

Banshidhar Pant (1923–2012)

Banshidhar Pant passed away in Mumbai on 18 November 2012. He was a leading and pioneering researcher who initiated and developed, the technique of photo-elastic model testing of structures, especially hydraulic structures. Born on 25 August 1923, Pant secured his Bachelor's and Master's degree in physics from the University of Allahabad. He went ahead to obtain another Master's degree (M Sc) in civil engineering from the University of Saskatchewan, Canada in 1953 and a Ph D in civil engineering from the University of Poona in 1973.

Pant worked at the Central Water and Power Research Station (CWPRS), Pune, from 1949 to 1956 in the field of experimental stress analysis. In 1956, he was promoted as Assistant Director, Central Water and Power Commission, New Delhi, and later held the position of Deputy Director in-charge of Concrete Dam Design Division. In 1959, he was transferred to CWPRS, Pune and subsequently promoted as the Joint Director and later as the Additional Director. During his tenure, he made immense contributions in the field of structural analysis and design of hydraulic structures and dam instrumentation. During 1972, Calandia, a pressure vessel weighing 80 tonnes and Gantry weighing 120 tonnes were to be transported to Rajasthan Atomic Power Project (RAPP) over a bridge near Kota Barrage. The bridge was designed for a normal load of 40 tonnes of axial load. Pant, examined the problem scientifically and experimentally and observed that if the load of Gantry and Calandia was distributed, the bridge could withstand the same without suffering any damage. Readings were

taken on the bridge with different loads and the deflections were recorded. The results were then extrapolated graphically to confirm that the bridge would not be damaged. Pant and his team personally supervised this operation by standing below the bridge while the load was being transported.



Pant was also associated with most of the major river valley projects designed and constructed in India during the past four decades or more. He specialized in structural analysis and was a pioneer in designing the application of photo-elasticity and finite element methods. Model studies of the first arch dam in India – the Idukki dam – were carried out after photo elastic and plaster of Paris models with strain gauges for various aspects such as strength, dynamic load, stability, etc. Similar studies were also made for several hydropower projects, foundations and structures. Some of the significant research projects undertaken

by Pant are the studies of foundation and galleries at Bhakra dam, Nagarjuna Sagar, Koyna, Chambal, Ghataprabha and Rana Pratap Sagar. His studies on surge tanks for dams on the Sharavathi and Beas proved to be extremely useful and he was awarded a gold medal by the Institution of Engineers for his contributions. The failure of Khadakwasla dam and of the Hoist Chamber at Bhakra gave a new direction to his analytical research approach.

In 1980, Pant joined Water Resources Development Training Centre, University of Roorkee (now Indian Institute of Technology, Roorkee) as a professor (Design) and became the first Khosla Research Fellow. During this tenure, he wrote a book entitled *Structural Behavior of Concrete and Masonry Gravity Dams* (CBI&P publication). During 1987–1990 as a Consultant (Design), Pant was responsible for the completion of a turnkey project for Northern Coalfield Ltd. He also worked as a Member (Design), Dam Safety Review Panel, Government of West Bengal; Member of the Panel of Consultants, Tata Consulting Engineers; Member, Board of Consultants, Koyna Dam and was a part of a number of other committees and boards. Pant has authored more than 100 technical papers and two books. He is survived by his wife, a son and two daughters.

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