

Climate Variability on Hydro-Energy Potential: An MCDM and Neural Network Approach

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Abstract : The increase in the concentration of Green House gases all over the World has induced global warming phenomena whereby the average temperature of the world has aggravated to impact the pattern of climate in different regions. The frequency of extreme event has increased, early onset of season and change in an average amount of rainfall all are engrossing the conclusion that normal pattern of climate is changing. Sophisticated and complex models are prepared to estimate the future situation of the climate in different zones of the Earth. As hydro-energy is directly related to climatic parameters like rainfall and evaporation such energy resources will have to sustain the onset of the climatic abnormalities. The present investigation has tried to assess the impact of climatic abnormalities upon hydropower potential of different regions of the World. In this regard multi-criteria, decision making, and the neural network is used to predict the impact of the change cognitively by an index. The results from the study show that hydro-energy potential of Asian region is mostly vulnerable with respect to other regions of the world. The model results also encourage further application of the index to analyze the impact of climate change on the potential of hydro-energy.

Keywords : hydro-energy potential, neural networks, multi criteria decision analysis, environmental and ecological engineering

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