

**“BALLOKI BARRAGE IN PAKISTAN –
WORLD HERITAGE IRRIGATION STRUCTURE”**

BY

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ABSTRACT

Balloki Barrage is located on River Ravi in Punjab Province of Pakistan. It was commissioned in April 1913. It is located at latitude, 31°-14' North and longitude, 73°-52' East at a distance of 65 km south-west of Lahore. The structure was initially constructed to feed a canal system to irrigate 1.064 million acres CCA of most fertile and productive lands in the districts of Kasur, Pakpattan, Sahiwal, Okara, Vehari, Khanewal, Bahawalpur, Bahawalnagar and Multan in Punjab Province. Presently the structure is feeding water to about 1.67 million acre of Lower Bari Doab Canal (LBDC) command area. Moreover with the construction of B.S.Link in 1960, this structure is further supplying water to 3.06 million acres of land falling in the districts of Pakpattan, Vehari, Multan, Bhawalpur and Bahawalnagar in Southern Punjab.

This structure proved to be a milestone / in the development of irrigated agriculture and bears an exceptional testimony to development of agriculture and increase in food production along with the improvement of economic condition of farmers of the area of Lower Bari Doab. The government waste land was developed in few years after the development of irrigation system.

Although when the structure was constructed on alluvial soil 100 year before, there was very little knowledge of energy dissipation through hydraulic jump but the techniques applied for fixing the parameters of the structure i.e. crest level, downstream floor level etc. are sufficient to cater the energy dissipation through hydraulic jump and the structure is performing well within safe limits even after getting 5 times discharge diversion from upstream of this. This aspect makes it unique in the world. Moreover, the silt entry has been controlled by special arrangement. The structural durability of the barrage is reliable and it is serving at the design pond level of 633 and it can be raised upto RL 633.5 safely. It is estimated that this structure can serve further 100 years safely.

Balloki barrage also have a very pronouncing effect on groundwater development in Lower Bari Doab. The share of groundwater in the supply of irrigation water has risen from 0% at start to 60% at the start of 21st century. Balloki barrage alongwith its LBDC system and B.S. Link canal has an immense effect on agriculture production. It is estimated that about 42.72 million tons of assorted agricultural commodities are annually produced in the LBDC command area, this includes 8.68 million tons of sugarcane and 1636 thousand tons of cotton. Oilseeds and pulses amount to 160 thousand tons. Consequently, contributing a lot in the economy of the country

This grand structure was conceived on broad lines, was planned in a brief space, was designed in a bold manner, and was executed in quick time; comprehensive in extent and great in results. The paper discusses in detail the history, technical features, irrigation benefits, and future prospects of Balloki Barrage.