CHAPTER 17

Resilience to global change

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Abstract

Is it possible to thrive in 'the anthropocene', a world characterised by human-induced global change? To do so would be to be resilient to the impacts of global change. What such resilience would look like and how it can be achieved are highly uncertain. Nevertheless, viewing the problem through a systems-resilience lens offers insights to inform a wise mixture of mitigation and adaptation strategies. A common and significant barrier to action is the various ways in which actions are separated from impacts. Time and space separate impacts from actions, but there are also more subtle drivers of separation: the classification of knowledge into different disciplines; decision-making confined to narrow terms of reference; the interplay between individual and collective interests; and, ironically, a focus on local efficiency. These forms of separation lead to a significant barrier to action: the distribution of people wanting change is very different in time and space to the distribution of people with the means to make the changes. Shared global ethical principles are needed to negotiate this barrier and mediate a more resilient relationship between humans and Earth.

A safe operating space for humanity

Earth scientists argue that the planet has been so changed by human activity that our era warrants being viewed as a new geological epoch, one characterised by the impact of humans: 'the anthropocene' (Steffen *et al.* 2007). 'Global change' is the term used to refer to this suite of human-induced changes. Global change encompasses climate change, but includes a myriad of other changes that are having global-scale impacts.

To tackle climate change requires a focus on the global carbon cycle, whereas to tackle global change requires an expanded view. An analysis in Nature written by members of the Stockholm Resilience Centre (Rockström *et al.* 2009) suggests a scope that encompasses nine aspects of global change:

1. climate change;
2. ocean acidification;
3. stratospheric ozone depletion;
4. changes to global nitrogen and phosphorus cycles;
5. global freshwater use;
6. land-use change;