



# Resilience Adaptation Transformation Assessment and Learning Framework May 2015

## Three Related Concepts Underpin the Resilience Adaptation Transformation Assessment and Learning Framework

**Resilience:** The ability of a social-ecological system to absorb disturbance and reorganize, so as to retain essentially the same function and structure.

**Adaptation:** A process of responsive change that improves the ability of a social-ecological system to achieve desired sustainability goals.

**Transformation:** A process of moving to a social-ecological system with different identity, structure and functions, to achieve desired sustainability goals. Often transformation is needed at one scale to maintain the resilience (or system identity) at another scale.

There are many different definitions of these terms and concepts in the literature and practice, and it is recognized that there is a clear need for more consistent approaches. As the RATALF is further developed, tested and applied, a broader consultation will be conducted.

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Natural and social systems are increasingly under stress, and the concepts of **resilience, adaptation and transformation** have gained prominence in much of the global dialogue, overarching goals of international development programs. Various approaches to maintaining resilience, adapting or transforming systems to adapt to anticipated climate change (and other unanticipated global changes which may occur), will be required in order to maintain food security and sustain rural livelihoods as global populations grow. The concepts of **resilience, adaptation and transformation** are thus increasingly central to global policy discussions, and are progressively being translated into goals that guide sustainable development. Understanding how to use and apply these concepts in a harmonized way is critical to meeting the objectives of the Rio Conventions, and the Sustainable Development Goals (SDGs), particularly those related to food security, improving human well-being, safeguarding ecosystem services, and attaining sustainable industrialization and sustainable energy services.

Challenges exist, however, in applying **resilience, adaptation and transformation** concepts in the broader global policy domain. We need consistent approaches to define, assess and report resilience at different scales, and to identify the need and options for adaptation, or transformation. We need to develop adaptation pathways to support decision makers to prepare for the future, to plan and implement initiatives in pursuit of sustainability goals in the context of uncertainty, plural values, and conflicting interests. The combined mandates of the three Rio Conventions are central to this effort, principally where they intersect at the common objective of building and maintaining the resilience of desirable social-ecological systems.

# 10 Things to Know About Resilience

1

The focus is typically on complex, dynamic, linked social-ecological systems.

2

Resilience is about how linked social-ecological systems self-organize in response to shocks/disturbances to maintain their system identity. The property of 'resilience' describes the limits to that capacity.

3

Resilience, adaptive capacity and transformability are, in a technical sense, neutral system properties: they are neither 'good' nor 'bad', but describe the capacity of the system to meet defined goals. It is the broader sustainability goal which defines what is 'desirable' or 'undesirable'.

4

Understanding and managing resilience requires consideration of 'specified' resilience (to known changes or disturbances 'of what, to what') and 'general' resilience (to unknown future disturbances).

5

No system can be understood or managed at a single scale—all systems function at multiple (nested) scales, and interactions across scales affects resilience, adaptation and transformation. Making a system very resilient in one way can cause it to lose resilience in other ways or at other scales—there are often trade-offs.

6

Many losses in resilience are unintended consequences of narrowly focused optimization and 'efficiency' drives that remove currently 'unused' reserves and 'redundant' functional capacities.

7

Resilience is not about reducing variability, or never changing the system. Trying to prevent disturbance and keep a system constant reduces its resilience. Probing the boundaries is necessary for maintaining and building resilience, including the capacity for adaptation and transformation.

8

Adaptation and transformation are complementary processes; managers often need to transform a lower scale of system in order that a higher scale can remain resilient (e.g. portions of the catchment might change the enterprise in order that the broader catchment remains viable). When an undesirable regime shift has happened or is inevitable it calls for intentional transformational change. The capacity to achieve this is called transformability.

9

Appropriate approaches to adaptation planning (defining options, sequencing decisions and implementation) depend on the number and diversity of decision makers, adequacy of conceptual models, and level of uncertainty.

10

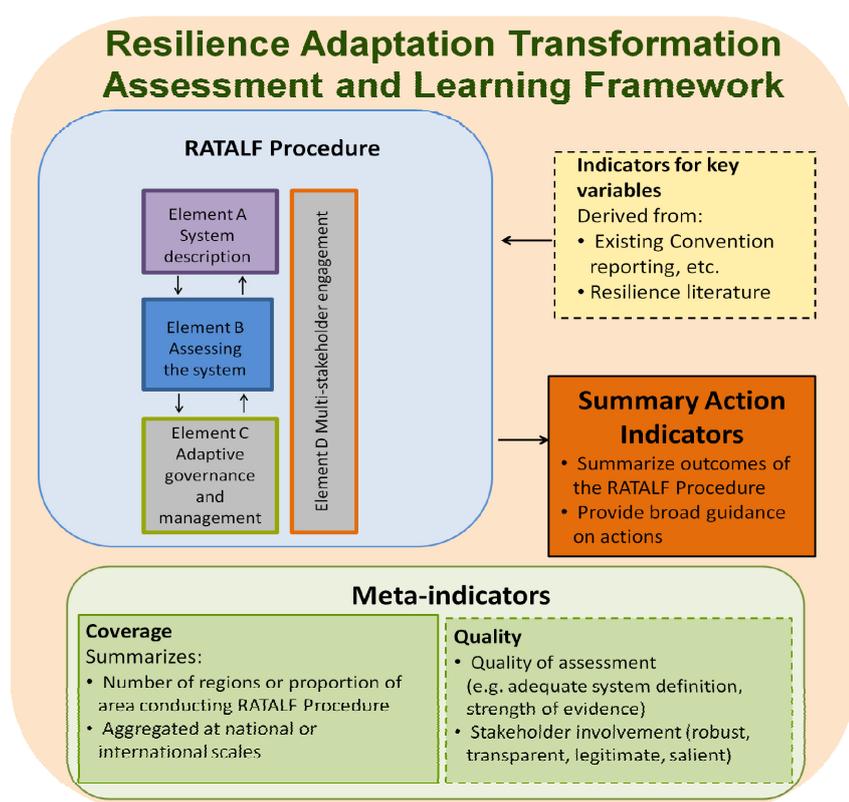
Adaptation pathways help inform the sequencing of decisions within long decision time frames, and incorporate flexibility to enable co-learning, experimentation and iteration, scenario planning and livelihood innovation. Many approaches fit under this label. Different approaches are appropriate in situations with few stakeholders, single decision-makers, clear objectives and lower uncertainty (at one extreme), through to those involving many stakeholders, high uncertainty, unambiguous goals, contested decision-making, complex and highly dynamic social-ecological systems, and unpredictable trajectories.

## What is the Resilience Adaptation Transformation Assessment and Learning Framework?

The **Resilience, Adaptation and Transformation Assessment and Learning Framework (RATALF)** is an important step towards harmonizing resilience concepts, and assessing and monitoring the resilience of social-ecological systems. It was developed in 2015 by the Commonwealth Scientific and Industrial Research Organisation (CSIRO) in partnership with the Scientific and Technical Advisory Panel of the Global Environmental Facility (STAP/GEF). Use of the **RATALF** will assist development initiatives to generate sustained positive impacts. Built on a wealth of research and practice, the first version of the **RATALF** emphasized resilience, offering a structured approach to understanding and assessing resilience, and adaptation need and capacity, through adaptive learning. It can be used to inform initiatives to build resilience of those social-ecological systems that contribute to agreed sustainability goals. Planned elaboration and testing of the approach will emphasize adaptation and transformation elements, and provide guidance on how to 'scaffold' innovative approaches to adaptation pathways within the existing plethora of the planning and assessment tools and processes. The aim is empowering local stakeholders to use their learning about the structure and function of their own systems. If applied within an effective multi-stakeholder engagement process, it allows local stakeholders to be central to the decision pathways about the future of their own system.

The **RATALF** will assist users in looking beyond short-term impacts to comprehensively understand resilience in complex social-ecological systems. The **RATALF** will be applied at sub-national scales, in an iterative manner. The framework leads users through a process to:

1. Explore and describe aspirational sustainability goals, and understand how the system functions.
2. Identify the values and outputs that people expect or desire from the system now and in the future, and the drivers that affect these.
3. Identify a small set of controlling variables critical to the function of the system. This will include biophysical components, governance, social interactions, and cross-scale interactions.



4. Determine the need and options, for adapting or transforming the system, if this is necessary to achieve the sustainability goals, and adaptation pathways to avoid undesirable futures.

The procedure is modular and iterative, and it engages iterative and it engages stakeholders to help the user understand:

1. **What** are the critical values, structures and functions of the social-ecological system?
2. **Which** important indicators and critical attributes should be measured?
3. **What** are the desired and undesired futures, and what can the stakeholders do to avoid undesirable futures?

There is no specific simple or complex indicator that is universally applicable to assess resilience. Instead the RATALF allows users to identify the most relevant among existing indicators, including from the Rio Conventions, GEF, and others. If suitable indicators do not exist for particular attributes at the required scale of assessment, locally relevant indicators may need to be developed. The results of the assessment procedure are captured by **summary action indicators** that provide broad guidance on the types of actions that may be appropriate to enhance resilience, or to support transformation. These are currently loosely defined, but will be further developed and tested in ongoing work. Application of the framework is proposed as a process indicator: **Meta-indicators** provide a way to consistently report the coverage, quality, maturity, progress and relevant actions based on individual assessments. The meta-indicators will be useful for country level reporting, and will facilitate comparisons between assessments.

## Innovation

The **Resilience Adaptation Transformation Assessment and Learning Framework** complements, and expands the scope of published tools and guidelines on resilience, including a host of resources on the Resilience Alliance database<sup>1</sup> on thresholds and regime shifts in ecological and social-ecological systems. It is consistent with a plethora of existing system-based approaches but provides a particular focus on operationalizing the more complex (and often confusing) concepts of resilience, and (in upcoming editions) adaptation and transformation, providing a consistent approach to their assessment and reporting. This approach:

- offers a conceptual framework which guides users in the identification of project/initiative-specific indicators relevant to their social-ecological system;
- has the capacity to support the Sustainable Development Goals, and capture synergies across the Rio Conventions in areas of common interest in management of social-ecological systems;
- balances the requirements for flexibility of application at the local level, with need for consistent and comparable reporting (using Meta-indicators) at sub-national, national, and international scales; and,
- supports stakeholders in structured and shared learning about their system, which enables the development of coherent narratives to understand and manage resilience, adaptation and transformation, articulate desired outcomes, and support development of local policies and priorities.

In future versions of the RATALF, enhanced guidance will be provided to frame and identify an appropriate approach, or 'entry point', to adaptation pathways planning. This will include assessing the readiness of the stakeholders, the multi-stakeholder engagement process, guiding questions, some approaches to developing sets of sequenced decision possibilities which will help to guide the users towards their goals in an adaptive learning environment.

## Application

The **Resilience Adaptation Transformation Assessment and Learning Framework** can be used by national governments interested in coordinating monitoring and reporting under international conventions, such as the UNCCD, CBD, UNFCCC—and for supporting the implementation of the SDGs. Opportunities for applying the framework include:

- complementing the UNCCD's progress indicators with narrative indicators at the national and sub-national scales;
- monitoring the GEF's program on Sustainability and Resilience for Food Security in Sub-Saharan Africa;
- contributing to the UNFCCC's National Adaptation Plans (NAPs) by encouraging a systems perspective that informs a holistic approach, to ensure adaptation efforts align with, and complement, mitigation and national development priorities;
- serving as an integration framework for monitoring and reporting at multiple scales on progress made on improving ecosystem management and human well-being;
- providing a common conceptual framework to harmonize approaches to planning, implementation, monitoring and reporting on interventions designed to build resilience and adaptive capacity in support of the Rio conventions, the SDGs, and beyond; and,
- providing a robust indicator framework to underpin and enable learning that proactively informs decision triggers based on understanding of the system's trajectory and thresholds of potential concerns.

The first version of the RATALF was presented at the 2015 UNCCD Science Conference. In order to realize opportunities in the application listed above, the RATA Framework Version 1<sup>2</sup> requires further development and testing, and an increased focus on adaptation pathways planning. It will be refined and tested during 2015 and 2016, through consultation with a range of potential users, further desktop studies, and piloting in a number of applied projects. User guidelines are under development.

<sup>1</sup> <http://www.resilience.org/index.php/database>

<sup>2</sup> The framework was initially called the "The Resilience, Adaptation and Transformation Assessment (RATA) Framework, but has been renamed the "The Resilience Adaptation Transformation Assessment and Learning Framework" (RATALF).

**Further information**, available at <http://www.stapgef.org/the-resilience-adaptation-and-transformation-assessment-framework/>

O'Connell, D., Walker, B., Abel, N., Grigg, N. (2015) The Resilience, Adaptation and Transformation Assessment Framework: From Theory to Application. CSIRO, Australia.

Grigg, N., Abel, N., O'Connell, D. & Walker, B. (2015) Resilience assessment case studies in Thailand and Niger: Case studies to accompany a discussion paper for UNCCD STAP workshop 19 - 21 November 2014, Sydney, Australia.