



उत्तराखण्ड शासन

IRRIGATION RESEARCH INSTITUTE

(An ISO 9001:2008 Certified Organisation)

ROORKEE – 247667 (UTTARAKHAND)

Activity Profile

Email: info@iriroorkee.com

Website : www.iriroorkee.com



सिंचाई अनुसंधान संस्थान

(आई0एस0ओ 9001 : 2008 प्रमाणित संस्था)

रुड़की -247 667 (उत्तराखण्ड)



THE INSTITUTE

- Initially, established at Lucknow in 1928 for R&D works related to Hydraulic Engineering.
- Mr. Gerald Lacey was the first Research Officer of this station.
- In 1946, station was shifted from Lucknow to Bahadrabad to conduct model studies on large scale.
- In 1954, the institute was established for testing of civil engineering materials and other R&D works in addition to hydraulic model studies.
- The institute is serving as advisory member of several technical committees of BIS, CBI&P, GFCC, IRC, WRD, etc.
- The institute is maintaining a close liaison with CBI&P New Delhi, CBRI Roorkee, IIT Roorkee, NIH Roorkee, SEAKalagarh, WALMI, etc.
- In 2012, institute got ISO 9001:2008 Certificate and opened its own website.



CONSULTANCY AREAS

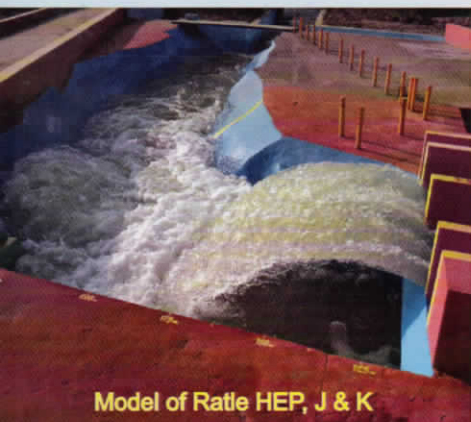
(I) Water Resources R&D Works (II) Testing of Materials

* Water Resources R&D Works

➤ Physical Model Studies -

Different Hydraulic Structures related to :

- River Valley Projects
- Highways (Bridges etc.)
- Irrigation & Drinking Water Projects
- River Training, Flood Protection & Anti Erosion Measures etc.



Model of Ratle HEP, J & K

- **Mathematical Modeling –**
 - Surface and Sub-surface Flow
 - Hydraulic Structures
 - Dam Break Modeling

➤ Reservoir Sedimentation Studies -

- Hydrographic Survey of Reservoirs
- Reservoir Sedimentation and Sediment Transport at intakes, Reservoirs etc.

➤ Ground Water Development Studies -

- Uplift pressure, exit gradient, Depth of cut-off, etc.
- Conjunctive use of subsurface and Surface Water
- Water Logging
- Regeneration/Seepage of Water from perennial river
- Suitability of Canal Linings, Seepage from Canals, Tube Wells
- Preparation of DPR for Artificial Recharge to Groundwater

➤ Basic Research & Development Studies -

- Studies of River Migration and Sinuosity Index using Remote Sensing and GIS Technique
- Discharge Measurement of different rivers

* Testing of Materials

➤ Concrete and its Ingredients (Cement, Aggregate, Water, etc.)

- Physical & Chemical Tests of Concrete
- Physical & Chemical Tests of Cement
- Physical & Chemical Tests of Aggregate
- Physical & Chemical Tests of Water for concrete
- Physical Tests of Admixtures

➤ Concrete Mix Design (with or without Admixture)

➤ Steel - Physical Properties

➤ Soil & Rock - Physical properties & In-situ test

➤ Highway Construction Materials - All type of tests and Job mix Formula



Model of Tehri Dam, Uttarakhand



View of EHDA Laboratory



INFRASTRUCTURE FACILITIES

* Water Resources R&D Works

- **Physical Model Studies**- Hydraulic Research Station, Bahadrabad is located at 18 km Milestone from Roorkee on Delhi-Haridwar Highways and is facilitated with :
 - More than 18 hectares area
 - 6 - 8 cumecs water
 - 4 - 10 m head drop for carrying out physical model studies
- **Reservoir Sedimentation Studies**
 - Lasted fully automatic echo-sounder with GPS
- **Ground Water Development**
 - Well equipped Aquifer Modelling Laboratory
 - Well equipped EHDA Laboratory



Computer User Room

➤ Basic Research & Development Studies

- Computer Centre having more than 15 PCs with different software, Large Size Scanner, Plotter and several types of Printers

* Testing of Materials

- **Testing of Concrete & its Ingredients, Steel & Concrete Mix Design**
 - Well equipped Concrete Laboratory with NDT facility
- **Testing of Soil**
 - Well equipped Soil Laboratory with Field Test facility
- **Testing of Rock**
 - Well equipped Rock Mechanics Laboratory with Field Test facility

OUTSTANDING CONTRIBUTIONS

- Design of "Sharda Type Fall"
- Design of different types of Desilting Chambers
- Well equipped Remote Sensing Laboratory
- Design of Surge Systems
- Drainage arrangement for Diversion Tunnel
- Energy dissipaters for Shaft Spillway
- Criterion for Design of Energy Dissipaters of Different Structures
- Design Criteria for River Training Works
- Estimation of down pull of gates
- Hydraulic design of Intermediate level outlets for high dams
- About 1400 Hydraulic model studies of indigenous and abroad projects
- Preparation of DPR for Artificial Recharge to Groundwater
- Mix Design of High Performance Concrete, Roller Compacted Concrete, Shotcrete, etc.



Soil Laboratory

OTHER ACTIVITIES

- **Observation of Meteorological Data** – Well equipped Meteorological Laboratory is established at HRS, Bahadrabad.
- **Training Programme** – The institute has organised more than 100 Computer and other Training Programme for inservice Engineers, Research Personal and Students.
- **Publications** - Annual Report is issued by the institute. More than 100 Technical Papers based on findings of the different studies have been published in various International and National Seminar, Symposia, Conferences and Workshops.
- **Library** – One Well equipped library at Roorkee with more than 20,000 Technical Books/Manuals/Standard/Guidelines etc. and other at Bahadrabad with more than 3,000 Technical Books/Manuals/Standard/ Guidelines, etc.



Rock Mechanics Laboratory



Material Testing Laboratory



ACHIEVEMENTS & AWARDS

- In 1986 - First "CBI&P Trophy" for Outstanding R&D Works.
- In 1987 - "CBI&P -IRPO-HI-TECH-87".



Research Personnel's Award

- **CBIP** - Pt. Jawahar Lal Birth Centenary Research Award
- **CBIP** - Young Engineers Award
- **CBIP** - Cash Your Idea Award
- **HYDROSEM** - Award of the Institution of Engineers (India) U. P. State Centre
- Gold Medals, Cash Awards,
- Certificate of Merits for Best Research Papers, etc.



Glory of Roorkee Town

- Location - 170 km. milestone on Delhi-Haridwar NH 58
- Latitude - 29°52'00" N
- Longitude - 77°53'52" E
- R.L. - 268.00 m El.



Recognized as Educational and R&D Hub.

- Bengal Engineer Group & Centre
- IRI, Roorkee
- NIH, Roorkee
- Government Workshop, Roorkee
- IIT, Roorkee
- CSIR-CBRI, Roorkee

Opinions of Distinguished Visitors

It was very great pleasure for me to visit and study the very interesting and high scientific level researches carried out in the laboratory.

Prof. Emil Mosonyi
Budapest Tech. University.

Today has been my first opportunity to observe both the model research and the actual construction of large Indian Projects.

Peter Rogers
Harvard University

It was a privilege and pleasure to see this important station.

J W Hliff, Chief (Designs)
USB, Colorado

A very impressive water management project and one that surely has stood the test of time. It must rank among the greatest Irrigation undertakings in the world.

J.F. Kennedy
Chairman, IAHR

Very interesting and useful experiments are in progress. The Director and staff deserves congratulations for their energetic and original approach in solving practical problems.

Dr. K.L. Rao
Union Irrigation Minister

This station needs to be developed as a centre of excellence in hydraulic model studies, particularly in view of the large hydropower potential of the Himalayan region.

A.D. Mohile
Chairman, Central Water Commission

I am very pleased to see further development of the station since my last visit about three years back, very important researches are being carried out, which would lead to efficient and economical hydraulic structures, I wish the staff all success.

D.V. Joglekar
Director, CWPRS, Pune

पूरे देश के लिये यह संस्थान उपयोगी है।

नितीश कुमार
रेल मंत्री

The Institute has excellent facilities and an asset to the Nation.

Prof. Bharat Singh
Former Vice Chancellor, University of Roorkee

1st Indian Train Engine



In India, first train was run on 22nd Dec. 1851 between Roorkee & Piran Kaliyar during the construction of Solani Aqueduct on Upper Ganga Canal

Contact us :

Chief Engineer & Director
Irrigation Research Institute
Roorkee - 247667
Distt. Haridwar (Uttarakhand) India

Phone : +91 - 1332 - 265174
Fax : +91 - 1332 - 262487
Email : info@iriroorkee.com
ce@iriroorkee.com
Website: www.iriroorkee.com

