**FLOOD MAPPING OF PERIYAR BASIN**

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**Introduction:**

Periyar river is a 244 km long, west flowing river, originating from Western Ghats and draining to Arabian sea in the Eranakulam district of Kerala. Its basin size is 5398 km2. Recent flood situation in Kerala has resulted in great loss and one of the worst affected region is the Periyar basin.

**Methodology:**

The project involves the simulation of the SWAT rainfall runoff model to estimate the runoff value at the outlet of Periyar river basin by taking monsoon periods of recent years. The Digital Elevation Model (DEM) for the basin was also downloaded and mosaicked from the *Bhuvan* website. The climatic parameters namely the temperature, precipitation, solar radiation, relative humidity, wind and average sunlight hours were extracted from extracted from different sources such as IMD data, TAMU Global Weather Data, Indian Dataset for SWAT Analysis etc.

Watershed and Stream network are processed by QSWAT’s automatic watershed delineator tool. The PET (Potential Evapotranspiration Technique) used was Hargreaves model. SCS Curve Number Method is used for runoff analysis. During HRU (Hydrological Response Unit) entire basin is divided into 34 HR Units and 21 basins, ranging from eastern part of Eranakulam district to Southern part of Idukki District.

**Result:**

From the results, it was observed that

* Precipitation may be too high (> 3400 mm)
* Surface runoff ratio may be low (< 0.2)
* Groundwater ratio may be low
* Lateral flow is greater than groundwater flow, may indicate a problem
* Water yield may be excessive
* Surface runoff may be excessive.

**Use/Applications:**

* HRU Analysed map having DEM, Soil data and LULC is useful for research purposes on flood mapping and mitigation
* It is also capable of runoff computation

