

Area Flood Drainage Study of 50mw Solar Project

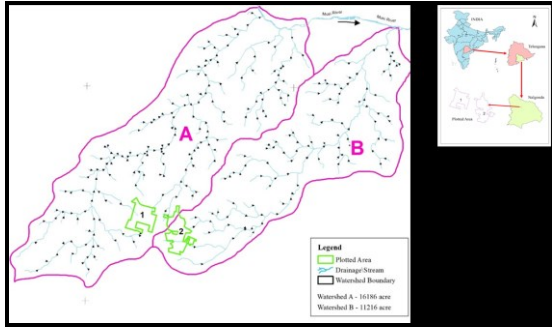


Figure1. The study area and watershed Boundary

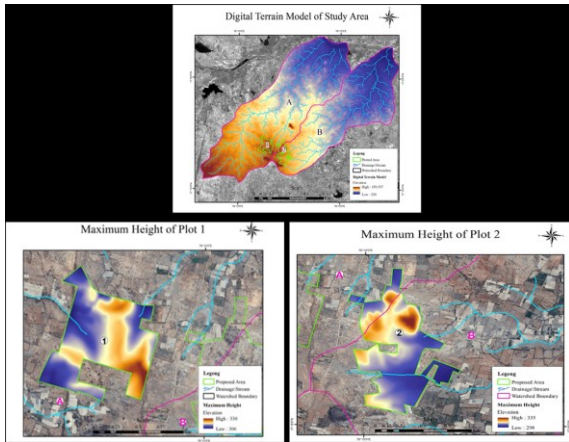


Figure2. Digital Terrain map of study area.

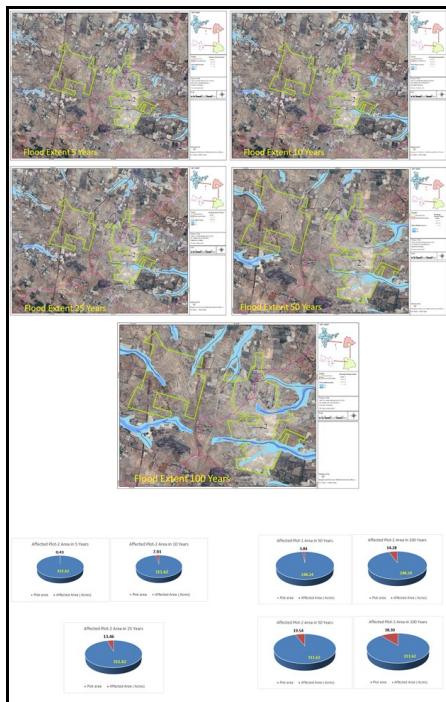


Figure3. Simulated Flood Area Extent Map & Analysis

Business Need:

Solar Energy is one of the most important sources of renewable energy in India. Indian government is encouraging businessmen to invest in this segment and fill the gap of energy demand in the country. Government is ready to sign multi-year contract to purchase solar-energy from the participating firm. In return, the firm needs to ensure continuous supply of electricity to the government during the contracting years.

Lands being acquired for installation of solar panels are however prone to flooding which may cause damage to the solar panels.

The Business need was to study the Solar Panel installation sites and map the areas prone to flooding in the coming 5, 10, 25, 50 and 100 years.

Inputs Used:

- Precise DTM of the 'Solar Panel Installation Site' collected through topographical survey using Drone
- Cartosat-1 Stereo-pair to create DTM of the watershed in which 'Solar Project Site' is located
- Satellite Image of the Study area to create LULC Map
- Historical Rainfall Data
- High Flood Level Data

Business Solution:

Cartosat-1 was used to create DTM of the watershed in which the 'Project Site' is located. Latest ortho image was used to create the existing LU/LC map of the project site. Analysis of the project site was done to simulate the 'Extent and Depth' to which flooding may happen due to terrain slope, rate of water inflow to and outflow from, the project site for return period of 5, 10, 25, 50 and 100 years.

Several calculations were done and derivative values were calculated using the simulated flood extent model.

Project Shipment:

The following shipments were made-

- Map showing the extent and depth of flooding at different locations in the 'Project Site' due to rainfall with 5, 10, 25, 50 and 100 years return period.
- Related Report