Challenges in Creating Resilient and Sustainable Societies

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Abstract. *The global community is faced with a set of continuing, as well as emerging, problems which include but are not limited to climate change, global inequality, population growth, increased energy needs, and destruction of the biosphere on which human lives depend. We draw on the concept of resilience from the field of ecology to broaden our understanding of the conditions that can cause human and natural systems to tip out of balance, sometimes in disastrous and irreversible ways. A resilient system is one that learns constantly, is open to connectivity and new ideas, and, thereby, anticipates and is stabilized by change. The unique but previously unexplored role that inequality plays in reducing system resilience is explored, along with how energy needs relate to states of inequality. Trust, defined as social capital, is seen as a critical variable affecting people's ability to work together toward solutions for common ecological, political and economic problems. Trust is dependent on the kind of political institutions that govern how scarce resources are allocated, and dependent on whether or not people feel they live under a rule of law. Culture is another variable that influences a society's resilience. Culture is both an independent and dependent variable. Culture is the landscape or space into which other variables fit or are mapped. Culture creates the boundaries and pathways that determine what is possible; it creates the interaction between all of the dimensions of culture, which in turn create feedback loops that change, as economic, political, and environmental circumstances change. We focus on policy questions related to how to identify and support nations and social institutions to allow for the development of resilient, robust, and inclusive economies that can reduce the economic and social inequalities we find today. Resilient societies must meet the infinite needs of human systems, while at the same time operating within the finite constraints of natural resource systems. Given this framing, creating sustainable and resilient societies is a problem of planning.*

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Creating Resilience

Our intent is to develop a set of *rules of resilience* derived from the research literature and from examples of current nation states to better understand the conditions that cause some states to fail and others to flourish. To explain a particular outcome for a particular country we need to understand the complex interplay between the culture, the physical environment, and the economy and polity.

We propose to use two concepts that are well known but seldom applied to the problem of explaining variations in nations' fortunes. The concept of r*esilience* was developed by ecologists to describe the processes by which biological systems change. There are several ways the concept is used. One is how long it takes a system that has been disturbed to return to a previous state. Second, is the magnitude of shock a system can absorb before it tips to a new stage and, finally, there is the extent to which a system is self regulating and can evolve to a new and "better" state. An ecologist might be interested in the length of time it takes for grasslands to recover after they have been heavily grazed, or how long it will take the ecology of the Gulf Coast to recover from the Horizon oil spill of 2010. The concept is useful as a planning tool for managing ecosystems but to apply it to human systems we need to make one important modification. No system can ever really return to its original state. Therefore, planning should be geared toward the fact that all systems will experience *unpredictable* shocks (hurricanes, tsunamis, nuclear explosions, financial disasters, or the outbreak of a pandemic). The only thing that one can predict with certainty is that there will be shocks to a system. The need, then, is to think about how to build resiliency into social systems that will allow them to adapt continually to changing political, economic, and social circumstances.

The concept of resilience recognizes that all systems are interconnected. As system theorists such as James Lovelock and Lynn Margulis have noted, all interconnected systems must "learn," that is, have the capacity to change or they will collapse.[1] Living systems are characterized by self organization, by interdependence and diversity. As Missimer and her colleagues have said, these characteristics are important because they lead to the resilience and adaptability of a system, meaning the system can survive even if the internal and external conditions change.[2]

1 See, for example, James Lovelock. 2006. *The Revenge of Gaia: Why Earth is Fighting Back – and How We Can Still Save Humanity.* Santa Barabara, California: Allen Lane.

2 Melinna Missimer, Karl-Henrik Robèrt, Görman Broman, and Harald Sverdrup. 2010. "Exploring the Possibility of a Systematic and Generic Approach to Social Sustainability." *Journal of Clean Products.* 10:1016.