



Diagnosing Disaster Resilience of Communities as Multi-scale Complex Socio-ecological Systems

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Global environmental change, growing anthropogenic influence, and increasing globalisation of society have made it clear that disaster vulnerability and resilience of communities cannot be understood without knowledge on the broader social-ecological system in which they are embedded. We propose a framework for diagnosing community resilience to disasters, as a form of disturbance to social-ecological systems, with feedbacks from the local to the global scale. Inspired by iterative multi-scale analysis employed by Resilience Alliance, the related socio-ecological systems framework of Ostrom, and the sustainable livelihood framework, we developed a multi-tier framework for thinking of communities as multi-scale social-ecological systems and analyzing communities' disaster resilience and also general resilience. We highlight the cross-scale influences and feedbacks on communities that exist from lower (e.g., household) to higher (e.g., regional, national) scales. The conceptual framework is then applied to a real-world resilience assessment situation, to illustrate how key components of socio-ecological systems, including natural hazards, natural and man-made environment, and community capacities can be delineated and analyzed.