



GLOSSARY



Adaptation	1
Adaptive capacity	1
Adaptive Cycle	1
Agency	1
Aspirations	2
The Anthropocene	2
The Biosphere	2
Biosphere stewardship	2
Change narrative	3
Coalition for change	3
Complex systems	3
Cross-scale interactions	3
Controlling variables	4
Deep learning	4
Ecosystem Services	4
Ecosystem services bundles	4
Entrainment	4
Fast and slow variables	5
Feedbacks	5
Innovation	5
Interventions	5
Institutions	6
Iterative process	6
Leverage points	6
Opportunity context	6
Option space	7
Persistence	7
Planetary boundaries	7
Reciprocity	7
Reflexive practice	7
Resilience	8
Resilience thinking	8
Resilience practice	8
Resilience dimensions	8
Scaling	9

Scenario	9
Shocks and stressors	9
Situated agency	9
Social-ecological dilemma	10
Social-ecological system	10
Stakeholder	10
Strategies for change	10
System drivers	11
System dynamics	11
System identity	11
Systems thinking	11
Sustainable development	11
Thresholds	12
Trajectory of development	12
Transformation	12
Transformative capacity	13
Traps	13
Unintended consequences	13
Vulnerability	14

ADAPTATION

Adaptation is a gradual process, whereby a system adjusts its behavior in response to ongoing change. It refers to sustaining, innovating and improving a system on the current trajectory of development. Adaptation, which can be both a passive and an active process, happens for instance in response to climate change. Many of the development challenges that we face today are so severe that adaptation will not be enough. Instead, transformation will be necessary.

Adaptation is a gradual process, whereby a system adjusts its behavior in response to ongoing change.

ADAPTIVE CAPACITY

Adaptive capacity reflects the capacity of a system, an individual, or a group to respond to change by making incremental adjustments to maintain overall structure and function. To sustain the adaptive capacity, system features such as diversity, learning, and self-organization are important.

The capacity of a system, an individual, or a group to respond to change by making incremental adjustments to maintain overall structure and function.

ADAPTIVE CYCLE

The adaptive cycle is a commonly observed pattern of change in complex systems, consisting of four different phases: growth, maintenance, collapse, and reorganization. It reflects the development of a system from when it first becomes established, through a long period of maturing and stabilizing, where the system gradually becomes less flexible and more vulnerable to the shocks that sooner or later inevitably will hit the system, unraveling the structure and leading to collapse. This collapse provides an opportunity for the system to reorganize and either rebuild in a similar way, or to transform itself and move towards a new trajectory of development. These cycles of change can be observed at different system scales.

The adaptive cycle is a commonly observed pattern of change in complex systems, which includes the four phases: growth, maintenance, collapse and reorganization.

AGENCY

The agency of an actor or a group of actors reflects his/hers/their capacity to shape change in a given context. Creating change towards sustainability is not something that happens automatically - it requires human agency. Wayfinder therefore emphasizes the need to understand how agency is shaped by, and contributes to shaping, institutional structures, and to simulate agency for a more sustainable future.

Agency reflects the capacity of an actor or a group of actors to shape change in a given context.

ASPIRATIONS

Aspirations reflect shared values in a system around what it is people want for the future. In the Wayfinder process, stakeholders are guided to articulate their aspirations for a sustainable, safe and just future.

Aspirations reflect shared values in a system around what it is people want for the future.

THE ANTHROPOCENE

The term, Anthropocene, reflects that we now live in a globalized and hyper-connected world, where humans have become the largest driving force for change on the planet. It was coined in 2000 by the Nobel Prize winning scientist Paul Crutzen, to describe the most recent period in the Earth's history, starting in the 18th century, when the activities of humans first began to have a significant global impact on the Earth's climate and ecosystems.

The Anthropocene, or the age of humans, is a new era where humans have become the largest force of change on planet Earth.

Crutzen, Paul J. 2002. "Geology of mankind." Nature 415.6867 (2002): 23.

Steffen, Will, et al. 2011 "The Anthropocene: From global change to planetary stewardship." AMBIO: A Journal of the Human Environment 40.7 (2011): 739-761.

THE BIOSPHERE

The biosphere is the thin layer surrounding our planet that supports all life on Earth. It is the foundation that human prosperity ultimately rests upon. The biosphere consists of the global ecological system, and its interactions with land, water and atmosphere.

The biosphere is the thin layer surrounding our planet that supports all life on Earth. It is the foundation that human prosperity ultimately rests upon.

Folke, Carl, et al 2011. "Reconnecting to the biosphere." AMBIO: A Journal of the Human Environment 40.7 (2011): 719-738.

BIOSPHERE STEWARDSHIP

Biosphere stewardship, reflects people's ability to shape development in tune with the biosphere. Notions of care, collaboration, and learning are central to the concept. In Wayfinder biosphere stewardship is seen as a key for navigating towards more sustainable, safe and just futures.

Biosphere stewardship reflect people's ability to shape development in tune with the biosphere.

Steffen, Will, et al. 2011 "The Anthropocene: From global change to planetary stewardship." AMBIO: A Journal of the Human Environment 40.7 (2011): 739-761.hro

CHANGE NARRATIVE

A change narrative is a story-like description of how stakeholders envision that both specific changes as well as more general change may happen within a system. Compared to the commonly used “theory of change” concept, a change narrative is more dynamic, as it explicitly deals with uncertainty. In Wayfinder, the change narrative focuses on leverage points for systemic change, the role of agency in bringing about desired changes, and the overall opportunity context for creating change.

A change narrative is a dynamic, story-like description of how stakeholders envision that change may happen within a system.

COALITION FOR CHANGE

A committed, capable, and legitimate group of people who will carry the Wayfinder process forward. The coalition will design the Wayfinder process so that it suits the specific context, ensure that it is conducted in a good way, and make sure that the plans that comes out of the Wayfinder process can be implemented in reality.

A committed, capable, and legitimate group of people who will carry the Wayfinder process forward and ensure that it leads to action.

COMPLEX SYSTEMS

Complex systems, such as social-ecological systems, are composed of many interacting components. Typical properties in complex systems are non-linearity, feedbacks, and emergent behavior. Because of these properties command and control approaches is not a suitable management strategy for complex systems. Instead adaptive approaches that focuses on learning are needed.

Complex systems, such as social-ecological systems, are composed of many interacting components. Typical properties in complex systems are non-linearity, feedbacks, and emergent behavior.

GRAID complexity brief, Resilience principles book

CROSS-SCALE INTERACTIONS

Cross-scale interactions refer to the influence that processes happening at one scale have on processes at another scale. In the globalized and hyper-connected world that we live in today, all local prospects for development are influenced by regional and global scale processes (e.g. economic development and technology diffusion), and local actions aggregate up and generate global impact (e.g. climate change).

Cross-scale interactions refer to the influence that processes happening at one scale have on processes at another scale.

CONTROLLING VARIABLES

Controlling variables are system components that have a relatively strong influence on the overall function and dynamics of a system, influencing how the system behaves. Controlling variables are often slowly-changing.

Controlling variables are system components that have a strong influence on the overall function and dynamics of a system. (<https://www.ecologyandsociety.org/vol17/iss3/art30/>)

DEEP LEARNING

Learning can occur at many levels. Basic learning, or “single-loop learning”, can come from simply asking questions about the expected outcomes from an action. When working with complex systems, deeper levels of enquiry is necessary, questioning your assumptions, and challenging underlying reasons and values. This kind of deep learning is commonly called “double-loop” or “triple-loop” learning.

Deep learning reflects an approach to learning where you not only evaluate outcomes that are expected of an action, but also question the underlying assumptions that have been made and the values guiding the actions.

ECOSYSTEM SERVICES

Ecosystem services are the benefits people obtain from ecosystem processes. These include provisioning services, such as food and water, regulating services, such as air purification and flood control, and cultural services, such as spiritual values in nature and opportunities for recreation.

Ecosystem services are the benefits people obtain from nature, including tangible goods such as food and fresh water, as well as more intangible services such as climate regulation and maintenance of biodiversity. (<http://www.stockholmresilience.org/research/resilience-dictionary.html>)

ECOSYSTEM SERVICES BUNDLES

An ecosystem service bundle is a set of ecosystem services that co-occur at a given place and time. For example, a mangrove forest provides firewood, flood protection, habitat for fish, etc. The bundle can be seen as a fingerprint of the system, reflecting how different services interact and co-vary, in response to local biophysical conditions, existing management practices, and external drivers for change. These interactions involve both trade-offs, where the increase in one service result in a decrease of another, and synergies, where the increase in one services also enhances another service.

A set of ecosystem services that co-occur at a given place and time. Ecosystem services within a bundle interact in ways that involve both trade-offs and synergies between services.

ENTRAINMENT

A repeating pattern of thinking, where past thinking and action strongly influence current efforts to innovate.

FAST AND SLOW VARIABLES

Different variables in a complex system change at different pace. We often tend to focus our attention on “fast variables”, such as crop production. However, it is often the “slow variables”, such as the amount of soil organic matter that controls how the fast variable behaves.

While we tend to focus management on fast changing variables, it is often the more slowly changing variables that controls how the fast variables behave.

(<https://www.ecologyandsociety.org/vol17/iss3/art30/>)

FEEDBACKS

Feedbacks, also called feedback loops, are two-way ‘connectors’ between variables in a system that link together cause and effect. Positive feedbacks, where the variables respond in the same way to each other, speed up changes within the system, whereas negative feedbacks, where the variables respond in opposite ways, balances a systems behavior. An example of a positive feedback loop can be seen in Hawaii where introduced grasses cause fires, which promote further growth of the grasses at the expense of native shrub species.

Feedback loops represent two-way relationships between system variables that can either speed up change in the system (through positive feedbacks), or balance it (through negative feedbacks). (<http://www.stockholmresilience.org/research/research-news/2015-02-19-applying-resilience-thinking.html>)

INNOVATION

An innovation is any type of initiative that challenges existing system dynamics and contributes to shaping change. Wayfinder focuses particularly on innovative combinations of actions that can help break entrenched patterns, and redirect social-ecological interactions so as to shape development trajectories that are sustainable, safe and just.

An innovation is any type of initiative that challenges existing system dynamics and contributes to shaping change.

INTERVENTIONS

An intervention is a deliberate action to intervene in a system for the purpose of affecting change and influencing the trajectory of development. Wayfinder focuses particularly on interventions that target leverage points for systemic change.

Deliberate action to intervene in a system for the purpose of affecting change and influencing the trajectory of development.

INSTITUTIONS

Institutions are the norms and rules that shape human interactions. They can be formal (such as rules and laws) or informal (such as norms, conventions and self-imposed codes of conduct). Influencing institutions, such as property rights, is a powerful way of shaping change towards sustainability.

Institutions are the formal and informal rules and norms that guide how people within societies interact, including their interactions with the environment.

ITERATIVE PROCESS

An iterative process, is one where earlier steps are revisited as needed, to integrate new/updated knowledge and understanding. While the five process phases in Wayfinder are presented as distinct and sequenced, we strongly encourage an iterative approach where you move back and forth and revisit the different phases as needed. An iterative approach is necessary to enable deep learning and reflexive practice.

An iterative process, is one where earlier steps are revisited as needed, to integrate new/updated knowledge and understanding.

LEVERAGE POINTS

Leverage points are places or locations in the dynamics of a complex system, where small intervention can lead to larger change for the whole system. The impact of a particular intervention depends on what type of leverage point it targets. Some leverage points are “shallower”, which means that they are, relatively speaking, easier to influence but also unlikely to lead to transformative change. In contrast, deeper leverage points, which address the values underpinning the system, are generally more difficult to influence but have more potential for creating radical change.

Places in complex systems that can be targeted for interventions because a small shift can lead to larger change for the whole system.

Meadows, Donella. "Leverage points." Places to Intervene in a System (1999).

OPPORTUNITY CONTEXT

Complex systems are more or less open to change at different times, due to existing values, institutional structures, political and economic situation, and so on. Change processes may only have real traction when the conditions are right, i.e. when the opportunity context is favourable. Diagnosing the opportunity context, and learning how to manipulate it, is a powerful capacity for creating change.

The opportunity context reflects the degree to which the general conditions favour a certain type of change process.

OPTION SPACE

Option space reflects the range of possible development trajectories available at any given point in time. While navigating towards a more sustainable future it is essential to manage the system in a way that also keeps options open, and creates new options when old ones close. This will help us maintain adaptive and transformative capacity over time so that we avoid locking ourselves into specific trajectories. Managing option space is a fundamental strategy for navigating complex systems towards sustainability in contexts of deep uncertainty. In Wayfinder we operationalize the option space concept through 7 resilience dimensions.

Option space reflects the range of possible trajectories available at any given point in time. Managing option space is a fundamental strategy for navigating complex systems towards sustainability in contexts of deep uncertainty.

PERSISTENCE

Persistence refers to the capacity to conserve what you have and recover to what you were in the face of change. However, this concept is of limited use to tackle the sustainable development challenge we face today, and persistence is therefore not a focus of Wayfinder.

The maintenance and conservation of an existing system. The capacity to recover from shocks and stresses without changing or adapting.

PLANETARY BOUNDARIES

Scientists have identified nine planetary boundaries, which are global biophysical “limits” that human activity needs to stay within in order to maintain the long-term functioning of the planet as we know it. These include for example climate change, freshwater resources and ocean acidification.

Planetary boundaries are the nine global biophysical “limits” that human activity needs to stay within in order to maintain the long-term functioning of the planet as we know it.

RECIPROCITY

Reciprocity is a basic social norm where a positive action is met by a positive response. In Wayfinder we talk about fostering a sense of reciprocity between people near and far, as a fundamental ingredient in building a more sustainable future.

Reciprocity is a basic social norm where a positive action is met by a positive response.

REFLEXIVE PRACTICE

Reflexive practice is the ability to reflect on one's actions so as to engage in a process of continuous learning. Reflexive practice is a cornerstone of the Wayfinder process.

Reflexive practice is the ability to reflect on one's actions so as to engage in a process of continuous learning.

RESILIENCE

Broadly speaking, resilience reflects the capacity of a system to continue develop in the face of change. The resilience concept has rapidly gained popularity in science, policy and practice over the past decade, and many different definitions of the concept exist. In Wayfinder, which focuses on the challenge of sustainable development in the Anthropocene, resilience is defined as “*the capacity of a social-ecological system to sustain human well-being in the face of disturbance and change, by buffering shocks and adapting and transforming in response to change*”.

Resilience reflects the capacity of a social-ecological system to sustain human well-being in the face of disturbance and change, by buffering shocks and adapting and transforming in response to change.

(Biggs et al 2015 Principles for building resilience)

RESILIENCE THINKING

Resilience thinking is a theoretical lens that helps us understand dynamic change in complex social-ecological systems. It synthesizes a collection of concepts, ideas, and an analytical perspective that stem primarily from complexity and social-ecological systems thinking. Over the past two decades, resilience thinking has developed into a forefront of sustainability science.

Resilience thinking is a theoretical lens that helps us understand dynamic change in complex social-ecological systems. It has its roots in complexity and social-ecological systems thinking.

RESILIENCE PRACTICE

Resilience practice is the hand-on side of resilience thinking, which aims to make practical use of the scientific insights in this field to create change towards sustainability. The process of assessing, designing, implementing and learning from resilience-based action in social ecological systems. Wayfinder reflects a new generation of resilience practice, where the challenge of navigating towards sustainability is conceptualized as facilitating either adaptive or transformative change in social-ecological system, while maintaining option space.

Resilience practice is the hand-on side of resilience thinking, which aims to make practical use of the scientific insights in this field to create change towards sustainability.

RESILIENCE DIMENSIONS

Resilience dimensions refers to the seven categories of issues are important for a system’s option space. These include: 1) fostering biosphere stewardship and reciprocity, 2) building capacity for complex systems thinking, 2) encouraging learning and reflexive practice, 4) maintaining social and ecological diversity and redundancy, 5) managing cross-scale interactions and connectivity, 6) managing system feedbacks, and 7) promoting inclusive, adaptive, governance, that integrate issues across sectors and scales.

Resilience dimensions refers to seven categories of issues that are important for a system’s option space.

SCALING

Scaling can refer both to scaling out and scaling up. If a new innovation, or a practice or an approach is going to have a substantial impact in the system, it needs to be scaled out, in the sense that it can be applied more broadly in the system. This usually requires scaling up, which means embedding the innovation/practice/approach in the wider system structures, for instance through new regulations or social norms, which leads to an ‘institutionalization’ of the change. Depending on the innovation and the opportunity context, scaling up and out may be met with more or less resistance, and thus more or less possible.

Scaling refers to the process through which a practice or an approach becomes more widespread and has a larger impact in the system. Usually this required some level of institutionalization.

Moore, Michele-Lee, Darcy Riddell, and Dana Vocisano. "Scaling out, scaling up, scaling deep: strategies of non-profits in advancing systemic social innovation." The Journal of Corporate Citizenship 58 (2015): 67-85.

SCENARIO

A scenario is a plausible narrative about the future. In Wayfinder, we stress the importance of looking at a set of alternative scenarios that considers the impact of new emerging drivers for change. Contrasting these is a useful approach for acknowledging uncertainty and for engaging with it in a constructive way, for instance increasing the robustness of planned action strategies.

A scenario is a plausible narrative about the future.

SHOCKS AND STRESSORS

Shocks are sudden disturbances that disrupt a system, while stresses build up over time putting pressure on the system and potentially making it more vulnerable to rapid change. For example, a coastal community may be more sensitive to flooding (a shock) if they over a long period of time have experienced coastal erosion (a stressor).

Shocks are sudden disturbances that disrupt a system, while stresses build up over time putting pressure on the system.

SITUATED AGENCY

Situated agency reflects the potential for people, or groups of people, to make change happen given existing institutional and social structures. Thus, it reflects the interaction between agency and opportunity context. This perspective accounts for institutions and social relations as constraining and enabling, but not determining, for the choices that individual actors make.

The potential for people, or groups of people, to make change happen given existing institutional and social structures.

SOCIAL-ECOLOGICAL DILEMMA

A social-ecological dilemma is the local-scale expression of the sustainability challenges that we face. In Wayfinder we refer to them as dilemmas, because at the local level, the problems are often about choices between different stakeholders' values and how we prioritize to deal with our environment. This generally involves difficult trade-offs, but not insurmountable challenges, for instance about from where resources should be extracted, in what way, and for whose benefit.

A social-ecological dilemma is the local-scale expression of the sustainability challenges that we face.

SOCIAL-ECOLOGICAL SYSTEM

Social-ecological systems are linked systems of people and nature. The term emphasizes that humans must be seen as a part of, not apart from, nature — that the delineation between social and ecological systems is artificial and arbitrary. Scholars have also used concepts like 'coupled human-environment systems', 'ecosocial systems' and 'socioecological systems' to illustrate the interplay between social and ecological systems. The term social-ecological system was coined by Fikret Berkes and Carl Folke in 1998 because they did not want to treat the social or ecological dimension as a prefix, but rather give the two same weight during their analysis.

<http://www.stockholmresilience.org/research/resilience-dictionary.html>

Social-ecological systems are integrated systems of people and nature. The term emphasizes that humans are part of nature and that the delineation between social and ecological systems is artificial.

STAKEHOLDER

A stakeholder is a person or a group of people who has an interest in the system and who is concerned by its development, for instance by being affected by how resources are allocated. Wayfinder builds on the active participation of a range of different stakeholders throughout the process.

A stakeholder is a person or a group of people who has an interest in the system and who is concerned by its development.

STRATEGIES FOR CHANGE

In Wayfinder, the strategies for change aims to contribute to shifting system dynamics so as to create a more sustainable, safe and just future. A strategy contains of a set of actions that target specific leverage points in the system, and that are coordinated across scales and sequenced in time, in an appropriate way.

A strategy for change contains of a set of specific actions that are coordinated across scales and appropriately sequenced in time. It aims to create either adaptive or transformative change towards a more sustainable future.

SYSTEM DRIVERS

System drivers are external forces that influence internal system dynamics and thereby contribute in shaping the trajectory of a system. Past drivers of change are often revealed by historical timelines that provide insight into the cause and effect of important changes. Future potential drivers of change can be identified through horizon scanning. Climate change is a current example of a driver that affects most social-ecological systems.

System drivers are forces external to the system that influence the trajectory of a system and cause a system to change.

SYSTEM DYNAMICS

System dynamics reflect the combined outcome of how a myriad of different social and ecological variables interact across scales in a system, in response to existing drivers for change. Over time the system dynamics create what we can interpret as a trajectory of development. The system dynamics explain the benefits generated, the dilemmas experienced, and how the option space is changing.

System dynamics reflect how different parts of a system interact in ways that combine to determine a system's overall structure, function, and behaviour.

SYSTEM IDENTITY

System identity refers to the defining characteristics and qualities of a system, including its components and variables, its structure and organization, and the benefits the system provides to people, but perhaps more importantly it captures what it is that stakeholders want for the system.

System identity refers to the defining characteristics and qualities of a system.

SYSTEMS THINKING

Systems thinking is an integrated and holistic analysis approach that focuses on how different system components in a system interact with each other to generate overall patterns. Systems thinking helps us approach complex problems that are linked across sectors and scales. It can, for example, provide guidance on how to identify different types of leverage points for systemic change. Wayfinder is firmly rooted in systems thinking.

Systems thinking is an integrated and holistic analysis approach that focuses on how different system components in a system interact with each other to generate overall patterns.

SUSTAINABLE DEVELOPMENT

Sustainable development refers to trajectories that are both safe, in the sense that they stay within critical planetary boundaries, and just, in the sense that each person on the planet has the ability to meet their needs and human rights. In between these biophysical and social boundaries, many

different development trajectories are possible. These will, to a varying degree, contribute to maintaining or improving the productive capacity of the biosphere, and be more or less aligned with the needs, values and aspirations of different groups of people.

Sustainable development refers to trajectories that are both safe, in the sense that they stay within critical planetary boundaries, and just, in the sense that each person on the planet has the ability to meet their needs and human rights.

THRESHOLDS

A threshold is a critical level of one or more variables, that when crossed triggers abrupt change in the system, that may or may not be reversible. Thresholds may result in regime shifts, whereby system dynamics change substantially, and the system reconfigures itself into something different. This happens for example in coral reefs that can become algae dominated, in clear-water lakes that can become turbid, and in savannah systems that can become overgrown with bush. It is often very difficult, if at all possible, to reverse the effects of a crossed thresholds and returning to the pre-existing regime. Therefore it is important to be aware of thresholds of potential concern in your system.

A critical level of one or more variables, that when crossed triggers abrupt change in the system, that may or may not be reversible.

TRAJECTORY OF DEVELOPMENT

A trajectory of development can broadly be conceived as the general direction in which a social-ecological system is heading. Under a particular type of governance and existing external drivers, a system will behave and develop in a certain way, and produce certain outcomes in terms of e.g. ecosystem services and human well-being. Under a different kind of governance, the system would behave differently, and produce a different set of outcomes. Over time, these alternative system behaviors would be reflected as alternative development trajectories, that would be more or less sustainable, safe and just. Due to the existence of dominating drivers and feedbacks, and thresholds beyond which it may be difficult or impossible to turn back, there is not an infinite number of realistic trajectories for each system, but certain ones that are more likely than others.

A trajectory of development can broadly be conceived as the general direction in which a system is heading. Different trajectories will produce different outcomes, in terms of e.g. ecosystem services and human wellbeing, and will therefore also be more or less sustainable, safe and just.

TRANSFORMATION

Transformation reflects a radical form of system change, whereby people intervene to deliberately “rewire” the system so that dominating social-ecological system interactions change. This “rewiring” creates a new development trajectory, which is substantially different in terms of the outcomes it over time will produce. In contrast to adaptation, which may be a passive process, transformation requires deliberate agency, leadership and a conducive opportunity context that enables you to break with the old. Transformation is often met with resistance, because it usually involves shifts in existing power balance.

Transformation reflects a radical form of system change, whereby the system embarks on new and significantly different trajectory of development.

TRANSFORMATIVE CAPACITY

Transformative capacity reflects the capacity to drive radical change in the system that enables a new development trajectory. This usually includes capacity to break with the old, for instance by destabilizing existing system feedbacks through new innovative practices, and strategic navigation of important power networks to institutionalize the proposed change to enable impact at broader scales.

Transformative capacity reflects the capacity to drive radical change in the system that enables a new development trajectory

TRAPS

A social-ecological trap reflects a situation when reinforcing feedbacks between key variables lock the system onto an undesirable development trajectory. The result of a trap is that system benefits remain low or even decline over time. Quick fixes that only treat the symptom of the problem are unlikely to be effective to unlock a trap. Instead, you need to target the root causes of the problem so that you destabilize the feedback that maintain the situation. Unlocking a trap will often require coordinated efforts across sectors and scales.

A social-ecological trap reflects a situation when reinforcing feedbacks between key variables lock the system onto an undesirable development trajectory.

Enfors, Elin. 2013 "Social-ecological traps and transformations in dryland agro-ecosystems: using water system innovations to change the trajectory of development." Global Environmental

UNINTENDED CONSEQUENCES

All interventions in complex systems will, in addition to the consequences that you have envisioned, also have unintended consequences. Because of the many interacting components, the non-linear change processes, and the feedbacks involved, it will be impossible to foresee the full impact of your interventions. To make sure that the Wayfinder process do not cause unintended harm, particularly to the safety and wellbeing of vulnerable people in the system or beyond, we stress the importance of seriously engaging with uncertainty and considering what unintended consequences your actions might have before implementing any plans.

Unintended consequences are unavoidable when intervening in complex systems. It is important to try to foresee what these may be, and make sure you do not cause unintended harm.



VULNERABILITY

Vulnerability refers to the propensity of social and ecological systems to suffer harm from exposure to stresses and shocks. Research on vulnerability can, for example, assess how large the risk is that people and ecosystems will be affected by climate changes and how sensitive they will be to such changes. In Wayfinder we often refer to vulnerable groups of people, which are those most affected of a certain change but least empowered to influence their own situation.

Vulnerability reflects the degree to which a person, a group of people, or a system is likely to be harmed due to exposure to a specific hazard or stress.