

Resilience

Isaac Lyne, Ann Hill, Elizabeth Barron, Alison Guzman, and Ignacio Krell

Introduction

The term resilience is used in a variety of ways and in many different contexts. A simple definition is provided by Brian Walter and David Salt (2012) who describe resilience as the **ability to absorb disturbances' but still retain structure and function**. It is used in a range of knowledge fields: originating in the sciences, when Crawford Holling (1973) wrote about resilient ecological systems, then becoming established in fields of natural resource management, engineering and design, and in the social sciences such as geography, anthropology, social psychology, development and disaster studies.

Resilience has become a “buzzword” of our time. It is commonplace to hear individuals, communities, organisations, and systems described as resilient. Resilience has also become a buzzword in development discourse and practice. World Bank programmes for instance, refer to ‘resilient cities’, ‘resilient institutions’ and climate risk management ‘resilience strategies’. As noted by developer thinker Andrea Cornwall (2007), buzzwords tend to garner general abstract consensus around the importance of certain concepts but they equally can be vague and ‘fuzzy’, providing little sense of what a concept actually ‘looks like’ or how it translates in practice and in specific contexts. Here, we provide some clarity around the concept of resilience and how it is used in development today. We provide contextual examples drawing on development practice in Chile and Cambodia.

It is common in contemporary development practice and discourse for resilience to be framed within scientific understandings of how ecological systems work. An alternative framing and the position we take as authors, combines science and social science perspectives and defines resilience as an **ability of humans and nonhumans to ‘survive well’ in the face of change and crisis** (Gibson-Graham, Hill and Law, 2016). Within this frame, disturbances can be understood as a range of human and nonhuman processes including recovering from severe illness, emotional, and/or socio-cultural trauma, navigating a significant economic shock, or surviving an extreme weather event. If resilience is understood as the ability to survive well, then development can thus be thought about as the active work of creating and maintaining the conditions of possibility for surviving well. This includes economic and livelihood conditions, and sociocultural and ecological ones. As Walter and Salt’s description of resilience thinking emphasises, it includes “understanding and engaging with a changing world” (2012, p.2) in order to be better positioned to “build capacities to work with change [and development] as opposed to being a victim of it” (p.14, insert added).

1 Historical underpinning: the socio-ecological systems approach and the ability of systems to ‘bounce back’ or ‘bounce forward’

Resilience originates from ecosystems sciences where the term was used to address persistence and change in ecological systems. It was later extended into ‘social-ecological systems’ with a focus on

managing complex interactions between groups of human beings (social systems) and ecological systems and exploring how they work together and adapt to change (Berkes and Folke, 1998; Folke et al., 2010). The concept of 'social-ecological resilience' situates people, social and economic structures, nature and ecological systems and materiality as interdependent. The ability to adapt and transform to ensure continued survival grows out of these interdependencies (Folke et al. 2010). In a social-ecological system 'adaptability' is the capacity to harness action to 'bounce back' after disturbance and re-establish some kind of stable condition. *Transformability* is the capacity to 'bounce forward' and "create a fundamentally new social-ecological system when ecological, political, social or economic conditions make the existing conditions untenable" (Folke 2006, p.262; Gibson-Graham, Hill and Law 2016). The combined ability of a social-ecological system to adapt or transform is a measure of how resilient the system is, of its capacity for resilience.

Key resilience thinkers Holling and Gunderson (2002) identify cycles of continuous change applicable to both human and natural systems as those associated with resilience. They highlight the importance of preparedness in the process of reorganising and subsequently harnessing resources and opportunities in new ways. Preparedness means acknowledging and recognizing system limits before low-level 'persistent' or punctuated acute events create disturbances that deplete resources beyond a point where a new cycle of reorganization is possible. In thinking about change and how to assist human and natural systems in responding to change, development institutions such as centres for disaster preparedness, often face difficult dilemmas. Resilience focuses on how far these efforts to change and adapt systems can be pushed, and at what rates, without collapse. This enables learning from and planning for the future through scientifically informed adaptations, to fix what is currently problematic and unsustainable in complex systems. While some scholars see it within the broader field of sustainability science (Turner II, 2010), resilience speaks to interdependent transformation in the face of change in ways that sustainability does not. Resilience is more open-ended in the way it prioritizes emergent processes and ongoing change in order to identify dynamic support systems that respond to shocks and disturbances (Redman 2014).

To summarize thus far, resilience thinking prioritizes awareness that change is constant and that processes of change often unfold in surprising, unpredictable ways. Resilience thinking is about understanding how to best support dynamic systems in response to shocks and disturbances. It has advanced the understanding of complex adaptive systems and it has reframed the instability of living systems in terms of tipping points, system plasticity and ongoing change. Resilience thinking has contributed to the understanding of global warming and what sustainable futures in a climate-changed world may entail in terms of critical thresholds, living within planetary boundaries and making necessary societal transitions and transformations.

2 Controversies: anthropocentric reasoning, narrow economic reasoning, and an alternative framing of resilience

One major source of controversy arises from resilience thinking within the sciences (hereafter referred to as resilience science) embracing ecological economics and framing the environment as 'natural capital' providing 'ecological services' to sustain 'the economy'. Consequently, in the view of Gibson-Graham et al. (2016), resilience science represents 'the economy' as stocks and flows of capital that restructure and reconfigure according to the spontaneous operations of markets.

Regarding the exclusions that systems thinking in resilience science entails, Gibson-Graham et al. ask: "What of all the diverse human economic activities that cannot be capitalized and priced?" and "What of the relations between human and environments that are not about 'servicing' but are about mutual care and stewardship?" (Gibson-Graham et al. 2016, p.705).

Through its representation of 'the economy' as an extension of market logics, resilience science defers to development driven by human needs and desires which, for Gibson-Graham et al., have been bonded to an ever-increasing condition of unsustainability. This condition equates in development discourse to the idea that there is a one-size fits all linear model of progress which prescribes how societies maintain their ability to bounce back if already 'developed', and bounce forward if 'developing', 'under-developed' or 'marginalised'. Societies are positioned along a human progress continuum that leads to a mainstream, largely Western capitalist model of development, even though other linear lines of progress have also been added recently, embodied in the "Sustainable Development Goals".

Design theorist Tony Fry concurs, expresses that this kind of human 'progress' has negated our interdependence within more-than-human systems and constrained resilience. Fry (2017) calls for a decolonial project which he names "The Sustainment", and which Gibson-Graham et al (2016) also draw upon, that signifies a voyage of discovery more than equal to the Enlightenment. According to Fry, The Sustainment:

"is not 'sustainability,' with its propensity to sustain the unsustainable, as 'business as usual,' for the globalizing 'North.'... Rather, Sustainment is a vital intellectual, political and pragmatic project of discovery marking a vital turn of 'humanity.' It acknowledges that in order 'to be sustained' another kind of earthly habitation and understanding is required" (Fry 2017, p.15).

Fry and Gibson-Graham et al.'s reference to The Sustainment signals key issues in development today. While resilience science represents 'the economy' in a way that "fails to overcome the separation of human and non-human worlds and shores up an instrumentalism that is dangerous" (Gibson-Graham et al. 2016 p.706); The Sustainment in contrast, signifies a radically different development trajectory. It starts with understanding that nothing will change unless our mode of being changes, and that which has to change extends to every dimension of human, environmental, economic, social, cultural and psychological existence. This understanding transcends resilience science by imagining radical economic change as the re-embedding of economies in ecologies, which in turn enacts processes where we learn how to survive well together with earth others, in the name of fostering the planetary conditions for survival (Gibson-Graham et al., 2016; Barron 2018).

3 Usefulness in development today: two practical examples

Today, the lived experience of different communities around the world suggests there are diverse economic pathways for development and resilience-building that are more ecologically and culturally attuned.

Mapuche communities in Chile, for example, are reconceptualising resilience and reflecting on what resilience in development means from an indigenous perspective (Atallah et al. 2018). Seen from an indigenous perspective, resilience places emphasis on the colonial or neo-colonial ‘other’ and can be a reminder of who and what was taken away by colonization/ genocide. Resilience from an indigenous perspective should take into account the long-practiced and ongoing decolonial/resistance practice by Mapuche communities. It is important to acknowledge the continued occupation and/or reclamation of ancestral lands by thousands of Mapuche Lof (communities/spaces) notwithstanding forceful and fraudulent reduction of land base. In these communal spaces, despite marginalization and dependency, examples of resilient ‘auto-gestion’ (self-management) are emerging and recreating powerful models around the making and sharing of commons, as the basis for enduring traditional knowledge and diverse economies, and for dynamic, open-ended experiments of surviving well with others (Guzman & Krell 2020).

The Mapuche Lof includes more-than-humans in a complex net of reciprocity and common ethical bonds. Creating resilience takes into account the indigenous concept of *Buen Vivir* or *Kume Mongen*, which focuses on positive life affirming projects, through indigenous-led protocols, ways of knowing and biocultural wellbeing deeply rooted in territory. Mapuche resilience as *Kume Monguen* involves at the same time, harnessing and reassembling modern technologies, methods and tools under Mapuche cultural (and political) control through visionary economies that incorporate both monetary and non-monetary elements. Mapuche Resilience, in this way, rather than simply counteracting racism and trauma as some contemporary thinkers such as Atallah (2017) have emphasized, may be better comprehended as continued non-linear striving for *Kume Mongen* that challenges the current dynamic systemic conditions created by lingering colonialism. In other words, the Mapuche are constituting their own form of resilience to reconstruct their territory at the frontlines of climate disaster by broadening non-linear indigenous futures and pathways of hope for generations to come.

Turning to Asia we find an example of resilience building in a community where non-humans play a key role. In eastern Cambodia, a 1.5-kilometre-long Bamboo Bridge connects the people of Koh Pen Island, in the middle of the Mekong River, to mainland Kampong Cham Town for 9 months each year and plays a key role in local resilience building specifically attuned to the temporal rhythms of Mekong. The bridge is built at the beginning of the dry season, and then taken down before water levels on the Mekong River rise high above the bridge’s height after the Monsoon rain arrives. Built for generations, it predates the traumatic era of the Khmer Rouge in the 1970s. In the 1980s it brought people together in non-cash economies. Since then, the Bamboo Bridge has provided seasonal employment that fits into the year-round livelihoods of thirty skilled craftsmen and women, many of whom are also farmers, fishers, or local builders. The yearly building cycle has preserved remarkable craft skills while fostering interdependencies between humans and natural bamboo resources lining the lower Mekong riverbanks (Gibson-Graham, Hill and Law, 2016).

Things changed again in 2017 when a concrete bridge arrived, built with government money alongside construction projects on the Island funded by the Asian Development Bank (Gibson & Salazar 2019). However, this mainstream did not spell the end of the Bamboo Bridge completely. While the Bridge is no longer the larger structure it once was (capable of bearing motor bikes, cars and trucks), today it is still constructed as a footbridge with funding from Provincial authorities that

recognised its importance as a tourist attraction. This keeps traditional bamboo building practices and skills alive while helping to sustain organic, longstanding-practices of resilience. These skills and interdependencies with bamboo have also been circulated, for example, through the construction of a yoga retreat close by, with buildings and furnishings built and manufactured of bamboo by a new generation of skilled local craftspeople.

4 Discussion: issues for further investigation

Where are interesting openings to foster resilience building today? One avenue is working with younger generations including university students, to build out from socio-ecological resilience to foster cultural and community resilience in diverse contexts. Students can be taught how to trouble the concept of social-ecological resilience in collaboration with others, through thinking processes and methods that build collective resiliences in the process. While historically much of resilience thinking has focused on systems, development is about people learning to act in concert with one another and with systems, hence the value of creating learning opportunities for future generations.

A second avenue for further investigation is to identify and experiment with tools and strategies that foster greater interdisciplinary engagement among resilience scholars, just sustainabilities scholars, transition management scholars (a growing sub-field of sustainability studies), and human geography and development studies scholars and practitioners.

There is also further work to be done in rethinking human-centric actions and impacts on the planet. Investigation into human interdependence with the planet and resilience building derived from embedding indigenous and local communities' knowledge and practices remain important growth areas within development discourse. Much more work is needed in this space.

References

- Atallah, D. G., Contreras Painemal, C., Albornoz, L., Salgado, F., & Pilquil Lizama, E. (2018). Engaging critical community resilience praxis: A qualitative study with Mapuche communities in Chile facing structural racism and disasters. *Journal of Community Psychology*, 46(5), 575-597.
<https://doi.org/10.1002/jcop.21960>
- Barron, E. S. 2018. Who values what nature? Constructing conservation values with fungi. In *The Palgrave Handbook of Critical Physical Geography*, eds. R. Lave, S. Lane & C. Biermann. London: Palgrave. pp.373-393.
- Berkes, F. & C. Folke. 1998. *Linking Social and Ecological Systems: Management Practices and Social Mechanisms for Building Resilience*. Cambridge: Cambridge University Press.
- Cornwall, A. (2007). Buzzwords and fuzzwords: deconstructing development discourse, *Development in Practice*, 17(4-5): 471-484, DOI: 10.1080/09614520701469302
- Folke, C. (2006). Resilience: The emergence of a perspective for social–ecological systems analyses. *Global environmental change*, 16(3): 253–267. DOI: doi.org/10.1016/j.gloenvcha.2006.04.002

Folke, C., Carpenter, S. R., Walker, B., Scheffer, M., Chapin, T., & Rockstrom, J. (2010). Resilience thinking: Integrating resilience, adaptability and transformability. *Ecology and Society*, 15(4): 20. Stable URL: <https://www.jstor.org/stable/26268226>

Fry, T. (2017) Design for/by “The Global South”, *Design Philosophy Papers*, Vol. 15(1): 3-37, DOI: 10.1080/14487136.2017.1303242.

Gibson-Graham, J.K., Hill, A & Law, L. (2016). Re-embedding economies in ecologies: resilience building in more than human communities, *Building Research & Information*, 44(7): 703-716, DOI: 10.1080/09613218.2016.1213059.

Gibson K. (Executive Producer) & Salazar JF. (Director), (2019) The Bamboo Bridge [Motion picture], Australia: Matadora Films.

Gunderson, L.H., & Holling, C.S. (2002). *Panarchy: Understanding Transformations in Systems of Humans and Nature*. Washington DC: Island Press.

Guzman, A. & Krell, I. (2020) Impact Evaluation Report: Mutual Support/Rekvlwun 2014-2018. Maple Microdevelopment, Villarrica, Chile. Available at <https://www.communityeconomies.org/publications/reports/impact-evaluation-report-mutual-support-group-2014-2018>

Holling, C.S. (1973). *Resilience and Stability of Ecological Systems*, *Annual Review of Ecology and Systematics*, 4: 1-23. Stable URL: www.jstor.org/stable/2096802

Redman, C. L. (2014) *Should sustainability and resilience be combined or remain distinct pursuits?* *Ecology and Society*, 19(2): 37. Stable URL: <https://www.jstor.org/stable/26269581>

Turner II, B. L. (2010). Vulnerability and resilience: Coalescing or paralleling approaches for sustainability science? *Global Environmental Change*, 20: 570-576. DOI: doi.org/10.1016/j.gloenvcha.2010.07.003

Walker, B & Salt, D. (2012). *Resilience Thinking: Sustaining Ecosystems and People in a Changing World*. Washington DC: Island press.