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## **A LAND ASSESSMENT TOOL FOR CULTURAL RECOGNITION IN ENVIRONMENTAL SUSTAINABLE MANAGEMENT: CASE STUDY OF KADURUGODA VIHARA – JAFFNA**

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### **ABSTRACT**

Culture enables environmental sustainability at various levels through the intrinsic links between cultural diversity and biodiversity, through its influence on consumption patterns, and through its contribution to sustainable environmental management practices. The land selection methods which are cultural and environmentally appropriate are determined first and foremost by characteristics and location, which involves commonsense knowledge of architects for cultural recognition. The principal difficulties relate to the number and variety of factors that need to be screened. It is relatively easy to identify individual factors that, in a general context, are likely to affect cultural recognition. It is much more difficult to identify factors of only land selection; to determine their relative importance; and to ensure that the list of locally important factors is comprehensive. Further, functional and social parameters describe significant evidence of cultural recognition. In this paper I present an intelligent land assessment tool in ecosystem service provision a sub field of architecture domain of land selection to come up with land classifications as physical, functional and social indicators. At first commonsense knowledge in land selection is converted into a questionnaire. Removing dependencies among the questions are modeled using principal component analysis. Classification of the knowledge is processed through fuzzy logic module, which is constructed on the basis of principal components. Further explanations for classified knowledge are derived by expert system technology. The tool was tested in 10 sites, of varying cognitive abilities and diagnoses of cultural heritage. The questionnaire has been constructed with 31 questions and the principal component analyzer detected 9 principal components in filtering process. The tool scored for Kadurugoda Vihara in term of physical, functional and social as 7.072626%, 44.11221 % and 48.81516% respectively. This shows significant contribution of functional and social indicators respectively. The land assessment tool is to be a reliable assessment tool for cultural recognition in Kadurugoda Vihara by showing significant contribution of cultural recognition in ecosystem service provision.

**Keywords:** *Land selection, Cultural recognition, sustainable environmental management, land assessment tool, Fuzzy logic*