



Toward a typology for social-ecological systems

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Characterizing and understanding social-ecological systems (SESs) is increasingly necessary to answer questions about the development of sustainable human settlements. To date, much of the literature on SES analysis has focused on "neat" systems involving a single type of resource, a group of users, and a governance system. While these studies provide valuable and specific insights, they are of limited use for application to "messy" SESs that encompass the totality of human settlements, including social organization and technologies that result in the movement of materials, energy, water, and people. These considerations, in turn, create distribution systems that lead to different types of SESs. In messy SESs the concept of resilience, or the ability of a system to withstand perturbation while maintaining function, is further evolved to posit that different settlements will require different approaches to foster resilience. This article introduces a typology for refining SESs to improve short- and long-term adaptive strategies in developing human settlements.

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