The Principles of Ecological Risk Assessment Applied to the Oil-Spill Pollutions and Clean-ups on Coastal Zone of Taiwan

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ABSTRACT

The Lungken eco-protection area of Kenting National Park was polluted by oil-spills from a stranded cargo boat and precious coral reefs was in danger of sticky oil and clean-ups. It is so depressed that no proper assessment tools can be applied to explore the impairments as well as long-term effects on ecosystem in Taiwan. Ecological Risk Assessment (ERA) demonstrates a systematized framework to predict the potential risks of ecological adversity more confidently that might be less concerned through Environmental Impact Assessment (EIA). In this study the setup of framework is concentrated on problem formulation stage. Firstly, the concerned problems are posed and stressor-receptor correlations are confirmed. Furthermore, most adverse reactions through different exposure pathways are listed and checked to link the caused relationship such as stressor-exposure-receptor-effect. The cause-effects are identified by confident evidences, and then, assessment goals as well as quantified assessment endpoints could be set. Finally, a conceptual model is constructed by series longitudinal and lateral connection of sequences with pictorial blocks and arrows. The primary framework of overall assessment is therefore setup. The oil-spill pollution and cleanup impacts for sensible coastal area, such as coral reefs are concerned here. The ecological risks are discussed and specified assessment criteria and frameworks are described for setting up localized assessment tool in Taiwan. Risk estimation and management are necessary as well for future works in risk mitigation and remediation.

Keywords : Ecological Risk Assessment ; Assessment Endpoints ; Conceptual Model ; Coral Reefs

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