# Solar Energy Planning Using Geospatial Techniques and Big-Data Analytics

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## SUMMARY

Solar energy is the source of future energy. The problem of 'build back better' is a series issue post-disaster i.e. flood. This research is based on finding a better energy planning for rehabilitated people using Geospatial techniques and Big-data analytics. Pre and post satellite images have been analyzed in QGIS software and Matlab for feature extraction (such as rooftops, open field) and matched for comparison. Semi-automatic feature extraction has been performed using the k-means clustering algorithm in Matlab. These features helped in obtaining the actual usable area available for installing solar photovoltaic (PV) panels to generate electricity using solar energy. Utilization of solar energy also helped in obtaining carbon footprints. Meteorological data such as rainfall data, sunshine hours, cloudy, and rainy days of more than 20 years have been analyzed using Big-data analytics in Hadoop framework to obtain flood trend and energy loss prediction of a location. The data discussed above from different sources have been analyzed in Big-Data analytics. The final deliverables of this research are the usable area for PV panels, and energy planning for local people. This generated electricity can be stored in batteries for night time usage

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