

A CONCEPTUAL MODEL FOR EVALUATION OF ECOLOGICAL IMPACTS IN ENVIRONMENTALLY SENSITIVE AREAS

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Comprehensive Environmental Impact Assessment (EIA) requirements were implemented in Sri Lanka with the formulation of National Environmental Act, 1981. The Ecological Impact Assessment (EcIA) section of EIA report provides the basis for identifying and evaluating the ecological impacts. However, studies have shown that EIAs completed before 2005, in Sri Lanka are of poor quality, with regard to the EcIA and there are no clear guidelines for evaluating ecological impacts properly. Sensitive ecosystems could be irreversibly damaged by consequences of the on-going rapid development process unless care is taken to address the ecological impacts. Therefore, this research aimed to determine the adequacy of EIAs in Sri Lanka addressing ecological impacts, after 2005; and to develop a conceptual methodological framework to effectively address ecological impacts in EIAs implement within environmental sensitive areas in Sri Lanka.

Completed EIAs of projects in environmentally sensitive areas were examined for effectiveness in addressing ecological issues. Key parameters that need to be assessed for adequately addressing ecological impacts were identified based on international best practices. Thereby a modified checklist was developed by building upon the foundation of the previous work undertaken in Sri Lanka, and a version appropriate for Sri Lanka was developed. Selected EIAs were evaluated based on the modified check list and the methodology used by Samarakoon, (2008) to evaluate the adequacy of addressing ecological impacts in present EIAs. Further, this study went on to develop a conceptual framework to effectively address of the ecological impacts of development projects.

The evaluation revealed that EIAs conducted after 2005 have not adequately addressed ecological impacts. Ecosystem services were neglected in most EIAs. The modified conceptual framework developed includes baseline conditions, ecological integrity and environmental services in detail with a descriptive ranking system for assessing the existing environmental conditions and to evaluate the significance of ecological impacts of development activities. This model could be used by both project proponents and regulators to better address ecological impacts of development projects in Sri Lanka.

Key words: EIA, development projects, baseline conditions, ecosystem services, checklist, conceptual model