

A FORMATIVE RESILIENCE ASSESSMENT APPROACH BASED ON SEVEN GENERIC RESILIENCE BUILDING PRINCIPLES



CST TOOLKIT 2019 | LIZA VAN DER MERWE, REINETTE BIGGS, RIKA PREISER

The embedded social dimension can contribute great strength, or be the weakest link to the resilience of complex adaptive systems. Formative resilience assessments can be used to stimulate the development of social resilience in both social-ecological and socio-technical systems. Formative assessments consist of a systematic and ongoing process for conducting critical conversations among key actors. Together they seek and interpret evidence to make sense of current levels of resilience, garner agreement on where to improve attainment of resilience outcomes and decide on collective social action towards agreed upon resilience goals. Such an ongoing process promotes resilience thinking and adaptively stimulates the emergence of resilience in the system.

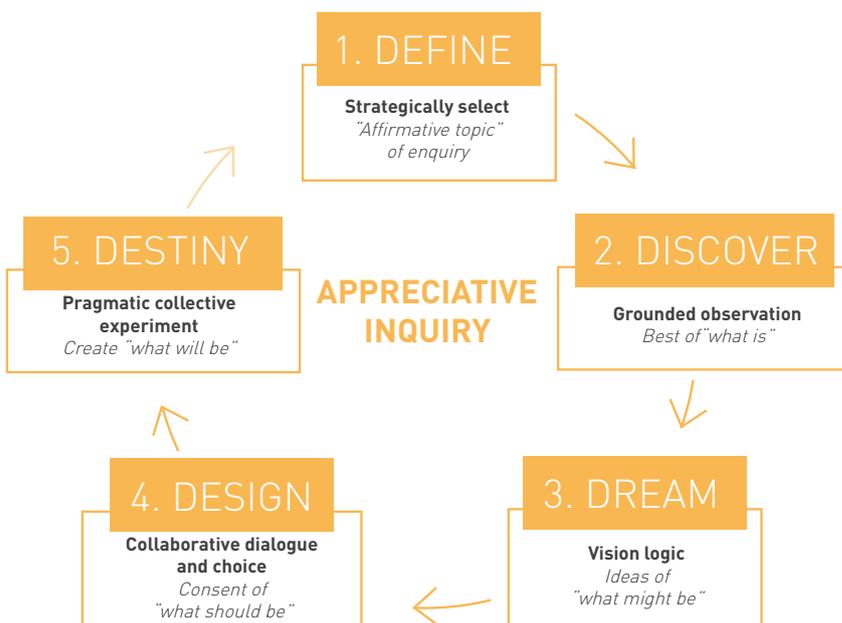
FORMATIVE RESILIENCE ASSESSMENTS

Can be an ongoing process, “for” a resilience outcome, to facilitate a bottom-up dialogue among actors in the system, to diagnose where the system is at in its levels of resilience, to agree where resilience should be strengthened, through collective action towards shared resilience goals.

SUMMATIVE RESILIENCE ASSESSMENTS

Can be scheduled periodically, as an assessment “of” resilience, against standardized indicators decided top-down, for the purpose of producing a report for a third party, to give an account of what has been achieved, for comparison, aggregation or benchmarking.

A resilience building workshop was designed to enhance the resilience of essential service delivery in a sociotechnical systems context through ongoing formative resilience assessments. The workshop utilizes seven generic resilience building principles, derived from social-ecological systems, found to enhance the resilience of ecosystem services (Biggs, Schlüter, & Schoon, 2015). Participants are invited to apply these principles in their own context to enhance service delivery resilience. Appreciative inquiry is a social innovation method that was used to structure the facilitation process. This guide can be used to apply a similar approach in any essential service organization:



2 DISCOVER THE BEST OF WHAT IS

This step is used to establish a shared understanding of the best of “what is” by inviting personal accounts of where resilience has worked. To trigger these observations, point to resilience capabilities the organization values, for example, the ability to respond, monitor, anticipate and learn (Hollnagel, 2010). Ask participants to select one of these capabilities and then talk about:

- A time when... we did well
- What do you value about... what is in place?
- What we tried that works... (even if just a little)?
- What you like best about what we have / do?

Note the distribution of narratives relative to these capabilities. Afterwards, ask for a group consensus on whether the organisation demonstrates the respective resilience capabilities. At the conclusion of this step, participants have heard personal accounts of resilience in practice and diagnosed levels of resilience in the system.

Introduce the 7 resilience building principles

At this stage the resilience building principles are introduced to serve as catalytic inspiration before the Dream step can commence. Introduce and illustrate each principle using examples of how they are practiced in nature and use multi-media wherever possible.

1 DEFINE AN AFFIRMATIVE TOPIC OF INQUIRY

The topic of inquiry is of strategic importance as participants need to see it as worthwhile use of their time. The workshop objective is defined as an interactive and participative approach to draw on nature inspired resilience thinking and to find ways to enhance the resilience of the services produced by the organization, since the resilience of society depends on resilient essential service delivery.

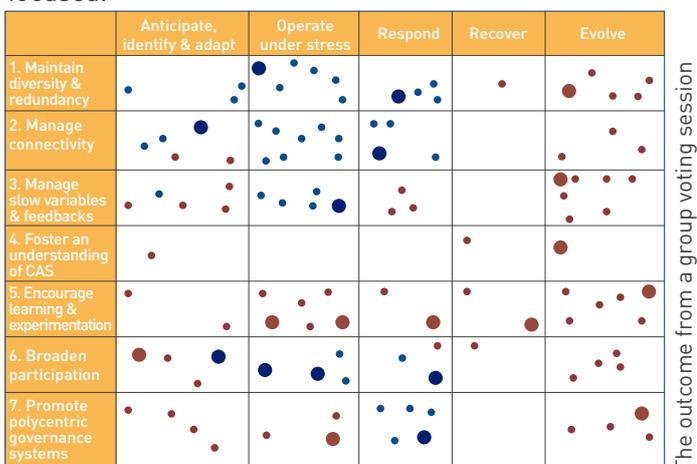
After introducing and illustrating each principle in the natural environment, thereafter, ask participants to give examples that illustrate the presence or absence of this principle in their everyday contexts. Record these examples on a flipchart so participants can refer to this translation of the principles for the work they will do later on. This step can lead to a rich dialogue of discovery and shared meaning as people recognize and discuss patterns of behaviour in the system. At the conclusion of this discussion, participants have heard examples of the principles applied to nature and discussed examples of its presence or absence in their own context which assist with internalising these concepts.

3 DREAM OF WHAT MIGHT BE

This step is used to identify those areas where the group recognises new possibilities if the wisdom of the principles can be applied to the resilience capabilities they value.

Active audience participation is used to identify these areas of intersection and offers a useful leg stretch halfway through the workshop. Put up a large sheet of paper, consisting of seven rows, labelled with the names of the principles and columns labelled for each of the resilience capabilities the organization espouses.

Hand each participant two different colours of seven stickers and ask them to vote. One colour is used to indicate where the organization is already applying the wisdom of the principles to resilience and the other to indicate where they see intriguing possibilities to build resilience. Ask them to indicate areas where time and energy must be focused.



Allow time for everyone to participate and tally the votes. Highlight the top three or four areas where participants collectively identified intriguing possibilities.

The resilience assessor can note patterns among the areas chosen by various groups, as well as how these may change over time. These choices reflect the collective sensemaking of participants where resilience can and must be enhanced.

4 DESIGN WHAT SHOULD BE

This step helps participants to establish where the system needs to go to attain resilience outcomes.

Participants need to form groups for the Design. Take the three or four areas identified in the Dream step and invite a volunteer to lead each discussion, then invite the rest of the participants to join the discussion to which they prefer to contribute. Provide flipchart paper for each group.

Ask the groups to brainstorm what is possible in their area

if they apply the wisdom of that principle to the resilience capability. Ask them to create a bold statement of ideal possibilities that describes the desired future as if it has already happened, i.e. “we have...”, rather than “we will... / we aim to...”

This process takes time, but it is important to allow people to participate. Often participants enjoy the group participation the most as they get to co-create new possibilities for the system they are in. Afterwards, ask a representative of each group to share their bold statement with everyone else.

5 DESTINY OF WHAT WILL BE

This step is used to agree on collective action and next steps. Ask the groups to discuss new options for action that can be taken towards the resilience goals they defined, then ask them to answer this question on a flipchart: “What one thing can and should we do now to enhance our resilience?”

After the groups have recorded their answers, ask each group to share their next steps. Afterwards, encourage participants to reconsider that same question daily.

Close-out: Invite each participant to share what they will do differently going forward. Such feedback allows participants to reflect and share their learnings and allows the resilience assessor to gauge the effectiveness of the formative assessment process.

SYSTEMS-LEVEL PATTERNS OF RESILIENCE

As more of these workshops are conducted, a pattern will emerge from the collective narratives, votes and areas focused on to strengthen resilience. It will reflect strengths and weaknesses in the resilience capabilities of the system as perceived by the social agents in the system. These views will also highlight opportunities for the application of the resilience building principles. This insight can be used to further inform resilience building strategies across the system.

Workshop format: The workshop was designed for small group discussions that can be repeated across an organisation in a relatively short time-frame to reach a wider audience. With a group size of between one and two dozen it can be done in three hours, however groups generally request more time.

Preparation: Prior to these workshops the facilitator needs to confirm the set of resilience capabilities espoused by the organisation as these will be used to discover what is, to dream of what might be, to design what should be and to plan the destiny of what will be.

It is not helpful to explain the theory behind the principles, but rather to illustrate them using examples of how they are applied in practice. Allow participants to draw their own associations through leading questions. “Aha moments” come from giving participants the opportunity to see the correlations and make the translations themselves.

Logistics: A fairly open room works best for participants to move around. Flipchart paper, stickers in two colours and pens are useful. If possible, have refreshments nearby so that people can get something to drink during the voting. Consider using written feedback forms.

A FORMATIVE RESILIENCE ASSESSMENT APPROACH

The application of the generic resilience-building principles in ongoing formative resilience assessments contributes to adaptive and transformative resilience capabilities across the social fabric of a complex adaptive system. The first three principles specify system properties to manage, the one in the centre informs the thinking behind all the others, and the last three speak to attributes of the governance system. Although the resilience building principles emerged from social-ecological systems literature, it is also relevant to enhance the resilience of essential services that are produced by socio-technical systems, since both are complex adaptive systems. This method illustrates how probes can be designed as interventions to enhance resilience, and an intervention to build resilience can be used as a probe to better understand the system and its resilience dynamics.



Maintain response diversity and functional redundancy

A diversity of components in a system, like species and actors, landscapes, livelihood strategies, knowledge systems and institutions provides response diversity and functional redundancy to change, or dealing with uncertainty and surprise.



Manage connectivity

Connectivity among habitats, species and people provides links across networks for species, resources, information, or social cohesion to flow, disperse, migrate, or interact.



Manage slow variables and feedbacks

Understanding and monitoring of slow systems variables, feedbacks and their thresholds, particularly of regulating services, to establish effective governance structures and avoid regime shifts



Foster an understanding of complex adaptive systems

Understanding that unintended consequences, disruption and uncertainty are to be expected due to emergence, multi-variate, multi-level and multi-scalar interdependence and unpredictable dynamics in systems.



Encourage learning and experimentation

Continuously learn and adaptively experiment, since knowledge of complex adaptive systems is always partial and incomplete.



Broaden participation

Engage multiple stakeholders with an active interest to be involved in management and governance process as this builds trust and a shared understanding that incorporates multiple perspectives.



Promote polycentric governance systems

A governance system with multiple interacting governing bodies at different scales; disciplinary focus; forms of organization and sources of authority to act from, thus improving connectivity and learning across scales and cultures and addressing of problems at the right level by the right people at the right time.

FURTHER READING

Biggs, R., Schlüter, M. and Schoon, M. L. 2015. *Principles for building resilience, sustaining ecosystem services in social-ecological systems*. Edited by Reinett Biggs, M. Schlüter, and M. L. Schoon. Cambridge, UK: Cambridge University Press.

Cooperrider, D. L., Whitney, D. D. and Stavros, J. M. 2008. *The Appreciative Inquiry Handbook: For Leaders of Change*. 2nd edn. Brunswick, Ohio & San Francisco, California: Crown Customer Publishing Inc. & Berrett-Koehler Publishers.

Folke, C. 2016. 'Resilience', Oxford Research Encyclopedia Environmental Science.

Hollnagel, E. 2010. 'How Resilient Is Your Organisation? An Introduction to the Resilience Analysis Grid (RAG)', *Sustainable Transformation: Building a Resilient Organization*, May.

Holman, P. 2010. *Engaging Emergence, turning upheaval into opportunity*. San Francisco, CA: Berret-Koehler Publishers. Available at: <http://peggyholman.com/papers/engaging-emergence/>.

Keck, M. and Sakdapolrak, P. 2013. 'What is social resilience? Lessons learned and ways forward', *Erdkunde*, 67(1), pp. 5–19. doi: 10.3112/erdkunde.2013.01.02.

Van der Merwe, S. E., Biggs, R. and Preiser, R. 2018. 'Building social resilience in socio-technical systems through a participatory and formative resilience assessment approach', *Systemic Change Journal*, 1(1), pp. 1–34.

Westley, F. et al. 2015. *Social Innovation Lab Guide, New directions for youth development*. Waterloo, ON, Canada: The Rockefeller Foundation.

FOR FURTHER INFORMATION PLEASE CONTACT:

CENTRE FOR COMPLEX SYSTEMS IN TRANSITION

Stellenbosch University, Private Bag X1, The Stables at 19 Jonkershoek Road, Stellenbosch, South Africa

Tel: +27 21 808 9607 | Website: www.sun.ac.za/cst