.1 Fixes that fail archetype

3.1.1 Behaviour over time

The fixes that fail (or shifting the burden) archetype means that when a problem is detected, a quick fix is being applied to make the problem go away. This leads to a (temporary) improvement in the performance of the system regarding one or more variables of interest. However, it reduces the urgency for implementing more fundamental solutions, and it reduces the resources available for implementing these. Hence, relatively soon, the system becomes again vulnerable, and new shocks might even lead to bigger problems.



3.1.2 Solving the fixes that fail/shifting the burden archetype

Managing the fixes that fail archetype require several reflective activities, each of which should be supported by monitoring and evaluation activities.

- Defining the variables of interest. This involves defining the indicators that can signal resilience problems. In many of SURE-Farm's case studies, it has shown that low farm profitability has often been thé trigger for responses by the farming system and the enabling environment.
- Define the problem symptom. This is an important and difficult step. The problem should be defined in terms of its symptom, and not in terms of a possible solutions. Often, there

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is a tendency to describe the problem in terms of a possible solution, such as "We need a more stable policy", and not in terms of what actually the problem is.

- Examine past and current solutions to the problem. This involves investigating which solutions have been implemented in the past to solve the problem, and analyzing if and to what extent these solutions have solved the problem and whether this was temporarily or more permanent. This again involves the collection of data regarding several key indicators of interest.
- Map unintended consequences. Usually, intended consequences are being investigated and monitored. However, it is also necessary to monitor indicators that can signal unintended consequences. A partial view on the outcome of a certain response to a shock can hide problems and obscure the view on all consequences. To solve the fixes that fail archetype, also unintended consequences must be monitored.
- Identify what creates the problem symptom. This is often the most difficult part, and there is ample evidence that often a too superficial analysis of the root causes of the problem is being done, which leads to the fixes that fail archetype (and can also give rise to the success to the successful archetype).
- Evaluate the link between unintended consequences and the fundamental causes of the problem symptom
- Identify fundamental interventions. Fundamental interventions are those that solve the root causes of the problem.
- Map potential side-effects (unintended consequences) of any possible intervention. Mapping potential side-effects helps in being prepared for unintended consequences, or even helps in designing and defining better interventions that break the vicious fixes that fail cycle.
- Cultivate shared understanding of the existence and negative consequences of this archetypes
- Commit to working on the fundamental solutions while the symptomatic solution is being implemented for the time being

3.2 Eroding goals archetype

3.2.1 Behaviour over time

In the eroding goals archetype, a gap between performance and goal (e.g. environmental performance), which could be resolved by corrective action (adaptations, transformations), is

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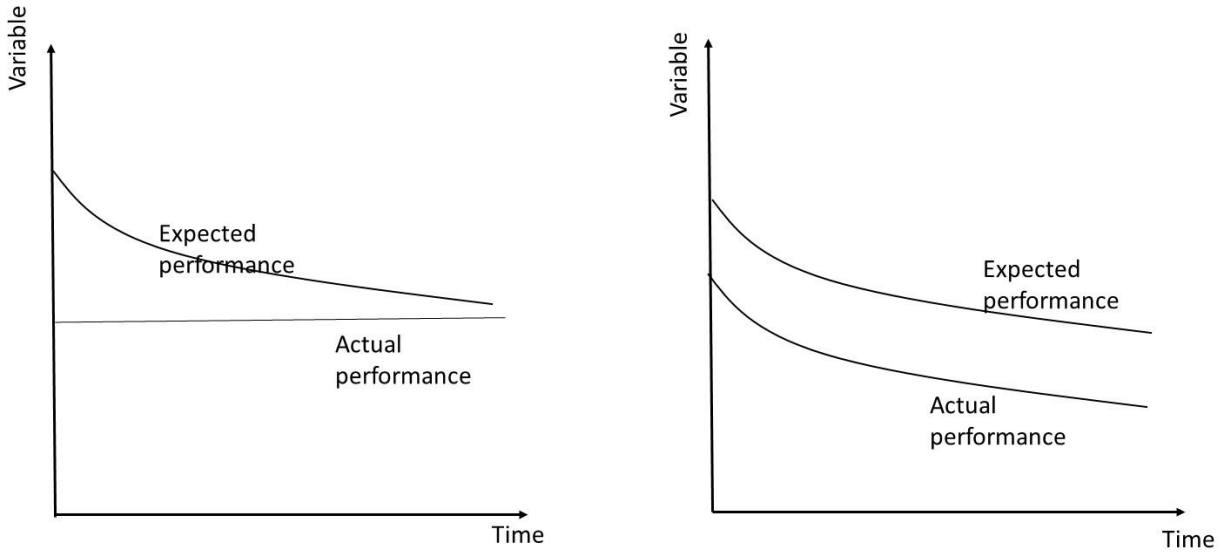
actually solved mainly by lowering/delaying the goal. It could be the case that actual performance stays stable, while the expectations are lowered in order to close the gap, or actual performance decreases as well.



3.2.2 Managing the "eroding goals" archetype

- Identify what is being eroded. This involves collecting reliable and comprehensive data in the issues that are being eroded. In farming systems, this often relates to environmental issues such as greenhouse gas emissions, nitrate emission, pesticide pollution, animal welfare.
- Identify what (and who) is driving the setting of goals (and why). Substantial lobbying might be at place in order to lower the goals or delay the setting of certain performance targets. Often, data will be used in partial ways, or in units or ways of presentation that provide arguments for lowering the goals. Moreover, an attack on the credibility of certain data might be undertaken, to provide further justification for lowering the goals.

3.3 Limits to success archetype

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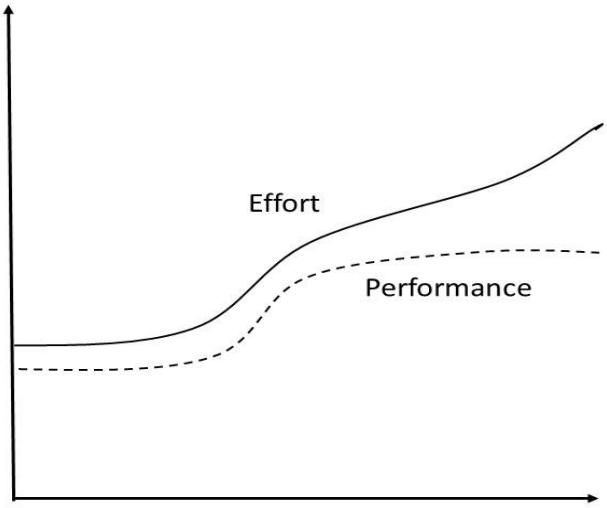
3.3.1 Behaviour over time

In a limits to success archetype, a certain variable has an increase (or improving) trajectory, until it hits a performance plateau and levels of (or even decreases). This is when the limits to success come in as balancing loop and effectively limit further success.



3.3.2 Managing the "limits to success" archetype

- Use the archetype thinking before the limit is being hit. It is helpful to use this archetype before the system actually hits the limit to success. This should be done by projecting the trajectory of key indicators and assessing what future problems (or limits) could arise.
- Do assume that limits will be hit and try to 'predict' what will cause these limits. It should be assumed that eventually something will limit further success, and to avoid the next archetype (success to the successful), it is important to question how and by what further success could be limited.
- Avoid the tendency to push hard on the same button once the limit is being hit. When limits set in, it is important not to try to counteract this by trying to do the same things all over again, but rather trying to understand and manage the limiting factors.

3.4 Success to the successful archetype

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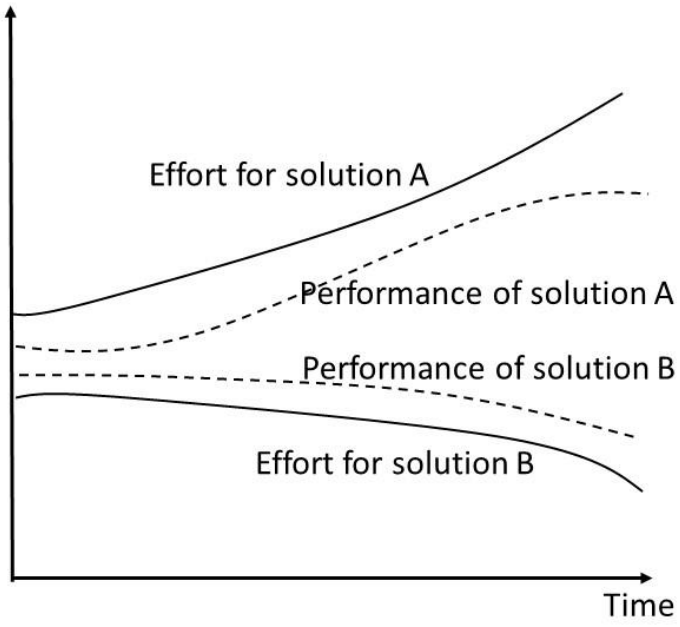
3.4.1 Behaviour over time

In a success to the successful archetype, initial investment in solution A yields success, which further increase the efforts being put in solution A. This happens at the expense of efforts in solution B (potentially also a relevant solution), and the little effort being put into solution B yields little success, which in turn further decrease the effort put in solution B. The danger is that over time, the success of solution A might level off (see limits to success archetype), for instance because the overreliance on one solution has made the system vulnerable to certain challenges.



3.4.2 Managing the "success to the successful" archetype

- Reflect on how and why the decision to focus on the current solution came about. It is important to understand the criteria that have led to the focus on one (type of) solution. Often, this relates to aspects such as power and legitimacy. It can also relate to a too superficial analysis of the root causes of the problem. Further, it can relate to conscious or unconscious blindness to alternatives (the TINA – there is not alternative) syndrome.
- List the capacities and resources of all actors involved. Reflect upon the capacities and resources of all actors involved. Could they use their resources differently?
- Re-examine the current 'measures of success'. This involves re-examining the indicators which are currently used to measure performance and success. Hence, new (sets of) indicators may have to be defined, which signal alternative measures of success.

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- Challenge the modal mode of defining success and validate it with external ways to define success. Similar to the previous but at a more fundamental level, this require to reflect upon how success is being defined.

4 Conclusion

Archetype thinking can help actors to solve systemic issues regarding their choices of how to use resources, and turn general principles into concrete roadmaps. In this deliverable, a number of guidelines and rules were presented in order to work with these archetypes. Often, these guidelines include the collection of substantial amounts of data and information. Data and information should be used in a policy dialogue in order to co-create evidence, and thus to define actions to solve the archetypical behaviour.

5 References

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