

# Demand Based Geographic Information System for Analyzing Recreational Opportunity in Protected Areas in Sri Lanka: Special Reference to Udawalawe National Park

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It has been a vast development of Information Technology in the globe. Geographic Information System (GIS) has been recognized as a useful tool by wide range of disciplines in managing, storing, analyzing and visualizing the spatial and non spatial data. Tourism is one of the disciplines which can be applied GIS technology to get maximum benefits. Tourism in Sri Lanka also helps to develop the economy of the country and it provides economic values to tourism resources as well. This study addresses to identify the recreational opportunity in protected areas in Sri Lanka by using GIS with special reference of Udawalawe National Park as one of the worth full protected areas for flora and fauna in Sri Lanka. The main objectives of the study were to identify potential areas for recreational activities in different degree and quickest and the cheapest paths for achieve various destinations inside the park and to publish all information related with tourism through Web GIS. Further, the study was analyzed the socio economic changes specifically due to tourism industry. The 1:50,000 digital data and topographic data from the Department of Surveying were used to create recreation related maps. Digitizing, Topological applications, Network analyzes, Geodatabase models, weighted overlay techniques, DEM, Proximity analysis, Web GIS were used to create and analyze the spatial data using Arc GIS 9.3. The secondary data were used to identify the current situation of the study area. Primary data was collected through a questionnaire survey and observation. Randomly selected 50 tourists and 100 of community members who are living around the study area were considered to analyze the socio economic changes due to the recreational activities. Chi-square was used to analyze the primary data using SPSS 16.0. To present the spatial and non spatial data maps, charts, tables were used. Finally all tourism data were stored inside the Geo-database using Transverse Mercator projection system. Study is identified the tourism potential areas including sight seen, adventure, and environmental sensitive areas. Study created a model based on the transport network system inside the park to identify the quickest and the cheapest paths to achieve various destinations. All information published through web GIS to easy access to the tourists. Study pointed out strength, weaknesses, opportunities and threats of recreational potentials in Udawalawe National Park, Sri Lanka.

**Keywords:** Geographic Information System, geo-database, recreation