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The Effects of Weather Events and Land Use Change on Urban Ecosystems: From Risk to Resilience

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Abstract : Urban ecosystems, as complex coupled human-environment systems, contain abundant natural resources for breeding natural assets and, at the same time, attract urban assets and consume natural resources, triggered by urban development. Land use change illustrates the interaction between human activities and environments factually. However, IPCC (2014) announces that land use change and urbanization due to human activities are the major cause of climate change, leading to serious impacts on urban ecosystem resilience and risk. For this reason, risk assessment and resilience analysis are the keys for responding to climate change on urban ecosystems. Urban spatial planning can guide urban development by land use planning, transportation planning, and environmental planning and affect land use allocation and human activities by building major constructions and protecting important national land resources simultaneously. Urban spatial planning can aggravate climate change and, on the other hand, mitigate and adapt climate change. Research on effects of spatial planning on land use change and climate change is one of intense issues currently. Therefore, this research focuses on developing frameworks for risk assessment and resilience analysis from the aspect of ecosystem based on typhoon precipitation in Taipei area. The integrated method of risk assessment and resilience analysis will be also addressed for applying spatial planning practice and sustainable development.

Keywords : ecosystem, land use change, risk analysis, resilience
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