
From disaster risk to disaster resilience of communities: promoting ecosystem-based management and social governance capacity

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Abstract

Communities worldwide are increasingly affected by natural hazards. While the increased incidence of natural hazards is often attributed to climate change, there is also growing evidence that rapid and widespread land cover change is leading to the loss of buffering capacity which healthy ecosystems provide against these natural hazards. The Eden district in South Africa is a prime example of an area where regular natural hazards affect emerging economies and vulnerable communities. Between 2003 and 2008 alone, almost USD \$250 million was spent on direct damage costs, estimated to be approximately 2.5 times higher than the average annual household income in Eden, providing an indication of the vulnerability of resident communities. Acknowledging that risks are embedded in a social-ecological landscape, we set out in Eden to (i) gain a systemic understanding of how climate change and impacts to local ecological systems were affecting natural hazards; (ii) develop strategies to help communities cope with these changes; and (iii) inspire collective action to improve resilience. The first component of the Eden work modelled key drivers of each natural hazard and used scenarios of how these drivers may change to examine the impacts on the occurrence of flood, drought, wildfire and sea-storm. Our findings indicated that land cover changes are likely to increase natural hazards, in some cases to a greater extent than climate change. Clearing invasive alien trees was identified as a highly effective tool for reducing flood, wildfire and drought hazards; and maintaining or restoring coastal foredunes was shown to substantially reduce the impact of coastal erosion and wave run-up. Stemming from these findings, strategies for building a resilient Eden were developed, each aiming to co-develop and co-implement initiatives in Eden. Disaster risk reduction efforts in Eden – by both local government and business – are still very much focussed on short-term disaster preparedness or disaster recovery. Longer term efforts to promote resilience are still lacking, including appropriate ecosystem-based management, and providing opportunities for social learning that promotes individual, collective and institutional capacity to manage risk. There is also a lack of national level investment in these longer term efforts, which expresses itself at the local level where municipalities are not able to fund such interventions. The strategies developed target

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institutions or communities responsible for, or with influence over, key landscape drivers of change and include community forums, business (insurance, food and beverage, and timber industry), and local and national government departments of disaster risk reduction and environmental planning. Strategies are cross-scale and diverse, and include: national financing interventions, promoting institutional absorptive capacity, establishing stronger public-private partnerships, investigating insurance reward programmes, and undertaking restoration projects in partnership with land owners and environmental agencies. This presentation will discuss findings and lessons from our work in Eden, contextualising it within institutional and policy frameworks, and drawing on emerging literature around disaster risk reduction, resilience and human agency.

Keywords: Adaptation to climate change, Collective action, Cross, scale, Ecosystem Services, Governance, Resilience, Social, ecological systems