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A Conceptual Framework of Integrated Evaluation Methodology for Aquaculture Lakes

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Abstract : Research in the subject of ecological water resources management is full of trivial questions addressed and it seems, today to be one branch of science that can strongly contribute to the study of complexity (physical, biological, ecological, socio-economic, environmental, and other aspects). Existing literature available on different facets of these studies, much of it is technical and targeted for specific users. This study offered the combination all aspects in evaluation methodology for aquaculture lakes with its paradigm refer to hierarchical theory and to the effects of spatial specific arrangement of an object into a space or local area. Therefore, the process in developing a conceptual framework represents the more integrated and related applicable concept from the grounded theory. A design of integrated evaluation methodology for aquaculture lakes is presented. The method is based on the identification of a series of attributes which can be used to describe status of aquaculture lakes using certain indicators from aquaculture water quality index (AWQI), aesthetic aquaculture lake index (AALI) and rapid appraisal for fisheries index (RAPFISH). The preliminary preparation could be accomplished as follows: first, the characterization of study area was undertaken at different spatial scales. Second, an inventory data as a core resource such as city master plan, water quality reports from environmental agency, and related government regulations. Third, ground-checking survey should be completed to validate the on-site condition of study area. In order to design an integrated evaluation methodology for aquaculture lakes, finally we integrated and developed rating scores system which called Integrated Aquaculture Lake Index (IALI).The development of IALI are reflecting a compromise all aspects and it responds the needs of concise information about the current status of aquaculture lakes by the comprehensive approach. IALI was elaborated as a decision aid tool for stakeholders to evaluate the impact and contribution of anthropogenic activities on the aquaculture lake's environment. The conclusion was while there is no denying the fact that the aquaculture lakes are under great threat from the pressure of the increasing human activities, one must realize that no evaluation methodology for aquaculture lakes can succeed by keeping the pristine condition. The IALI developed in this work can be used as an effective, low-cost evaluation methodology of aquaculture lakes for developing countries. Because IALI emphasizes the simplicity and understandability as it must communicate to decision makers and the experts. Moreover, stakeholders need to be helped to perceive their lakes so that sites can be accepted and valued by local people. For this site of lake development, accessibility and planning designation of the site is of decisive importance: the local people want to know whether the lake condition is safe or whether it can be used.

Keywords : aesthetic value, AHP, aquaculture lakes, integrated lakes, RAPFISH
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