

# **A generalized conceptual framework for eco-environmental vulnerability assessment at different scales and timespans**

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**Abstract:** This paper introduces a generalized conceptual framework for evaluating eco-environmental vulnerability due to any influential variables of interest, including nature and manmade disturbances. Freely accessible remote sensing and census dataset are used to derive the driving variables with aid of Geographical Information System (GIS). Analytic Hierarchy Process (AHP) or Machine Learning (ML) can be applied to judge the importance and assign the weights of the influential variables. The designed framework is well suitable for eco-environmental assessment at a various spatial scale and a useful tool for assessing and monitoring long-term eco-environmental status due to any impacting factors. Finally, we present results of some case studies that utilize the generalized framework for eco-environmental vulnerability assessment in Vietnam, Indonesia and global scale due to nature and human disturbances.

**Keywords:** Eco-environmental vulnerability; nature and manmade disturbances; GIS; remote sensing

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