



**Use of multi-criteria AHP technique for detection of potential sites for tourism in Anjarle Beach area of Ratnagiri District, Maharashtra (India)**

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**Abstract:**

The multi-criteria decision-making AHP techniques was used to detect the potential sites for tourism in Anjarle Beach, Ratnagiri District, Maharashtra (India) based on beach scenic value (BSV) and beach scientific investigate value (BSIV). Ten criteria were selected for this analysis: coastal slope, adjacent land use and seas, and streams, beach morphology, landscape features, sand colour, sunrise and sunset views, water clarity, integrity and size pockets. AHP-OS software was used to calculate the pairwise comparison matrix and determine the weights for selected criteria and parameters. The calculated consistency ratio (CR) (0.08) indicates the acceptability the results. Beach morphology and adjacent land use show higher suitability for tourism activities, whereas beach water clarity and integrity show moderate suitability and other features are less suitable for tourism activities. The multi-criteria decision-making AHP techniques are suitable for the detection of suitable sites for tourism in coastal areas.

**Keywords:** Coastal tourism potential, scenic beauty, Analytical Hierarchy Processes, Pairwise comparison Matrix, Weights, Ranking.

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**Introduction**

The identification of tourism potentials of coastal area needs detailed study of these physiographic and socioeconomic parameters (Ergin *et al.*, 2006; Phillips and House, 2009; Anfuso *et al.*, 2017; Mooser *et al.*, 2021). The share of tourism activities and service sector in GDP of India was 6.7% in 2018 (WTTC, 2019) and the tourism industry contributed 1.7 trillion USD to GDP of the world in 2019 (WTO, 2019). Tourism activities support the economy of any country, significantly assisting the people (Rio and Nunes, 2012; Botero *et al.*, 2014) and playing a significant role in the development of the rural economy (Bel *et al.*, 2014). Beaches at coastal lines are significant assets for tourism, create prospective appreciated financial assistance to a visitor and most important tourist destinations (Botero *et al.*, 2014; Stanchev *et al.*, 2015; Chen and Bau, 2016). The techniques like

MCDM, AHP, Fuzzy-AHP (F-AHP) and Weighted Overlay Analysis are widely used techniques for assessment of potential for development of tourism activities. AHP advance techniques were applied for the identification of tourism potential within the research area. The majority of the researchers into the revision of tourism potential have used recent scientific GIS (Geographical Information System) base multi-criterion (MCE) method. These AHP and GIS techniques have been practiced via a variety of researchers in different physical areas of India. (Gaikwad and Bhagat 2018; Zolekar and Bhagat 2015). The GIS and RS technique using satellite images are used as an appropriate apparatus for identifying of tourism potential sites and its scenic beauty (Bunruamkaew and Murayama 2011.) Moreover, to Study evolution tourism potential, satellite image has been used by Murali *et al.* (2013).