

PERFORMANCE ANALYSIS OF PANDOH RESERVOIR UNDER DIFFERENT CLIMATE CHANGE SCENARIOS

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ABSTRACT

Reservoir management involves allocating available water among multiple uses and users, minimizing the risks of water shortages and flooding, and optimizing the beneficial use of water. However, a number of climate change predictions project rise in temperature and change in precipitation characteristics which may change the inflow pattern in a reservoir and eventually affect its performance in the long run. In the present paper, reservoir operation analysis has been carried out and impact of changing climate on the performance analysis of Pandoh reservoir has been evaluated. Pandoh reservoir diverts water from the Beas river in the Beas-Satluj link for production of hydropower at Dehar Power Plant before it joins the Satluj river. Using the historical observations from 1985 onwards, average diversion rate at the dam in different months has been worked out. Twelve different climate scenarios has been assumed corresponding to various precipitation and temperature change combinations and corresponding inflow series at the Pandoh dam has been worked out. Using these inflow series, reliability analysis of satisfying the diversion demands has been carried out. It is seen that daily time reliability of meeting full diversion demands is affected to the extent of 8 to 9%. Time reliability for meeting partial demands (90%, 80%, and 70%) and volume reliability of the Pandoh reservoir for various climate scenarios are also reported in the paper.