



How to measure resilience

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1. Introduction

Working on resilience is an art not a science. Even if we seek to specify the project goals, we do not have a ready-made recipe that will 'solve the resilience problem' forever. Shocks and stresses will usually evolve and interfere in unpredictable manners. If one vulnerability has been more or less addressed, another weakest point of the system will come to the fore. This requires us to keep on working on resilience as an evolving feature over time.

This document builds on the guidance offered in the "Resilience: a conceptual framework - creating a shared language to make it concrete and specific" and now focuses on using that guidance to help you measure (your project's contributions to) resilience. Measuring resilience can be fully integrated in your project M&E, but it is of key importance that you select and include indicators that are closely aligned with how you operationalise resilience.

The resilience framework, on which this paper is based, helps us move away from a one-sided efficiency focus prevailing in neoliberal policy and practice in recent years. Fundamentally, it helps us to integrate resilience as a central development consideration alongside the prevailing logic of efficiency.

The starting point for measurement is that resilience should already be an integral part of the Theory of Change (TOC) of a project. The point is to make the resilience dimension clear within the overall strategy of the project in question and not to add another layer of logic. For example, climate adaptation goals are by definition about resilience. Resilience can thus be an explicit theme within your general project strategy, which will be particularly relevant if the project has an explicit resilience objective that you need to report on to a donor.

The key challenge is that, using the conceptual framework, you become explicit in defining what you take as resilience (resilience 'to what, of what, for what'), how you will address it (by building some of the three 'capacities' and covering selected 'ABCD dimensions'), and by building this into your project strategies and activities. In that way you can create an explicit resilience logic and resilience M&E within the overall project approach. How to do this will be explained in this paper.

An example application of the framework (without much attention to the question of measuring) is also available for the 'GARBAL' projects in West Africa (STAMP+ Mali, MHODEM+ Burkina Faso, and IDAN Niger). Note that in early 2023 SNV will also produce guidance on how to use a 'systems change' perspective in projects. This will also touch on resilience as one of the areas in which one may have a system change ambition.

2. Developing your resilience logic and connecting it to your TOC

By answering the three questions (to what, of what, for what - see page 2 of the guidance) and following the six steps (see page 8), one in fact follows the basic steps of developing a Theory of Change¹. A TOC is essentially a description of how and why a desired change is expected to happen in a particular context. The TOC is then typically connected to a LogFrame or Results Framework with indicators.

The table below demonstrates how similar the development of a TOC is to the development of your resilience logic²:

Steps in developing a TOC and LogFrame/Results Framework	Resilience dimensions in each step
STEP 1: Define the problem, including the identified causes and stakeholders	<ul style="list-style-type: none"> Specify the risk, shock, and stress(es) (resilience to what?) Determine the system (resilience of what?)
STEP 2: Define the desired end-goal (impact)	<ul style="list-style-type: none"> Set a specific resilience (dimension of the) objective (resilience for what?)
STEP 3: Define outcomes and impacts needed to achieve the desired end-goal (impact)	<ul style="list-style-type: none"> Choose main strategic resilience focuses (intervention areas) Determine resilience capacities (ambition levels) to work on in these areas
STEP 4: Select activities that could lead to the short- and long-term outcomes	<ul style="list-style-type: none"> Apply the ABCD checklist to operationalise and specify resilience elements/results Choose priority elements and related activities to be undertaken to develop these
STEP 5: Identify the main assumptions, and how valid or uncertain they are	<ul style="list-style-type: none"> Identify the main assumptions in relation to resilience
Step 6. Develop the LogFrame or Results Framework	<ul style="list-style-type: none"> Determine / choose indicators relevant to resilience

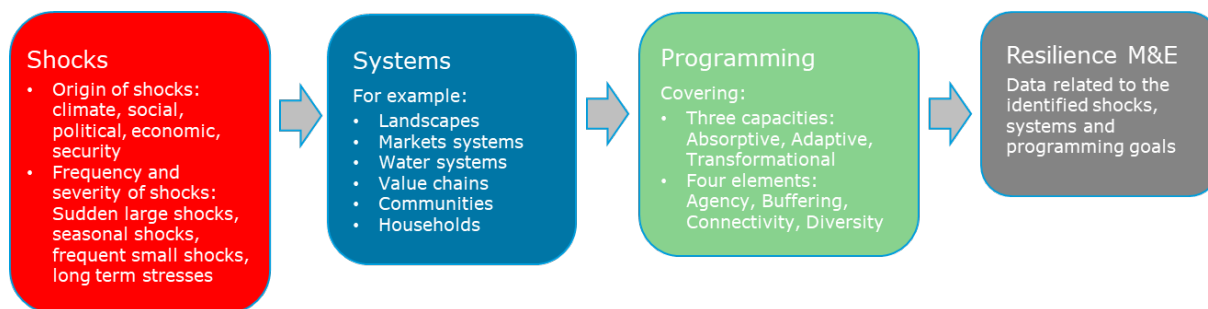
NOTE: In general, it is wise to see these steps as iterative: your answer on a next step could still influence your answer on a previous one. Especially, the steps 1 and 2, as well as steps 3 and 4, can and should be done iteratively. One can define the problem (1) more precisely after specifying more clearly the overall goal (2). And similarly, one may adjust the understanding of relevant outcomes and results (3) informed by a further consideration of practical resilience elements and activities to be undertaken (4).

The operationalisation of resilience (shocks and systems) and how you will address it in a project (programming), then forms the basis for collecting specific data that will show your progress in building resilience (resilience M&E). A flowchart of these process steps with some (non-exhaustive) examples of shocks and systems is given in the figure below³:

¹ See for example: <https://tools4dev.org/blog/theory-of-change-steps/>

² This also implies that methods used in TOC design like problem and stakeholder analysis are relevant for resilience programming too

³ After Figure 1 in: OECD, 2014. Guidelines for resilience systems analysis



It is good to realise that a project can address several (levels of) systems at the same time that overlap or are nested in each other, e.g., farms in the landscape, types of actors within a specific value chain, or a value chain within the market system. In such cases it is very important to identify and separate them and be clear about what you want to influence (resilience of what), about the different shocks (to what) and objectives (for what). This will also help to define and collect the relevant data to indicate your progress at achieving resilience at the relevant levels.

Your approach to building resilience can be fully incorporated in your overall project TOC. However, it will remain important to be able to articulate the specific elements aimed at building resilience, including the specific indicators in your monitoring system. This will help you to make clear to project stakeholders and evaluators exactly what you mean by (building) resilience, and how you measure your achievements in it. If building resilience is only implicitly integrated in an overarching TOC and M&E system, it may not be clear enough what you mean and you lose the ability to clearly specify your approach to and also the results on resilience.

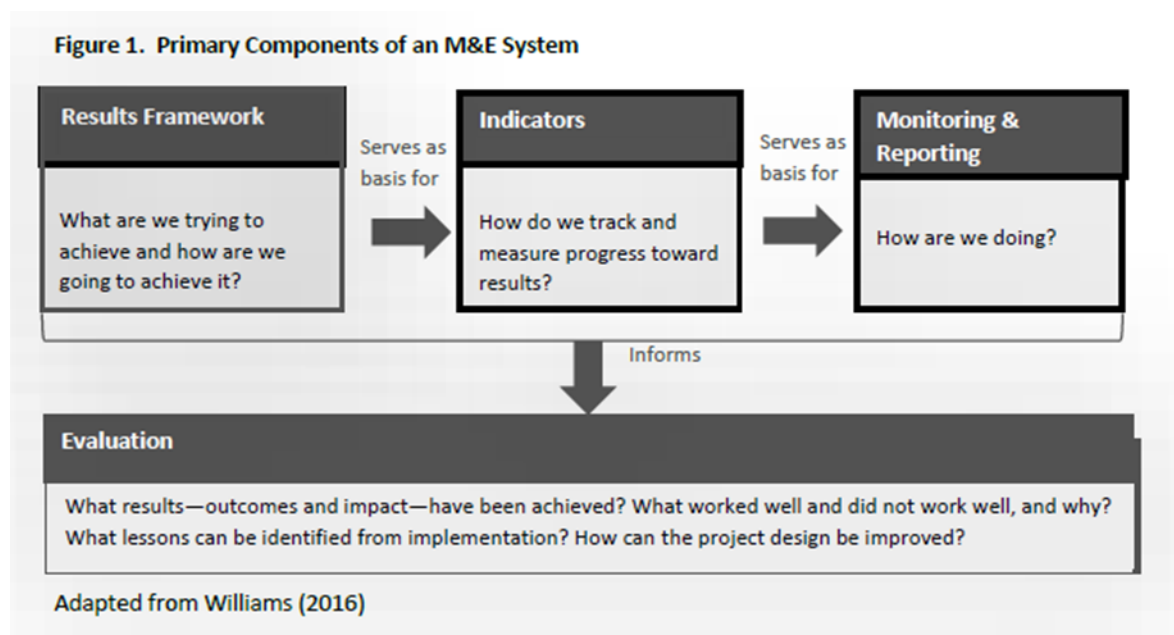
It is worth mentioning that resilience will remain a complex topic. We do not need to simplify it. The basic logics created in the conceptual framework and this document are meant to help us navigate that complexity, make clear choices for what we want to achieve, and learn and adapt over time.

The take-away from this paragraph is that to demonstrate (increased) resilience we need to follow a TOC approach and make the resilience dimension in that explicit: we elaborate our programming logic (context, goals, and interventions) so that we can connect the steps to specific indicators and data collection methods

3. Including resilience into your monitoring system

With the before-mentioned general approach to integrating resilience into your TOC, we now need to answer the question how to concretely link it to your monitoring system. To do so, the resilience framework developed in a project needs to be translated to resilience monitoring. This way of working allows projects to become more explicit and intentional with respect to measuring resilience.

Useful guidance on this has been developed by the World Bank⁴. Even though this guidance is developed in the context of building resilience in light of climate and disaster risk reduction, it can be applied outside of these areas too. The below figure presents the generic idea of connecting your resilience logic to your M&E system:



This generic idea can be applied in the context of resilience too. The key step in this visual is to connect the program or resilience logic (taken here as a Results Framework) to indicators of success. This may sound feasible enough, but resilience measurement is inherently difficult because resilience is very context-specific and depends on the system and the nature of the shock or stress one is talking about, and there is no universally applicable and generally accepted method to measure the resilience of a system. It will also be important to look at trends over time and ongoing change processes. Resilience is not something you usually measure at a specific point in time (only). In practice, proxy measurements⁵ are needed and these will need to be specifically selected based on their match with the shocks, systems, and goals under consideration in a project. Without due consideration to this process, we run the risk of connecting loose ambitions with generic monitoring data.

At the core of the approach of the World Bank lies a logic model⁶ which specifies the resilience goal to be achieved, which is connected to strengthening absorptive, adaptive,

⁴ World Bank, 2017. Operational Guidance for Monitoring and Evaluation (M&E) in Climate and Disaster Resilience-Building Operations.

⁵ Indirect measurements when direct measurements are not possible or feasible

⁶ The World Bank uses a visual model, but the logic could easily be captured in a table or narrative form too

and transformative capacities. This is further operationalised in the combination of a long-term outcome and intervention areas. Finally, pathways are specified that detail the activities, outputs and intermediate outcomes leading to the long-term outcomes (see Figure 3 in Annex V of the conceptual framework paper).

In short, the World Bank methodology centres on clarifying a generic logic model:

Interventions & activities

- Outputs
- Short to long-term outcomes (e.g., ABCD elements)
- Impacts (e.g., three capacities)
- Resilience goal (as part of the overall project goal)

This is of course very much a standard TOC logic, which conveniently supports the easy adoption of this approach into a standard project development process in SNV. We will add more detail to this logic model in the next section, especially around the outcomes which will be closely connected to a project's intervention strategy. For now, we will just make the point that the identified outputs, outcomes, and impacts can be connected to indicators and data collection methods. The indicators can be generic project indicators (rather than very specific resilience indicators). What gives them their strength is the conceptual logic that links them to explicit resilience dimensions at the outcome level, and those in turn are linked to resilience capacities at the impact level, which are embedded in the overall project goal. As for any other more complex project, the data collection methods should count on both quantitative and qualitative elements (a mixed-methods approach of quantitative indicators and qualitative cases).

Note that this is about monitoring and not yet about learning or evaluating, which will be addressed later.

The take-away from this paragraph is that to measure resilience, you need to 1) define your resilience goal, 2) describe how you will build resilience based on the ABCD elements and three capacities, 3) further elaborate this with more fine-grained short-term to intermediate outcomes, 4) develop pathways with activities and outputs leading to the outcomes, 5) connect these with indicators and methods. The strength of this approach comes from establishing a coherent and plausible resilience narrative and logic WITHIN your regular results logic of the project, and NOT from a complex (set of) additional indicator(s) or sophisticated tool for the measurement of resilience

4. Elaborating your short to intermediate outcomes

As mentioned, a Theory of Change is a description of how and why a desired change is expected to happen in a particular context. TOCs however often suffer from having a 'missing middle'⁷. This refers to the fact that there is not enough clarity about how the project's interventions will in fact lead to the desired impact⁸. This weakness can similarly affect the elaboration of a project's resilience logic. The resilience goal can be well described, and project activities can likewise be well developed, but how they are connected runs the risk of not having sufficient plausible detail linking the planned activities to expected impacts. This would render your contribution to observed changes (and specifically your measured results) on resilience very weak.

What is needed is to develop more fine-grained short-term and intermediate outcomes that would offer further detail on how the (specific selection of the) four ABCD elements and the three capacities are addressed. This is highly context and project specific, and as a step it is therefore not included in the overall conceptual framework on resilience. But for creating a meaningful TOC that allows you to demonstrate a project's contribution to strengthened resilience, it is a key step that prevents the 'missing middle' that causes a project to lose the connection between impact and interventions.

While resilience is built by strengthening the ABCD elements and the three capacities, it needs to be made clear what helps to strengthen these in turn. This needs to be well thought through so that these outcomes can plausibly link activities and impacts. While this is standard practice in developing a TOC, providing some examples from other organisations can provide inspiration to link your planned activities to the impact level^{5,9,10}. These example outcome areas are listed in Annex I, and they offer a more specific detailing of the ABCD elements and three capacities but are usually somewhat specific for certain domains and less applicable to others¹¹. Nevertheless, they can help to fill the missing middle and create a TOC that is plausible and credible.

⁷ <https://www.theoryofchange.org/what-is-theory-of-change/>

⁸ We should take care to avoid thinking that a simple linear model can reflect a complex reality, and we should not believe that the world is so predictable that if we do A always B will happen. Instead, a deep understanding of context needs to be developed, combined with knowledge of the best possible intervention strategies, together giving rise to an initial hypothesis of how we can build resilience. This is your THEORY of change. As reality in fact is not linear and predictable, we need to apply adaptive management to change our approach when changed conditions and new insights indicate a need to do so, and we then update our TOC to these emerging insights.

⁹ OECD, 2014. Guidelines for resilience systems analysis; OECD/SIDA, 2016. Resilience Systems Analysis; Learning & recommendations report

¹⁰ Choptiany et al., 2021. The Market Systems Resilience Index: A Multi-Dimensional Tool for Development Practitioners to Assess Resilience at Multiple Levels

¹¹ While each set of outcomes has their specific area of application (respectively these are international development, climate and disaster risk reduction, and markets and value chains), we can nonetheless distil general guidance from this conceptual and practical work

A simple example of elaborating a resilience logic from activities to outcome to impact is given in the next table. Such a sequence of connected elements allows for good resilience measurement and reporting:

Table 1. Resilience example

ACTIVITIES		OUTCOMES		IMPACT	
Intervention	Short-term outcomes	Intermediate outcomes	Long-term outcomes (ABCD)	Three capacities	Final resilience goal
<u>Financial literacy training</u>	Participants are <u>aware of the benefits of saving</u>	Participants <u>build financial reserves</u> to cope with short-term income loss	<u>Buffering:</u> Participants have (sufficient financial) reserves that can be deployed in case of need	<u>Absorptive capacity:</u> Protective action to cope with shocks	<u>Participants are more resilient to economic shocks, can recover from loss of job and income, and have more control over their economic position</u>
<u>Vocational skills training</u>	Participants have <u>improved professional skills</u>	Participants <u>have relevant competencies</u> and know how to find alternative employment in case of job loss	<u>Agency:</u> Participants are empowered actors (on the labour market) with an ability to act	<u>Adaptive capacity:</u> Anticipation of shocks in ways that create more flexibility in the future	

The example lacks relevant contextual details, but it is not hard to see that this could be a case about young people (*resilience of what*) in an environment with few economic opportunities and problems with loss of employment and/or income (*resilience against what*), and a project that aims to prevent them from falling into poverty and turn to migration and extremism (*resilience for what*).

To develop the intermediate outcomes, the example took its inspiration from the intermediate outcome of 'Preparedness' in Annex I to meaningfully connect to the elements **Agency** and **Buffering**, which in turn strengthen the **Absorptive** and **Adaptive capacities**. Preparedness is about building the ability of project participants to

respond to and recover from the immediate effects of loss of job and/or income. This was then further detailed in Table 1. Note that preparedness does not have to be referred to explicitly, but it simply helps to develop a coherent resilience logic.

So, Table 1 illustrates how the outcome areas from Annex I can be used to develop your project and resilience logic and connect activities to impacts. In reality, it will be very important to carefully define measurable and meaningful outcomes to be achieved by the project's interventions (in our example: what would preparedness really mean in the context, what gets project participants prepared for job or income loss?), as well as the outputs that create those outcomes. In doing so, as mentioned, you need to prevent approaching resilience using simple and linear logics as there invariably are unforeseen events, feedback-loops and asymmetric relationships leading to unpredictable results⁹. This underlines the absolute need for adaptive management, strong monitoring, and continuous learning.

The key take-away from this paragraph is that we need to add sufficient and plausible specificity at the level of outcomes to the operationalisation of resilience using the ABCD elements and three capacities. This will help to present a convincing evidence-based narrative on having built resilience. This will usually not be something that can be constructed (fully) in advance but be gradually refined on the basis of learning-in-action during project implementation

5. Resilience monitoring: data collection on your TOC and on resilience

The abstract concept of resilience has been made sufficiently operational by developing relevant detail on the ABCD elements and the three capacities, as well as by bringing it further down to the activity level by specifying (short-term and intermediate) outcomes. In doing so, you have created in your TOC a detailed, coherent and plausible logic in which you are clear about what resilience is, and how it is built. The abstraction has been taken out. So, the measurement of resilience is now a matter of collecting data along your TOC (with its output, outcome, and impact levels). Indicators should be activity-specific and do not need to be framed around the term resilience⁵. Additionally, due to its inclusion in the multiple levels of a TOC, it will be clear that resilience cannot be tracked by one universal quantitative indicator. Instead, resilience tracking requires a combination of a multidimensional indicator framework and/or composite indices coupled with qualitative process indicators¹². A number of options exist for measuring results along your TOC with specific relevance to the resilience included in it¹³:

A – Quantitative indicators

Quantitative indicators to track progress and numerically describe results will need to cover the output, outcome and impact levels. For example, an output-level indicator would be *Number of people trained*. An outcome-level indicator would be *Number of people with adequate savings*. And an impact-level indicator (as a proxy to indicate higher resilience to economic shocks) would be *Number of people with an improved socio-economic position*¹⁴.

Indicators will vary between operations and should be determined by operation-specific resilience logics which in turn depend on geographic, socio-economic, and sector-contexts¹⁵. Indicator areas at outcome and impact-levels that have relevance for SNV projects focusing on resilience, are:

- Wellbeing, community status, outlook on life
- Income, resources, assets, livelihoods
- Income generating activities, employment, entrepreneurship
- Food security
- Safety from violence and oppression
- Equity, equality, inclusion
- Production and productivity
- Capacity and empowerment
- Application of Good Agricultural Practices
- Access to resources, finance, information
- Conducive policies, public accountability, good governance
- Multistakeholder processes, peaceful collaboration
- Land and water use planning and management
- Diversity and quality of businesses, market channels, services and products
- Access to and/or membership of organisations, networks, platforms

¹² World Bank, 2017. Evaluation of Resilience-Building Operations; Operational Guidance Paper for Project Task Teams

¹³ It should be noted that the ambition here is not to present a full M&E guide explaining indicator selection and data collection techniques, but given a good understanding of M&E processes, to describe how resilience can be included

¹⁴ These indicators still need to be made CREAM: Clear, Relevant, Economic, Adequate, Monitorable

¹⁵ For an overview of example indicators used in World Bank projects, see Table 2 on page 29 of World Bank, 2017, Operational Guidance for Monitoring and Evaluation (M&E) in Climate and Disaster Resilience-Building Operations

Just to emphasise again, no *single* indicator will be capable to capture improved resilience. But the *whole* of the indicator framework as developed in close connection to your resilience TOC will generate clear and plausible results on (improved) resilience.

B - Qualitative indicators and information

Qualitative indicators are generally used to collect rich and nuanced data, but these data are not collected on a representative scale and cannot easily be aggregated. The indicator can be reported as words, in paragraphs, case studies and reports. Some examples:

- A qualitative question in a survey asks for context-specific information on the 'nature of shocks', or 'coping mechanisms' used, or one's 'outlook on life'
- A case study presents a comparative analysis of several project locations investigating if, how, and why market diversity was improved in each of them
- An evaluation report investigates 'improvements to IDP resilience' by covering context analysis, change mechanisms, and results achieved, and establishes the relation with project activities

All the indicator themes as listed above remain applicable, as it is not the way in which an indicator is worded that makes it quantitative or qualitative, but the way in which it is reported.

C – Rubrics, scorecards, composite indices

A **rubric** is an assessment method in which a single criterion or set of criteria to be assessed can be awarded a rating based on qualitatively defined performance levels (which detail exactly what should be visible in relation to a particular performance level). Rubrics are a framework that set a standard for what 'good' looks like – and create a shared language for describing and assessing it. They require a context-specific description of what a particular criterion would look like on a range of levels (e.g. from none, little, moderate, full). For example, if a project works to enhance the agency of youth in fragile settings, then a rubric would qualitatively describe what should be visible if a young person has no agency, little agency, etc¹⁶. While powerful in clarifying what success looks like, it is not easy to arrive at a detailed description that is capable of discerning between performance levels. This would require strong collaboration between content experts.

A **scorecard** is similarly built around a number of assessment criteria, and the performance on these criteria is scored on an ordinal scale, e.g. from 1 to 5. The key difference with a rubric is that these scores are not, or to a limited extent, described in detail. This method is already applied in SNV, for example when doing organisational capacity assessments or when assessing business performance. Scorecards are applied in cases where the assessment criteria are clearer (e.g. the extent to which women and youth are employed by a business). The results of the scoring exercise can be presented in a table, i.e. the actual scorecard. Such a scorecard can summarise complex, multi-dimensional realities but the scoring exercise itself often suffers from subjectivity.

The different scores in a scorecard can even be summarised further into a single overall score, for example by calculating an arithmetic average of the scores with the application of weights for each criterion. In the case where a scorecard is summarised into a single score, it becomes a **composite index**¹⁷. However, it is difficult and often subjective to determine the weighting and aggregation methods for such indices⁵.

¹⁶ An example of designing rubrics is given on <https://www.laudesfoundation.org/grants/rubrics>

¹⁷ The iDE MSRI tool is an example of this. The tool is built around a subdivision of resilience into key system components, which are then further broken down into resilience determinants. Data on these

The ABCD elements themselves could be investigated through a number of approaches. We can take agency as an example. Agency is the capacity of individuals to have the power and resources to fulfil their potential. Agency depends on empowerment which itself is determined by self-confidence, self-awareness and self-esteem. A qualitative approach would allow a project to collect rich data on agency on a limited scale. This should only be done if it has an added value for the project (e.g. to deepen your contextual understanding of how agency evolves, and how that differs between project participants). Alternatively, if rich individual cases are not needed, a rubric could be developed to specify what type of agency-related behaviour a project would like to see, which could be used to score the occurrence of such behaviour on a larger scale. If however you only need data for accountability purposes, then a scorecard with questions on a Likert-scale, and based on self-reporting on agency, would do. To make a meaningful decision on the best approach given available resources, time and capacities, requires a skilled project M&E officer.

Note that together, the TOC and results measurement need to convey a plausible story around how your project has built resilience. As it is a 'plausible story' and not hard science, learning (e.g., on assumptions) and adaptive management need to be incorporated into your project management to ensure you keep questioning and improving the approach to increase resilience.

The key take-away from this paragraph is that for measuring resilience, you need to track the resilience intervention logic as captured in your TOC. To this end, you can select from (or combine) three complementary approaches to results measurement: 1) set up quantitative indicators, 2) collect qualitative information, 3) develop a rubric, scorecard and/or composite index

determinants are collected through surveys and interviews, and then these are aggregated into a score card and finally weighed to arrive at an overall composite index.

6. Evaluating resilience-building

Monitoring allows a project to track progress to the intended project results. An evaluation finally assesses the contribution of a project to observed changes, going into the how and why of changes in relation to a project's activities. In evaluations the resilience logic and achievements can be assessed against criteria like **Relevance** (is the intervention doing the right things), **Coherence** (how well does the intervention fit), **Effectiveness** (is the intervention achieving its objectives), **Efficiency** (how well are resources being used), **Impact** (what difference does the intervention make) and **Sustainability** (will the benefits last)¹⁸.

Evaluations are generally most useful when they can build on a project's design, and on its monitoring system. Before an evaluation is commissioned, a project should therefore check the following prerequisites¹³, the first two of which are very much connected to what has been described in this paper already:

- **Define resilience according to context:** It is difficult to know if projects have succeeded or failed in building resilience if the term is not clearly defined. A clear operationalisation of resilience should be a core component of a project, and the CORE conceptual framework will help you do so.
- **Outline a resilience-building Theory of Change and develop an appropriate Results Framework:** with a clear operationalisation of resilience in place, a project should develop their TOC and Results Framework. This should clearly articulate plausible relationships between outputs, (short-term, intermediate and/or long-term) outcomes, and impacts. Also assumptions, learning and adaptive management need to be described.
- **Set a clear purpose to evaluate resilience:** any evaluation of resilience-building will be challenging due to the fact that it is subject to long time frames (beyond a project's life), context dependence and cross-scale interactions, uncertainty about patterns in shocks, shifting baseline data due to gradually changing environments, the absence of a counterfactual if the shock does not occur, inappropriateness of universal indicators for resilience, and the difficulty to assess contribution given the complex nature of resilience building. An evaluation of resilience-building should therefore only be undertaken if it offers clear additional value. Such value can be found if an evaluation provides evidence on what works for whom, when, where, and under which circumstances, so that it can provide project staff, donors and implementing partners with evidence and knowledge to design and manage (future) projects more effectively.

The key take-away from this paragraph is that if your resilience logic (consisting of context, interventions and goals) is clearly articulated and plausibly connected; the underlying assumptions are articulated and substantiated; you have data that track the program logic and progress towards the goal; and you have a system for continuous learning and adaptation in place, then your project is highly 'evaluable' in an end-of-project evaluation.

¹⁸ <https://www.oecd.org/dac/evaluation/daccriteriaforevaluatingdevelopmentassistance.htm>

ANNEX I

The OECD, the World Bank and iDE all propose a set of outcome areas that help build resilience (sometimes called principles, concepts, or determinants). While each set of outcomes has their specific area of application (respectively these are international development, climate and disaster risk reduction, and markets and value chains), we can nonetheless take inspiration from their work. There is much overlap between these outcomes but there are also differences. This is to be expected when dealing with an abstract concept like resilience, and these differences are in fact not problematic. The challenge for projects needing to measure resilience is not to have a universally accepted terminology and/or agreed list of outcomes.

The **World Bank**⁵ identifies the following resilience-building concepts in relation to the three capacities:

- **Preparedness** to manage and cope with climate change/disasters
- **Robustness** to withstand climate change/disasters
- **Protection** against climate change/disasters
- **Recovery** from climate/disaster emergencies
- **Diversity** of a system to mitigate risks
- **Redundancy** of a system to withstand failure
- **Integration/connectedness** of a system
- **Flexibility** of a system to respond to uncertainty

The **OECD**⁹ describes the following general principles of resilience:

- **Preparedness** – the knowledge and capacities to effectively anticipate, respond to, and recover from, the impacts of likely, imminent or current hazard events or conditions
- **Responsiveness** – reacting quickly and positively in the event and aftermath of a crisis
- **Connectivity** – the degree of connection or separation between people, places, and things. The nature and strength of the interactions between system components
- **Learning and innovation** – the acquisition of knowledge or skills leading to a change in collective awareness, resulting in new norms, ideologies and institutions
- **Self-organisation** – the capacity to form formal or informal networks, institutions, organisations or other social collectives independently from the state or other central authority
- **Diversity and redundancy** – having many different forms, types or ideas and excess capacity and back-up systems which enable the maintenance of core functionality in the event of disturbances
- **Inclusion** – representation of diverse stakeholders in decision-making processes
- **Social cohesion** – shared values and communities of interpretation, reducing disparities in wealth and income, and generally enabling people to have a sense that they are engaged in a common enterprise
- **Thresholds** – acceptable levels of well-being, clearly defined access to rights and sustainable limits to common resources

And **iDE**¹⁰ has developed a set of determinants of (market system) resilience:

- **Redundancy**: surplus of market actors performing the same functions in the market system
- **Diversity**: diversity in the market system, value chains, and in the available market channels
- **Functionality**: flow of goods and services in, out and through market spaces
- **Inclusion**: participation of women and other vulnerable groups in the market system
- **Integration**: different groups' involvement in relevant processes
- **Collaboration**: collaboration among actors of the chain
- **Feedback loops**: ability to learn from experience through control mechanisms
- **Enabling environment**: transparent market governance is in place
- **Preparedness**: ability of the system to promptly react to disturbances

IMPACT THAT MATTERS



About us

The COVID-19 Response and Resilience Initiative for Food Value Chains (CORE) ran from July 2020-December 2022. Initiated by the Netherlands Ministry of Foreign Affairs and led by SNV, it was set up by to strengthen responses to the COVID-19 pandemic across eight major SNV-implemented agriculture projects in Africa: BRIDGE, CRAFT, HortInvest, Horti-LIFE, TIDE, MODHEM+, PADANE and STAMP+.

Based on field-level demand, CORE selected four themes that capture key structural challenges highlighted by the pandemic across agri-food systems: farmer inputs and services; consumer-oriented strategies; environmental hygiene integration; and digitalisation for agriculture (D4Ag). Each theme contributes to the structural resilience of food value chains and agri-food systems to shocks and stresses.

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