



## Global Forum on Food Security and Nutrition

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# Beyond "temporal" resilience: results that withstand the test of time

### About this online discussion

This document summarizes the online discussion *Beyond "temporal" resilience: results that withstand the test of time*, which was held on the FAO Global Forum on Food Security and Nutrition (FSN Forum) from 1 to 24 March 2017. The discussion was facilitated by Walter Mwasaa, a fellow FSN Forum member from Ethiopia working with CARE in Bangladesh.

In this discussion, participants shared ideas on what resilience actually entails, and specifically explored the question of whether or not a minimum time frame exists in which people or a socio-ecological system must remain resilient to actually qualify as "resilient". In addition, participants discussed how resilience could be measured and assessed, and shared their thoughts with regard to interventions aimed at building resilience.

Over the three weeks of discussion, participants from 18 countries shared 30 contributions. The topic introduction and the questions proposed, as well as the contributions received, are available on the discussion page:

[www.fao.org/fsnforum/activities/discussions/resilience](http://www.fao.org/fsnforum/activities/discussions/resilience)

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## Understanding and defining resilience

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As there is no common understanding of what resilience in the context of human development actually entails, during the discussion different ideas were shared. One of the participants proposed the following definition: "Resilience is a process, whereby persons attain the ability to cope with or adapt to the stresses induced by the changing natural, social, political, cultural and economic environment" (Mandar Vaidya). In addition to adapting to the presence of stressors, participants made reference to dealing with shocks. Both can affect people in different ways: there are idiosyncratic events, such as deaths,

that affect households in isolation; and "general" events, such as floods, that affect multiple households (Emile Hougbo). Some of them are sporadic and difficult to address, while others (such as climate change) progress over time (Murasi Mulupi). Resilience would then stand on three factors: "preventing, confronting and overcoming a crisis situation" (Thomas Amougou Obama).

Another participant, however, stressed that the concept of "resilience" was rather loosely used to convey a general idea about the ability to recover from a disaster, or about

the adaptability to climate change. A better definition may be “the capacity of a system to absorb disturbance and reorganize while undergoing change so as to still retain essentially the same function, structure and feedbacks, and therefore identity, that is, the capacity to change in order to maintain the same identity” (Mike Jones, referring to a definition in the article of Folke et al., 2010). In particular when focusing on food security, a more precise

definition may also be needed (Mike Jones) such as that of the FAO resilience index measurement and analysis (RIMA) approach, according to which “resilient households, when affected by a shock in year 1, suffer a reduction in their food security at year 2 but are able to (partially or totally) recover the loss in food security between year 2 and 3” (Rebecca Pietrelli).

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## The time frame of resilience

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The discussion on what resilience actually means also involved the question of whether a certain time frame exists in which people or a system must remain resilient to actually qualify as “resilient”. Only one participant responded affirmatively to this question, pointing out that according to the literature, a period of five years is sufficient to determine whether people are resilient or not, based on the following grounds: a) in many cultures, a five-year period is perceived as a long period of time in an individual’s life; b) data collection for temporal analysis is typically broken down into five-year periods; and c) data indicate that people who remain poor for at least five years (and who are hence not resilient) will probably remain poor for the rest of their lives (Emile Hougbo).

The other contributions however stressed that it is difficult to define a particular time frame, for the following reasons:

- The amount of time required to build resilience depends on the context (Amy Giliam): the strength of governance structures, for instance, plays an important role in this regard (Richard Ofwono).

- The time frame depends on the type of disaster: people who are resilient to drought might not be similarly resilient to conflict (Richard Ofwono, Lemma Belay Ababu).
- The time frame depends on the type of livelihood and means of production of the people concerned: rainfed agriculture, for instance, is more sensitive to climate variability than irrigation-based agriculture (Lemna Belay Ababu).

The remaining participants were clear that a minimum time frame does not exist, citing the following reasons:

- Resilience is an emergent property of complex systems, and changes continuously due to interactions between internal components of the system concerned and the larger systems in which it is embedded. Short-term “resilience-building outcomes” can only be short-term, as complex systems are unpredictable and require constant adaptation (Mike Jones).
- Resilience covers the entire life span (Stephen Omondi Okoth, Murasi Mulupi); people’s resilience starts from conception. A pregnant woman needs nutritious food and a healthy environment to protect her child from malnutrition – which permanently undermines resilience and the potential to develop – during the first years of its life (Jan Eijkenaar). In general, continuous re-evaluation and strengthening of abilities to adapt to change is needed (Amy Giliam, Murasi Mulupi).
- A specific time frame for determining the resilience of one unit of analysis does not exist, as there is only an outcome: i.e. after a shock, something can be permanently damaged or not. If a household survives the first shock it can be perceived to be resilient, but if it does not survive the second shock it is not (Marco D’Errico).
- Even the most stable systems succumb to shocks and stressors at some point in time (Murasi Mulupi).



## Resilience measurement and assessment

The "test of time" is essential when analysing resilience, and particularly for understanding a) the speed of recovery after the occurrence of the shock; b) the persistence of food security after the occurrence of the shock; and c) the learning capacity regarding past shocks. Furthermore, it is crucial to the identification of households that are resilient over a long period of time (Rebecca Pietrelli).

In discussing how resilience could then be measured in practice, a number of participants stressed the challenges in this regard due to the complex nature of resilience, and argued that measuring it is a continuous process (Robert Mutisi). The following concrete ideas were shared:

- It is difficult to design a framework providing comprehensive indicators for resilience as either a short- or long-term outcome, due to the fact that stressors and shocks are outcomes of both human-made and natural systems. It would however be feasible to design a comprehensive framework with process-oriented indicators to measure the state of resilience, adaptable to different contexts (Mandar Vaidya).
- Two complementary assessments can be conducted: namely, the resilience of a specific system, and resilience in general. Regarding the former, one needs to consider that socioecological systems are influenced by their subsystems and the larger systems of which

they are part, which are continuously evolving. Hence, when assessing the resilience of a specified system such as a farming community, the boundaries of this system and the feedback interactions affecting it need to be clearly identified. Regarding resilience in general, one can look at the status and trends of a number of attributes that enhance the potential of a system to change (Mike Jones).

### Measuring resilience in practice

#### FAO resilience index measurement and analysis (RIMA)

The FAO RIMA model focuses mainly on adaptive capacity, which is the only aspect of resilience that deals directly with time. It looks at the inner capacity to adapt to a new situation, which can occur after every shock (Marco D'Errico).

#### A study on household resilience in Ethiopia

One of the participants conducted a study in Ethiopia, identifying seven "blocs" that allowed for estimating the resilience status of farm households: social safety nets; agricultural input access and technology; access to public services; access to food and income; access to assets; stability; and adaptive capacity (Temesgen Kebede).



Furthermore, contributions included ideas on the different aspects to be considered when assessing people's resilience, such as:

- the degree of exposure to the shock/stressor, the availability and mobilization of resources by the people concerned, and their degree of vulnerability (Emile Hougbo);
- the extent to which a community a) thrives amid shocks and stressors, understands their nature, can predict occurrence and mitigate effects, and can lead an almost normal life in spite of the presence of stressors; b) is innovative in addressing shocks that are of a changing nature; c) is self-sustaining in the presence of shocks, and has effective systems in place to ensure that only minimal external assistance is required during the pre- and post- shock periods; and d) can support weaker systems experiencing similar stressors by sharing successful intervention models (Murasi Mulupi).

## Resilience building in practice: considerations for implementation

Finally, participants shared ideas on the practical implementation of resilience-building activities, with some of them being critical of the idea of resilience building in general. One of them for instance argued the following:

"The idea that we can build resilience using short-term mechanistic, economic policies and projects is illogical because the underlying assumption of predictability is false [...] The problem is that in industrial societies we still believe that scientific determinism will provide solutions to complex problems. Our approach [...] is based on the belief that complexity is reducible and ultimately predictable. There are no solutions to problems in complex systems in the sense that problems of math, physics and engineering can be solved. We can only learn and adapt to change as it occurs, or by learning the lessons of the past" (Mike Jones).

Also, another participant raised the question of the extent to which resilience is a useful concept, and specifically for whom it is useful. Some approaches to resilience mainly focus on people who may "bounce back" and pursue their "development"; this excludes people living in perpetual crisis, whose needs are not considered emergencies because they do not arise from the occurrence of a shock. "Resilience building" may be ineffective if development opportunities are lacking in people's early lives, and resilience may only be a useful concept if it also addresses the inherent questions of power underlying chronic issues such as malnutrition.

Additionally, in order to avoid substituting resilience for comprehensive development efforts, the people concerned and their autonomy should always be central in responses to emergencies (Jan Eijkenaar). Two aspects that are particularly important in this regard are gender and empowerment: as men and women might be exposed to different challenges, and their coping strategies might differ as well, gender inequalities should be addressed in a sustainable way. Specific attention should be paid to gender-based violence, which has devastating consequences and seriously limits resilience-building efforts. If resilience interventions include transforming gender relations within society, they can become empowerment interventions: the more empowered people are, the more resilient the livelihoods that they are able to build. An example of a gender-transformative approach is that of the FAO Dimitra Clubs, which aim to promote social cohesion and resilient livelihoods (Andrea Sánchez Enciso).

However, in cases where resilience-building interventions are being implemented, one should first carefully define which particular socioecological system is to be made resilient and ascertain the desirability of actually pursuing this. For example, one may aim to build the resilience of monocropping systems, as they enhance global food production; but upon considering their environmental consequences, it may become clear that the resilience of these particular systems should not be promoted



in isolation ([Lal Manavado](#)). Related to this question of selecting appropriate systems for resilience building, a participant discussed the selection of human habitats for long-term resilience-building efforts aiming at building carbon-neutral economies and ecologically sustainable habitats. He argued that although megacities are generally the primary focus in this regard, it would be better to focus on medium- to small-sized cities instead ([Stefan Pasti](#)).

In any case, resilience-building interventions need a cross-disciplinary ([Joy Muller, Dele Raheem](#)) and, in particular, context-specific approach. For instance, in contexts of chronic vulnerability where state institutions are weak and resources are mainly directed towards life-saving interventions, dealing with shocks definitely requires more time and steps as compared with more stable contexts that have adequate governance structures in place. Therefore an incremental approach should be adopted in these contexts ([Richard Ofwono](#)).

Finally, a participant pointed out that in promoting resilience, indigenous as well as modern knowledge and strategies can be used. People themselves can be active agents and may possess important assets for building and maintaining resilience, such as the local knowledge, skills and connections they have ([Robert Mutisi](#)).

## Resilience building in practice

### Livestock production in Pakistan

In the arid areas of Northern Punjab, enhancing livestock productivity has been used to improve farmers' resilience to climate change. In areas with medium foraging availability, beef production has been successful, and in places with low foraging availability and low rainfall, goat production has been profitable. Also, milk enterprise development has increased incomes, which has in turn promoted resilience ([Arshad Malik](#)).

### Pastoralism in the Horn of Africa

Pastoralists in the Horn of Africa used to efficiently manage their resources, with mobility a key aspect of their resilience. However, they are now becoming increasingly vulnerable due to conflict, disasters, land degradation, and policies aiming to make them sedentary. Current interventions do not address the causes of vulnerability, and the increased frequency of disasters threatens the gains of long-term initiatives. Early warning information is sometimes available, but this is often difficult for people to understand, making it difficult to take early action ([Lemma Belay Ababu](#)).

## RESOURCES SHARED BY PARTICIPANTS

**Barrow, E.** 2016. *Shinyanga Forest: Retrofitting Resilience to the Shinyanga Forest Landscape Restoration Case Study*. Gland, Switzerland, IUCN (available at <https://portals.iucn.org/library/sites/library/files/documents/2016-055.pdf>).

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**FAO.** 2017. *Africa Regional Overview of Food Security and Nutrition 2016: The challenges of building resilience to shocks and stresses*. Accra (available at [http://www.fao.org/3/a-i6813e.pdf?utm\\_source=twitter&utm\\_medium=social+media&utm\\_campaign=faofsnforum](http://www.fao.org/3/a-i6813e.pdf?utm_source=twitter&utm_medium=social+media&utm_campaign=faofsnforum)).

**Folke, C., Carpenter, S.R., Walker, B., Scheffer, M., Chapin, T. & Rockström, J.** 2010. Resilience thinking: integrating resilience, adaptability and transformability. *Ecology and Society*, 15(4): 20 (available at <http://www.ecologyandsociety.org/vol15/iss4/art20>).

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**Kebede, T., Haji, J., Legesse, B. & Mammo, G.** 2016. Econometric analysis of rural households' resilience to food insecurity in West Shoa, Ethiopia. *Journal of Food Security*, 4(3): 58–67 (available at <http://pubs.sciepub.com/jfs/4/3/2>).

**Muller, J.C.Y.** 2014. Adapting to climate change and addressing drought – learning from the Red Cross Red Crescent experiences in the Horn of Africa. *Weather and Climate Extremes*, 3: 31–36 (available at [https://www.researchgate.net/profile/Joy\\_Muller/publications?pubType=article](https://www.researchgate.net/profile/Joy_Muller/publications?pubType=article)).

**Nemec, K.T., Chan, J., Hoffman, C., Spanbauer, T.L., Hamm, J.A., Allen, C.R., Hefley, T., Pan, D. & Shrestha, P.** 2013. Assessing resilience in stressed watersheds. *Ecology and Society*, 19(1): 34 (available at <http://dx.doi.org/10.5751/ES-06156-190134>).

**Pasti, S.** 2017. *Key Questions for 16 March 2017 Community Peacebuilding and Cultural Sustainability Initiative* (available at <https://nebula.wsimg.com/38a444206460a7b6ebf5ce4b4da51c71?AccessKeyId=238D35F9602A8D5BA6F3&disposition=0&alloworigin=1>).

**Sharifi, A.** 2016. A critical review of selected tools for assessing community resilience. *Ecological Indicators*, 69: 629–647 (available at <http://www.sciencedirect.com/science/article/pii/S1470160X16302588>).

**Walker, B.H., Abel, N., Anderies, J.M. & Ryan, P.** 2009. Resilience, adaptability, and transformability in the Goulburn-Broken Catchment, Australia. *Ecology and Society*, 14(1): 12 (available at <http://www.ecologyandsociety.org/vol14/iss1/art12>).

## WEBSITES AND VIDEOS

FAO – Impact of FAO-Dimitra Clubs:

Empowering rural people

[https://www.youtube.com/playlist?list=PLzp5NgJ2-dK6OBbZpPuTMn\\_7wSrclUE0I](https://www.youtube.com/playlist?list=PLzp5NgJ2-dK6OBbZpPuTMn_7wSrclUE0I)

Stockholm Resilience Centre – Arctic social-ecological case studies

<http://www.stockholmresilience.org/research/research-streams/complex-adaptive-systems/arctic-resilience-report-2016/arctic-social-ecological-case-studies.html>

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