

## GLOBAL DYNAMICS, MULTIPLE SHOCKS AND INCONVENIENT FEEDBACKS:

Linking islands of knowledge in an ocean of ignorance

Anne-Sophie Crépin, Brian Walker, Steve Polasky and Carl Folke

Human activities are now interacting with Earth's environment at the scale of the planet. These interconnections influence the large feedback loops that modulate the global environment, earth's climate system and processes such as epidemiology of diseases. Interactions and feedbacks between environmental and socio-economic changes may trigger nonlinear and perhaps irreversible changes that significantly lower human wellbeing and we are approaching the limits to the safe operating space in terms of planetary boundaries. In addition, the world lacks institutions capable of addressing global-scale socio-ecological system governance, especially in regard to interlinked challenges that cross sectors and scales where existing fragmented governance efforts may each deal with only part of the challenges. The Beijer Institute and the Stockholm Resilience Centre have started a new research program that aims at answering the overarching question: What are the critical unrecognized or ignored social-ecological links and feedbacks at the global scale, and what kinds of governance structures can be developed to avoid catastrophic shifts in the Earth system, so as to create long term conditions trajectories for prosperous human development?

Some of the activities this program focuses on are building a typology of different syndromes that could potentially lead to major welfare changes and attempting to answer overall questions like whether ignored or unknown feedbacks are strong enough to shift global scenarios in important ways or what are the consequences of incorporating missing feedbacks in existing models.