

Study on Mitigation Measures of Gumti Hydro Power Plant Using Analytic Hierarchy Process and Concordance Analysis Techniques

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Abstract : Electricity is recognized as fundamental to industrialization and improving the quality of life of the people. Harnessing the immense untapped hydropower potential in Tripura region opens avenues for growth and provides an opportunity to improve the well-being of the people of the region, while making substantial contribution to the national economy. Gumti hydro power plant generates power to mitigate the crisis of power in Tripura, India. The first unit of hydro power plant (5 MW) was commissioned in June 1976 & another two units of 5 MW was commissioned simultaneously. But out of 15 MW capacity at present only 8-9 MW power is produced from Gumti hydro power plant during rainy season. But during lean season the production reduces to 0.5 MW due to shortage of water. Now, it is essential to implement some mitigation measures so that the further atrocities can be prevented and originality will be possible to restore. The decision making ability of the Analytic Hierarchy Process (AHP) and Concordance Analysis Techniques (CAT) are utilized to identify the better decision or solution to the present problem. Some related attributes are identified by the method of surveying within the experts and the available reports and literatures. Similar criteria are removed and ultimately seven relevant ones are identified. All the attributes are compared with each other and rated accordingly to their importance over the other with the help of Pair wise Comparison Matrix. In the present investigation different mitigation measures are identified and compared to find the best suitable alternative which can solve the present uncertainties involving the existence of the Gumti Hydro Power Plant.

Keywords : concordance analysis techniques, analytic hierarchy process, hydro power

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