

THESIS

**INVESTIGATION OF MAL-OPERATION
OF INDIAN RESERVOIRS ON RIVER CHENAB**

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ABSTRACT

This Research study is a hydrological study conducted to ascertain the effects on Pakistan due to temporary stoppage of water in the three Indian Dams constructed/under construction by India upstream of Marala Headworks. The study is based on the available information and data of three Indian hydroelectric projects namely Salal, Baglihar and Dul-Hasti located on river Chenab in Occupied Jammu and Kashmir.

From the available hydrological data of Indian Dams and the Marala Headworks in Pakistan from 1976 to 1997, the minimum, maximum and the 10-daily average inflows have been processed and the year of minimum inflow for each site has been selected. The frequency analysis for lean year inflow has also been made by Gumble distribution technique.

The study has been performed by filling the each reservoir to its full capacity starting from the uppermost reservoir and moving to the downstream reservoir in descending order. The balance flows obtained after temporary stoppage of water at the last reservoir has then been assumed to be the inflow at Marala Headworks. The inflow thus obtained at Marala Headworks after stoppage has been compared with the historical inflow and the number of days during which flow can be denied downstream of the last Indian reservoir and also shortfall in terms of Acre-Feet has been determined for different scenarios.

The analysis of the results of this study reveal that with temporary stoppage of inflows at the three Indian reservoirs (mal-operation), India can cause material damage to Pakistan in terms of total stoppage of water of river Chenab downstream Salal for about 18 to 30 days or a shortfall of water about 228,000 Acre Feet reaching Marala during lean period i.e. period of minimum inflow (December to February). It is also evident from the results that multiple mal-operation can cause severe damage to Pakistan and stoppage/shortfall of water can possibly be extended upto 300,000 Acre Feet.

Keeping in view the above apprehension of stoppage of water by India it is recommended that Marala Head works should be linked with Mangla through a link canal to avert possible threat from India and the available water resources must be utilized efficiently. Besides, Pakistan should also defend vigorously her water rights laid down in the Indus Waters Treaty 1960.

The reason to make this problem a research study to perform a thorough investigation of strongly feared apprehension of stoppage of water by India and to bring this problem as food for thought for future planning and strategies to be adopted to avoid if such situation arises.

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