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## Multi-criteria analytical hierarchical process based decision support system for critical watershed prioritization of Andhiyarkhore catchment

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### ABSTRACT

This study presents the application of analytical hierarchical process based multi-criteria decision support tool for prioritization of critical areas of Andhiyarkhore catchment for soil and water conservation (SWC) and management works. Fourteen different soil and water management parameters were calculated for each of the fifty-one delineated watersheds in Andhiyarkhore catchment. The normalized values of these parameters were arranged in a comparison matrix to assess corresponding weights to prioritize the watersheds. The average annual soil loss had highest weight of 0.23 and elongation ratio the minimum weight of 0.01 at 9.66% consistency ratio (within 10% limit). The highest priority for the SWC measures was obtained for SW-7 watershed and lowest for SW-47 watershed. The average annual groundwater recharge estimated in the Andhiyarkhore catchment was only 4.13% of average annual rainfall, which envisages need for SWC works in Andhiyarkhore catchment. Nine watersheds having 325.7 km<sup>2</sup> of the catchment have very high priority for undertaking SWC works.