Comparative Analysis of Land-Use Patterns and Environmental Impacts of Coastal Tourism Industry in Hikkaduwa and Bentota Tourist Destinations, Sri Lanka

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Tourism industry is one of the main economic activities of the southern coastal belt of Sri Lanka and is closely related to land use as it dramatically transforms the natural land into highly artificial ones. The main focus of this study was to carry out a detailed analysis of the spatial and temporal contrasts of land-use patterns in Hikkaduwa and Bentota tourist sites and to study the environmental problems that arose from it. Both primary and secondary data were used for this purpose and land use analysis of the two sites during the period 1972-2022 was done using the digitizing tool of Arc GIS 10.8.2 software. The mixed land use diversity of the two sites was calculated using the entropy value (H) using the land extents calculated by the geometric calculator. According to the map analysis, during the period between 1972-2022, coconut plantation lands in Hikkaduwa have been reduced by 22.54%, rice cultivation lands by 8.27%, and mixed vegetation lands by 2.21%, while in Bentota, coconut, rice and mixed vegetation lands have reduced by 15.28%, 16.5% and 1.16% respectively. A growth of 30.41% and 22.03% of built land in Hikkaduwa and Bentota respectively can be identified during the same period. By H calculations it was possible to identify a transformation of land use in Hikkaduwa area from proportional mixed land use (0.8405 in 1972) to single dominant land use type (0.6974 in 2022). The H of 0.740 (in 1972) and 0.729 (in 2022) revealed that the proportion of the major land-uses is becoming equal in Bentota. It was possible to identify that the amount and severity of environmental problems based on tourism land-use is relatively high in Hikkaduwa. The study concluded that the tourism industry associated with informal land use in Hikkaduwa has failed in terms of environmental sustainability.

Keywords: *Comparative study, Entropy value, Environmental impacts, Hikkaduwa and Bentota, Tourism-based land-use*