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## Resilience in Social Systems

### **What is socio-ecological resilience?**

Resilience is the capacity of a social-ecological system to absorb or withstand perturbations and other stressors such that the system remains within the same regime, essentially maintaining its structure and functions. It describes the degree to which the system is capable of self-organization, learning and adaptation (Holling 1973, Gunderson & Holling 2002, Walker *et al.* 2004),  
- Resilience Alliance Website

Resilience began as an ecological term to describe ecosystems that could bounce back from a devastating event. More recently, scholars have begun to include humans in our studies of ecosystems, realizing that humans play a big part in the landscapes we are studying. Social scientists have coined the term socio-ecological resilience to acknowledge the link between biophysical and social systems. My environmental theory is focused solely on social systems due to a lack of time, but I look forward to incorporating ecological systems into my research in the future.

### **Situated Context**

I first got the idea for studying resilient communities during my time in Lyttelton, New Zealand. First, I'll provide some context. Lyttelton is located on the east coast of the South Island of New Zealand, and it's the harbor town of Christchurch, the South Islands biggest city. In 2011, there was a devastating earthquake that killed 185 people, injured thousands more, and caused many buildings in the surrounding area to crumble. Even five years later, the city is still a maze of orange cones and construction crews rebuilding the city. Interestingly enough, Lyttelton was the epicenter of that earthquake, and it got hit pretty hard. Many of its residents were displaced, the main street was left in shambles, and the community was left without a supermarket for two years after the quake.

Lyttelton was an interesting case study for me because despite all this devastation, it seemed like it's own little utopia within the broken world of post-earthquake Christchurch. Somehow Lyttelton had managed to come back from this quake better than ever, and I had a feeling it had something to do with Project Lyttelton. Project Lyttelton is a community organization with a tagline "the soul of a sustainable community." I won't go into analyzing all of those big words, but I will briefly describe a few of the reasons I think it's actually a resilient community instead of a sustainable community. Lyttelton used the disaster to mix things up. I had never been to Lyttelton pre-earthquake, but post-quake they definitely did what they could with what they were given. Restaurants came back more hip and trendy than ever, and storeowners took this as a chance to rebuild and redefine their

businesses. As seen below, resilient communities thrive on some destabilizing forces to maintain diversity:

(1) The system accumulates resources rather than depleting them over time; (2) it contains destabilizing forces for maintaining diversity, resilience, and opportunity, and stabilizing forces for maintaining productivity and biogeochemical cycles; and (3) there are evolutionary processes that generate novelty, implying a balance between dynamism and persistence. (Holling et. al 2002)

Of course, some stability was also important in Lyttelton's resilience, which I think was provided in large part by the networks that Project Lyttelton had created.

## **Reality**

What is the reality about disasters? The reality is that disasters, and social change, are an inescapable part of human history (Adger et. al 2005). This is one aspect of resilience that sets it aside from sustainability. Resilience acknowledges that change is inevitable, and instead of trying to average it out and attempt to control our surroundings, resilience doesn't only take this reality into account, but it's one of it's most important features. By realizing that this is a reality, we're one step closer to being able to deal with disasters that happen because we're able to be more flexible.

An important reality to take into consideration is that everyone around us is a resource. Project Lyttelton realized this, and created the TimeBank, a system for trading social capital instead of money. This network was extremely helpful after the earthquake, and people still use it to this day. In a world where so many important resources are becoming scarce, one resource that continues to replenish itself, a truly sustainable resource, is social capital. We always continue to learn and develop new skills, and after a devastating event like an earthquake occurs and everything seems broken and hopeless, we can still rely on the skills of the people around us.

Another reality is the interconnectedness of cities. Many models of resilience simplify it into a single system that we can draw boundaries around, when actually instead of thinking of each community as "areas with boundaries around, they can be imagined as articulated moments in networks of social relations" (Massey 1991). Resilience will not only need to work between different scales, but also within connected communities since it's nearly impossible to draw a line around a city or system.

## **Knowledge**

One huge asset that sets social resilience apart from ecological resilience is human agency (Davidson 2010). Human agency is knowledge – it's the knowledge of past disasters, observing patterns, sharing concerns and ideas, and knowing how to make change. There are actually three pathways available after a crisis, and

resilience is only one of them. It's also important to acknowledge adaptation, when people collectively try to minimize the impact of the disturbance, and transformation, when the current system is somehow flawed and an entirely new system needs to be created (Davidson 2010). She argues that agency is the key here: "When resilience is no longer an option, the nature of collective agency can define the ensuing adaptation or transformation trajectories" (Davidson 2010). The trajectory for how societies rebuild themselves is based on our own agency and the agency of people around us.

Although agency is so key to social resilience, it's very difficult to measure and it's difficult to create. This summer I'm attempting to answer a related question to agency: what sense of place, utopian or dystopian, creates the most agency for people? Do people identify with and rally behind things that have gone wrong and need fixing, or do they feel more comfortable with expressing their ideas on utopian platforms? Agency could be its own big word, but in a nutshell, I'm exploring which community occurrences have the most influential effect on people.

## **Ethics**

In my research on utopias and dystopias, and now my research on resilience, I've noticed a stunning amount of similarities, particularly in Pepper's article about transgressive utopias. Pepper emphasizes the importance of networks, social capital, and utopias as place to carry out thought experiments and continue questioning the norm, which I see as related to agency (Pepper 2005). It's important to ask what we should value as our baseline of resilience in social systems. Should we value diversity? Happiness? Income level? Education? Why? Why not? These are questions we need to ask ourselves, but that might only be answerable on a place by place basis.

Ethics is also important in deciding on a baseline of resilience. Should we value the baseline qualities of today? Should we return to a baseline of the past? Or should we create a utopian baseline ideal to strive for?

Resilience thinking has the potential to be more helpful than sustainability ... because it requires a more transparent examination of social justice and other human development concerns through an assessment of not only which elements of an SES we value but also the extent to which those values are reflected in our policies and approaches. (Benson and Craig 2014)

Benson and Craig also argue that resilience is able to take social justice issues into account more in deciding what to value in a socioeconomic system. This social justice aspect of social systems would definitely take ethics into account – if a disaster strikes and the ecosystem is completely resilient but a certain community is marginalized, can we still consider ourselves a resilient community? Since resilience considers a socioecological system, it has the capacity to weight these issues differently.

## Politics

Resilience is basically a political framework – it is a thought experiment on how to deal with change within a system. Holling (2001) lays out a nice framework for resilience, albeit a bit confusing at first glance. His theory of adaptive systems and panarchies are a very important feature of resilience. It includes three different figure 8 symbols turned on their sides that represent different scales — the biggest scale is a huge idea or theory that governs our universe (i.e. capitalism) and that is large and slow. The second is intermediate in size and speed, and represents a more intermediate scale such as a nation or state, while the last moves fast and slow and represents a city, community, or individual level. There aren't really set examples for the scales, and Holling even mentions that it can go from the universal to the cellular scale, so it's applicable to a variety of situations. Usually, these sideways figure 8's are seen as a type of S curve in biology, where a population starts out small, using few resources, and then grows steadily until it reaches a kind of carrying capacity and levels out. This is where classic sustainability is seen, where we try to stay at that leveled out portion of the curve without much variation for as long as possible. Holling's model disregards this notion of keeping a society's rate of growth steady, and acknowledges that change and even death of certain societies and ideas is inevitable. This is observed on the right side of the sideways figure 8, where the cycle goes down again. It's a fluid model though, so he is arguing that even with these deaths, the system as a whole does not die; it's reborn again eventually.

Now, how is this system and all these scales connected? Holling argues that when a system dies, for example the middle system (intermediate size and speed), it's influenced by both the large slow moving system and the small fast moving system. He argues that the small and fast systems usually contribute to the death or "revolt" point of the system, while the large and slow moving system contributes to the rebirth by reminding people about certain ideas or practices that typically govern our universe. I was thinking of it in terms of the Bernie Sanders for president movement. That reminds me of a smaller scale, fast moving system that is pushing for revolt and revolution of the current government. Their platform for the system's rebirth is one that has been used before, the large and slow moving system of socialism. It's difficult to pinpoint exactly which system influences the other, and when, but I think that makes sense because it's a continuous system that feeds off of its own energy and the energy of the systems around it.

This sideways figure 8 is a model for resilience. It shows that we need to expect change in our communities, and that staying in one place or sustaining a certain ideal forever is not possible. It incorporates a kind of dystopian attitude, where we expect chaos, but because we're expecting it, we're more able to respond to it when it happens. This allows us to be more proactive in planning, and less scattered when a disaster strikes.

## Readings

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