



Flood Potential Estimation of Poorly Gauged Varekhadi Watersheds Using HEC-HMS Model - A Case of Lower Tapi Basin, India

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Varekhadi watershed is situated at downstream of Ukai dam, covers 25463.28 km² area and consists of 30 micro watersheds. River is un-gauged and it drains out the downstream side. Present work is focused on flooding potentiality of Varekhadi micro-watersheds using the Hydrologic Engineering Center- Hydrologic Modeling System (HEC-HMS) software water to Tapi River which is one of the responsible factors for flooding at 7ETM + image band 2, 3, 4 [30 m] merged with PAN band 8 and Shuttle Radar Topography Mission (SRTM) 1 arc (30 m grid) data is used for preparation of various input file like land use/land cover, slope and watershed boundaries in GIS environment. Survey of India topographical maps of 1:50,000 scales are used to prepare the drainage files. The Varekhadi watersheds are delineated through HEC-GeoHMS and further divided in 30 micro watersheds. The HEC-HMS model was applied for estimation of daily run-off for each micro watershed. The lower part of the watersheds like W940, W960, W1100 micro watersheds lead the highest value of flood potentiality, where the high population is settled. The analyzed map shows that WS- W640, W680, W730, W930 and W1260 are fall in the high runoff category which increases risk and vulnerability to flood and inundations. Present study shows the application of a HEC-HMS model to estimate the run-off to predict the flood potentiality in poorly gauged catchment.