World Academy of Science, Engineering and Technology
International Journal of Environmental and Ecological Engineering
Vol:18, No:10, 2024

Hydrology and Hydraulics Analysis of Beko Abo Dam and Appurtenant Structre Design, Ethiopia

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Abstract : This study tried to evaluate the maximum design flood for appurtenance structure design using the given climatological and hydrological data analysis on the referenced study area. The maximum design flood is determined by using flood frequency analysis. Using this method, the peak discharge is 32,583.67 m3/s, but the data is transferred because the dam site is not on the gauged station. Then the peak discharge becomes 38,115 m3/s. The study was conducted in June 2023. This dam is built across a river to create a reservoir on its upstream side for impounding water. The water stored in the reservoir is used for various purposes, such as irrigation, hydropower, navigation, fishing, etc. The total average volume of annual runoff is estimated to be 115.1 billion m3. The total potential of the land for irrigation development can go beyond 3 million ha.

Keywords : dam design, flow duration curve, peak flood, rainfall, reservoir capacity, risk and reliability
Conference Title : ICW 2024 : International Conference on Water
Conference Location : Paris, France
Conference Dates : October 28-29, 2024