

1. IMD's daily rainfall data of the country at 0.25 degree grids for the period of 1914 to 2013 (100 years) were used in rainfall data analysis.
2. Maximum rainfall in each years at every pixel location has been computed.
3. Maximum Probable Precipitation (MPP) is computed for each pixel using the maximum rainfall of each year through a statistical technique.
4. Pixels having daily rainfall equal to or more than 100mm during all the 100 years has been examined and a rainfall frequency grid has been created. This grid shows how many times a pixel has encountered rainfall of 100mm or more.
5. Runoff potential of the country has been prepared using the LULC, Soil Texture and DEM grids. Curve Numbers that are recommended for the Indian conditions are used in preparing the runoff potential grid.
6. Probable maximum runoff flood has been computed using PMP and the runoff potential grids.
7. Drainage Density map is prepared using the drainage map of the country (Source: India WRIS) in which first order drains were not considered.
8. Slopes across the country are computed using the CARTO 30 m DEM and further classified as per USGS/IMSD classification.
9. Water bodies (having area more than 2Ha) is obtained from the Bhuvan-Water Body Information System.
10. Proper weights were given to all layers using Saaty's scale.
11. Flood Vulnerability Index (FVI) of the country has been computed by integrating all the layers in Spatial Decision Support Systems Environment using Multi-criteria evaluation Technique.
12. Approximate rail line map is obtained (Source: Open Street Maps) and overlaid with the drainage map to know the possible bridge locations (first order drains are not considered in the analysis).
13. FVI will give the possible flood threat to India Railways in the country.
14. Structural details of the bridges have to be examined further to assess the flood risk.
15. Catchment delineation is restricted to maximum of 5000 Sq. Km only. If the boundary is not found proper, it is advised to try with other outlet point nearby.
16. SCS unit hydrograph concept is used in computing discharge, lag-time, etc. using lumped approach.