

Prioritization of Sub-Watersheds in Semi Arid Region: A Case Study of Shevgaon and Pathardi Tahsils in Maharashtra

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Abstract : Prioritization of sub-watershed plays important role in watershed management. It shows the requirement of watershed to give a treatment for the green growth of the region and conservation of the sub-watersheds. There is a number of factors like topography of the region, climatic characteristics like rainfall and runoff, land-use land-cover, social factors which are related to the development of watershed for agricultural uses and domestic purposes in the region. The present research is throwing a focus on how morphometric parameters in association with GIS analysis will help in identifying the ranking of the sub-watersheds for further development which help of suggested watershed structures. Shevgaon and Pathardi tahsils are drought prone tahsils of Ahmednagar district in Maharashtra. These tahsils come under the semi-arid region. Sub-watershed prioritization is necessary for proper planning and management of natural resources for sustainable development of the study area. Less rainfall and increasing population pressure on the land as well as water resources lead to scarcity of the water in the region. Hence, researcher has selected Shevgaon and Pathardi tahsils for sub-watershed prioritization. There are seven sub-watersheds which selected for the present research paper. In the morphological analysis linear aspects, aerial aspects and relief aspects are considered for the prioritization. The largest sub-watershed is Erdha which is located at Karanji in Pathardi tahsil having an area of 145.06 km² and smallest sub-watershed is Erandgaon which is located in Shevgaon tahsil having an area of 40.143 km². For all seven sub-watersheds, seven morphometric parameters were considered for calculating the compound parameter values. Finally, compound parameter values are grouped into three groups such as, high priority (below 4.0), moderate priority (4.0 to 5.0) and low priority (above 5.0) according to the compound value Erandgaon, Chapadgaon and Tarak sub-watersheds comes under high priority group, Erdha and Domeswar sub-watersheds come under moderate priority group and Chandani and Kasichi sub-watershed come under low priority group. Both the tahsils falls in drought prone area, after getting the watershed structure overall development of the region will take place.

Keywords : sub-watersheds, GIS and remote sensing, morphometric analysis, compound parameter value, prioritization

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