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学 位 論 文 内 容 の 要 旨

博士（環境科学）

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Developing and applying composite indicators for assessing and characterizing vulnerability and resilience of coastal communities to environmental and social change
(環境・社会変化に対する沿岸地域社会の脆弱性と回復力の統合評価指標の開発と適用)

A key concept to achieving sustainable and invulnerable development, especially in the coastal areas, is to manage the sources of risks to disaster-causing hazards. Risk in any system is influenced by multi-dimensional factors affecting vulnerability and resilience. In this dissertation, the causal structures of these components were analyzed by indicators and metrics that measure their occurrences in the coastal areas. Two case studies were conducted with coastal communities and governing institutions following a practical application of social assessment tools and methods in analyzing vulnerability and resilience, respectively, in the five coastal communities in the municipality of Baler, province of Aurora, the Philippines. The first study that looked at the indicators for vulnerability illustrated variations in patterns across communities suggesting that this condition was particularly influenced by communities' inherent characteristics and their interactions with various social and environmental factors. Constructing resilience indicators in the second study, on the other hand, presented a method for formulating direct outcomes and processes that described a resilient coastal community. Such attempts to use an index-based approach to analyze vulnerability and resilience did not only develop pragmatic tools and mechanisms for managing risk from emerging change such as disasters. It also enhanced the strategies for characterizing risks to social and environmental changes through the application of participatory development process towards a viable disaster- risk reduction system at the local levels.