

THESIS

IMPACT OF SCARCITY OF WATER SUPPLY ON HYDROPOWER  
OUTPUT OF NANDIPUR HYDROPOWER STATION



6798

By

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## ABSTRACT

Nandipur Hydropower Station, Gujranwala is situated on the Upper Chenab Canal Lower (U.C.C.) near village Nandipur. The aim of this study was to analyse the conditions of water supply to Nandipur Hydropower station, including characteristics, performance and power production of the turbines. Design discharge of the canal is 322 cumecs. Actual discharge revealed that the discharge of the canal fluctuated between 235 to 250 cumecs in 1960's while in 1970's, 1980's and 1990's the discharge fluctuated between 220 to 235 cumecs, 210 to 220 cumecs, and 170 to 199 cumecs respectively. This data shows the reduction in canal discharge throughout the above periods.

Three Vertical shaft Kaplan turbines are installed at the Nandipur hydel station. For the discharge and head available at Nandipur Hydropower station, Bulb type turbine can be used which is about 3 percent more efficient than the Kaplan turbine. Energy generated in 1960's, 1970's, 1980's, and 1990's was 58 to 70 GWH, 46 to 58 GWH, 35 to 57 GWH, and 30 to 42 GWH respectively. While the estimated annual generation from Nandipur Hydropower station is 97.4 GWH which shows the impact of scarcity of water supply on power generation, that varied from 32 to 52 percent over the study period (1965-1997).