



अपार शक्तेः स्रोतः गंगेयम्

NEWS LETTER

No. 1, Issue 1, October 2016

Irrigation Department, Uttarakhand

शुभकामना सँदेश/ Messages



न्यूज लेटर के प्रथम अंक के सफल प्रकाशन पर हार्दिक शुभकामनायें।

हरीश रावत
मा० मुख्यमंत्री
उत्तराखण्ड सरकार



न्यूज लेटर के प्रथम अंक के सफल प्रकाशन हेतु सिंचाई विभाग के समस्त अभियंताओं एवं कर्मचारियों को हार्दिक शुभकामनायें।

यशपाल आर्य
मा० सिंचाई मंत्री
उत्तराखण्ड सरकार



I feel extremely happy to know that the Irrigation Department is releasing its first Newsletter. I congratulate the engineers and staff of the department for their efforts in bringing out the first issue and wish them all the best for the future.

Anand Bardhan IAS
Secretary, Irrigation
Govt. of Uttarakhand



It gives me immense pleasure to introduce the first edition of the Quarterly Newsletter of the Irrigation Department, Uttarakhand beginning this year. 'News Letter' will highlight the endeavours being made by the Irrigation Department, Uttarakhand in the development of State. It is endeavour of the newsletter to acquaint its readers with the achievements of the Irrigation Department.

I congratulate the engineers and staff of the department for their efforts and wish them all the best for the future. I am also thankful to the editorial team of the News Letter for their efforts in bringing out the first issue.

Rajendra Chalisgaonkar
Engineer-in-Chief

Irrigation Department, Uttarakhand was carved out from U. P. Irrigation Department on the creation of the new State of Uttarakhand on 9th November 2000. Since then the department has been planning and executing various works related to water, hydropower and other infrastructures. The main works under taken by the department include:

- Providing Irrigation facility to the farmers by Constructing Canals, Lift Canals and Tube Wells
- Conservation and Rain Water Harvesting Structures through Dams, Barrages, Reservoirs etc.
- Safeguard Property and Agricultural Land of People by Constructing Anti erosion/Flood Protection Works
- Research related to Water Resources and Hydropower Structures
- Hydromechanical Constructions for Water Resources and Hydropower Projects
- Imparting Training to Engineers of All Engineering Departments
- Construction of Infrastructure Projects.

Important Works Executed by the Department Recently

Bajnath Barrage, Bagheshwar

47.55 m long Bajnath Barrage, costing Rs. 15.23 Crore was constructed by the Department. A 350 m long reservoir is created on upstream of the barrage.



Khankra Jheel, Rudraprayag

100 m wide Khankra Jheel, costing Rs. 2.8 Crore was constructed by the Department.



Bhimandeshwar Jheel, Dwarahat, Almora

27m wide Bimandeshwar Jheel was constructed by the Department.



Devat Jheel, Pithoragarh



Application of Geo tubes on Kailash River to protect village Bisti in Sitarganj during 2016 monsoon

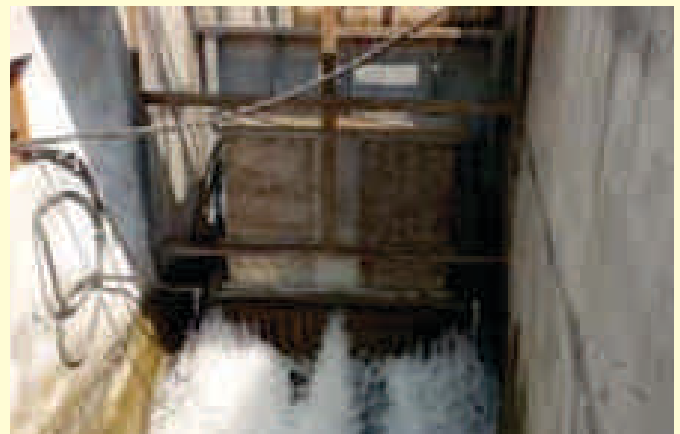


Ultra Low Head Power Stations Recently Installed

As a part of UNIDO Project for promoting ultra low head – micro hydropower technology (ULH – MHP) to increase access to renewable energy for productive uses in rural India, three pilot projects of ultra low head turbines of 10 KW capacity have been installed at Hydraulic Research Station (HRS), Bahadrabad, Katapathar Canal, Ambadi Dehradun, Bahadur Canal Kaladungi, Haldwani by the UNIDO. Electricity generated at HRS, Bahadrabad is being used in the station itself. While at Katapatthar and Haldwani, it is used by the operating societies.



Hydraulic Research Station, Bahadarabad



Katapathar Canal, Ambadi, Dehradun.

Important News from other organisations

Irrigation Research Institute (IRI), Roorkee

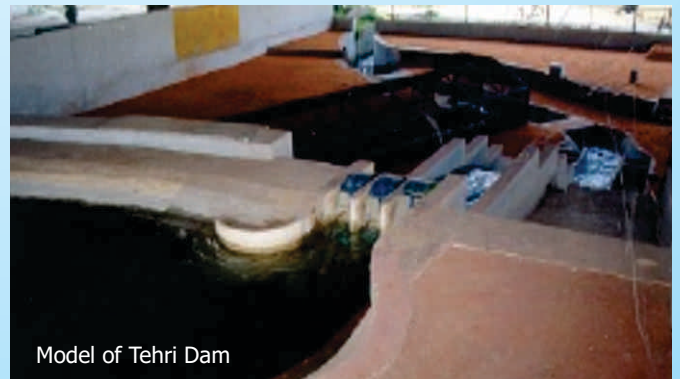
Irrigation Research Institute (IRI) was established to carry out Research and Development work under the aegis of the U. P. Irrigation Department in the year 1928 as a small research unit in Lucknow. The success of this small unit was duly acknowledged and the activities were expanded and shifted to Bahadarabad, Roorkee in 1946. The research unit at Roorkee rose to a full-fledged Institute in 1954. The Institute is presently engaged in:

- Hydraulic Modelling of Water Resources & Hydro-Power Structures
- Capacity of Reservoirs & Sedimentation Studies
- River Training Works
- Geotechnical Investigation of Soils & Rocks
- Testing of Construction Materials for bridge, building, highways etc.

Important National Studies

Tehri Dam, Uttarakhand

Hydraulic model studies for the prestigious 260.5 m high Tehri Hydro Power Project were performed at Hydraulic Research Station (HRS), Bahadrabad for more than 25 years (from 1975



Model of Tehri Dam

to 2003). A comprehensive 3D model representing all type of spillways is still maintained at HRS, Bahadrabad.

Baglihar Dam, J&K

Hydraulic model studies for Baglihar HEP (450 MW), Jammu & Kashmir were conducted at HRS, Bahadrabad. These model studies proved to be very helpful in settling the issues between India & Pakistan because of objections raised by Pakistan. Outcome of the model studies at the station have been appreciated by the neutral expert from World Bank and delegation from Pakistan. Delegation from Pakistan and Neutral Experts from World Bank also visited the Hydraulic Research Station, Bahadrabad.



Model of Baglihar HEP, J&K

INTERNATIONAL STUDIES CONDUCTED RECENTLY BY IRI



**600 MW Upper Mersyangdi HEP,
Nepal**



**Flood sluice spillway of Hassan Dam,
Yemen**



**Nyabarongo HEP,
Rwanda**



**Water Conductor System of Tala HEP,
Bhutan**

Hydraulic Model Studies Completed

- Observing flow behaviour of Kachchh Branch Canal SHP at chainage 20670 m, Gujrat.
- Erach multi-purpose Dam Project, Lalitpur, Uttar Pradesh.
- Spillway of Kanhar Dam Across river Kanhar, Uttar Pradesh.
- Inlet-Outlet of Tehri Pumped Storage Project, Uttarakhand.
- Syphon Aqueduct at km. 23.750 on Rapti Main Canal, Bahraich, U. P.
- New proposal of Syphon Aqueduct at km. 14.600 on Rapti Main Canal, Bahraich, U. P.
- Desilting Chamber of Ramamm III Hydroelectric Project, Darjeeling, West Bengal.
- Barrage and Desilting Chamber of Teesta Hydroelectric Project Stage VI, Sikkim.

Other Studies Completed

- Capacity Survey of Haripura Reservoir, Udham Singh Nagar, Uttarakhand.
- Design of Concrete Mix for
 - Construction of 75 KLD & 150 KLD capacity sewage treatment plant at Devprayag, Uttarakhand.
 - 65m & 45m span RCC bridge at Pithoragarh, Uttarakhand.
- 99 Test Reports related to soil investigations, testing of construction materials for bridge, building, highways etc. were also issued.

Ongoing Hydraulic Model Studies

- Protection works on River Ganga, Ghazipur, Uttar Pradesh.

- Spillway of Kanhar Dam Across River Kanhar, Uttar Pradesh.
- 3 Small Hydro Projects (SHP) proposed at ch. 20670m, 40300m & 40300 m on Kachchh Branch Canal, Gujrat.
- Erach multi-purpose Dam Project Lalitpur, Uttar Pradesh.
- Guiding River flow at Triveni Ghat, Rishikesh, Uttarakhand.
- Earthen Bund over River Ganga, Allahabad, Uttar Pradesh.
- Flood Protection Works from River Ram Ganga, Moradabad, U. P.
- Drainage crossing at km.30.750 Rapti, Uttar Pradesh.
- Siting of rail bridges across river Gowthami, river Vyanatheya & river Vasishtha, Andhra Pradesh.
- Sedimentation and flushing of Spillways in Lata Tapovan Hydroelectric Project, Chamoli, Uttarakhand.
- Rail cum Road Bridge across river Brahmaputra at Bogibil near Dibrugarh, Assam.

Ongoing Other Studies

- IRC Class 'A' Load Test on 44.3m long Aasan River Bridge.
- In-situ (Rock to Rock & Rock to Concrete) Block Shear test at Vyasi Hydroelectric Project, Dehradun.
- 3-D EHDA Model studies for determination of Uplift Pressure and Exit Gradient for Syphon Aqueduct on Rapti Main Canal at km. 43.450, 39.200, 109.570, 115.560, 126.200, 86.800, 86.400, 88.500 and 87.200, Bahraich, U.P.
- Several works related to soil investigations, testing of construction materials for bridge, building, highways etc. are being conducted at different units/ laboratories of IRI, Roorkee

Irrigation Research Institute, Roorkee has been nominated as State Agency for testing of construction materials for bridge, building, highways etc. by the Govt. of Uttarakhand vide Chief Secretary, Uttarakhand State's letter no. 2162/II-2007-13(04)/2003 dated 02.08.07.

Irrigation Design Organisation (IDO), Roorkee

Irrigation Design Organisation, Roorkee (IDO) was established in 1978 for the Design of Multipurpose Hydroelectric Projects in the Ganga and Yamuna Valley in the Himalayas. Hydraulic and Structural designs of various Water Resources and Hydropower Projects like Tehri Hydro-Power Project, Khara Hydrel Scheme, Maneri Bhali Hydrel Scheme Stage II etc. have been carried out in the past. Presently the following projects/studies are being carried out at IDO.

• National Hydrology Project (NHP)

National Hydrology Project (NHP) is a joint project of the World Bank, MoWR, RD & GR, Govt. of India and State Govts. Duration for project is 8 Years (2015-16 to 2023-24) and total cost for the project is 3679.7674 Crores. Budget allocated to Uttarakhand is Rs. 75 Crore. For implementation, Irrigation department is nominated as the nodal agency. Issues to be addressed are flood forecasting,

decision support system for floods, water quality monitoring etc.

• Flood Plain Zoning

Flood Plain Zoning Act has been enacted by the Govt. of Uttarakhand & Uttarakhand state will be the first state to implement the act. IRI Roorkee has been nominated as the liaisoning authority to prepare the flood plain zoning maps of two reaches of River Ganga & River Bhagirathi as pilot projects. Flood plain zoning/ map of both the reaches for a 25 year return period flood has been completed and provided to concerned flood plain zoning authorities, headed by District Magistrates. Transferring of data corresponding to flood plain boundary for a flood of 25 years return period on to the ground is in progress.

• River Morphology

In view of floods of 2013, River Morphology project is conceptualized by Project Implementation Unit (PIU) (TA & CBDRM) under Uttarakhand Disaster Recovery

Project (UDRP). Analysis & design of the project has been executed by the joint venture of DHI (India) & RITES Ltd. For vetting of design proposals, Irrigation Design Organization, Roorkee is proposed as a Nodal agency.

- **State Specific Action Plan (SSAP)**

State Specific Action Plan (SSAP) is a project for water sector governed by MoWR, RD & GR, Govt. of India. In

the first phase 12 states are preparing the SSAP report. It is being prepared by the IRI, Roorkee (Nodal Agency for the Uttarakhand State). A MoU between North Eastern Regional Institute of Water and Land Management (NERIWALM), Tezpur, Assam, a nodal agency on behalf of GoI and IRI Roorkee have been signed. Project cost for SSAP is Rs. 30 Lakh and the project is scheduled to be completed by March 2017.

State Engineers Academy, Roorkee

State Engineers Academy was established at Kalagarh in the year 1980 by Govt. of Uttar Pradesh with the sole objective of providing need based essential training to the newly recruited Assistant Engineers/Junior Engineers as well as promoted Assistant Engineers of Irrigation Department, PWD, RES and several other Engineering departments of State. Academy organizes the following courses:

- Induction Courses
- Foundation Courses
- Refresher courses / Seminars / Symposium

After the creation of State of Uttarakhand, the academy has organized 67 Induction Courses, 47 Foundation Courses and 10 Refresher Courses so far.

Courses organized recently by Academy:

- Foundation course of three months duration for promoted Assistant Engineers of Irrigation Department from 14.10.2015 to 21.01.2016.
- Induction course of four and half month's duration for Fresh Assistant Engineers of Irrigation Department from

02.05.2016 to 20.09.2016.

- 15 days Training Programme on Canal Laws for in-service Executive Engineers of the Department was organized at Dehradun from 06.06.2016 to 24.06.2016.
- Short term training course for Assistant Engineers and Junior Engineers of Uttarakhand Urban Sector Development Investment Programme Unit (UUSDIP) regarding water supply & sewerage system, roads, quality control, project and personal management was organized by the State Engineers Academy at Sinchai Bhawan, Yamuna Colony, Dehradun from 08.08.2016 to 12.08.2016.

Courses proposed in future:

- Induction course of four and half months duration for Fresh Assistant Engineers of Irrigation Department from 15.11.2016 to 31.03.2017.
- 15days Training Programme on Canal Laws for in-service Executive Engineers & Ziledars of Irrigation Department at Haldwani from 18.11.2016 to 02.12.2016.

Government Irrigation Workshop, Roorkee

Govt. Irrigation workshop, Roorkee incepted in 1843 during construction of Upper Ganga Canal by Sir Proby Cautley, the largest artificial stream in the world at that time. It also served as Army workshop during war in 1903. The Workshop was handed over to U.P. Irrigation Department in 1953 and in 2000 to Uttarakhand Irrigation Department. Since then many prestigious works for fabrication and erection of Hydro-Mechanical equipment have been successfully completed for various important Irrigation and Power Projects.

Works Completed Recently

- Design, Fabrication, Erection and Testing of International Hydro Turbine Lab at AHEC, IIT, Roorkee
 - Capacity 100 – 300 KW Kaplan & Francis Turbine upto 100m head
 - First independent lab of India for testing of Turbines.
- Uttarakhand Irrigation Department
 - ❖ Gates of Kosi Barrage, Almora (5 No. @ 9.25m X 8.30 m)
 - ❖ Gates of Baijnath Barrage, Bageshwar (6 No. @ 6m X 4 m)
 - ❖ Pathri Row Regulator, Haridwar (3 No. @ 5.8 m X 3.5 m)
 - ❖ Sitarganj Head Regulator Gates, Begul River
- H. P. G. C. Ltd.(Haryana Govt.), Bhurkalan
- BBMB Kotla Power House



Pathri Row Regulator, Haridwar



Sitarganj Head Regulator Gates, Begul River

ARDH KUMBH 2016

One Permanent Bridge, **SHIV DHANUSH BRIDGE**, spanning 134m and Three Temporary Steel Bridges, Spans 225 m, 145 m & 137 m were fabricated and erected by the Irrigation Department at Har-ki-Pairi, Haridwar to facilitate movement of Pilgrims during the Ardh Kumbh 2016.

Aerial View of Har-Ki-Pairi, Haridwar



134m Shiv Dhanush Steel Bridge, Haridwar



34m Janki Bridge, from Malviya Dweep to Subhash Ghat was also constructed at Har-ki-Pairi during the Ardh Kumbh 2016.



IRI, Roorkee was nominated as a 'Third Party Agency' for "Quality Control Assurance Works" of construction works proposed for Ardh-Kumbh 2016 at Haridwar by Govt. of Uttarakhand. A dedicated team of engineers and Research Personal covered more than 100 sites by more than 1000 visits to conduct nearly 6000 tests for quality control during construction of bridges, culverts, roads etc. for Public Works Department, Haridwar Roorkee Development Authority, Uttarakhand Jal Sansthan, Uttarakhand Pey Jal Nigam, Tourism Department, Local bodies of Haridwar, Rishikesh & Tehri.

Ongoing Works

- Complete design & construction of Proposed SHP (1x500 kw) at Kosi Barrage, Almora
- Signature Pedestrian Bridge at Cross Regulator, Haridwar
- Sill Beam overhauling at Bhimgoda Barrage, U.P. Irrigation
- Draft Tube Gate / F.C. Gate overhauling of Chibro P.H. & Maneri Dam.

Events Organised

- A series of training programme on *Computer Basic and Internet* were organized for officers and research personnel of Irrigation Research Institute, Roorkee at computer centre IRI from 04.04.2016 to 08.04.2016, 11.04.2016 to 15.04.2016 and 16.06.2016 to 21.06.2016.
- One day workshop on *Flood Plain Zoning* was organised on 2nd August, 2016 at Sinchai Bhawan, Dehradun.



- State Level Workshop on *Collaborative Modelling for Uttarakhand under Strategic Planning for Ganga River Basin Project*, sponsored by Ministry of Water Resources, River Development and Ganga Rejuvenation was held on 8th - 9th September 2016 at Sinchai Bhawan, Dehradun, to discuss the state specific issues/ concerns, and working on modelling activities. Departments of Urban and Rural Development, Irrigation, Minor Irrigation, Tourism, Health, Pey Jal (Drinking Water), Agriculture, Energy etc. participated in the two day event.
- One day Introductory Workshop on *Selection and Installation of Instruments related to weather forecasting under National Hydrology Project* was organised on 27th Sep. 2016 by Irrigation Research Institute, Roorkee for senior & middle level officers of the department.



Workshop /Training /Programmes Attended

- 203 Nos. Diploma/ B.Tech students of different educational Institute got vocational training at Hydraulic Research Station, Bahadradab and IRI, Roorkee.
- Er. Pratibha Shankar Sant, Assistant Engineer attended the “National conference on Water Resources and Hydro Power” at University of Petroleum & Energy Studies, Dehradun (17-18 June, 2016).
- Er. Ajay Kumar, Executive Engineer and Er. B.K. Pandey, Executive Engineer attended the “*National Workshop on Awareness Building of ULH MHP & other innovative Micro Hydro technologies in India*” organized by UNIDO & Graphic Era University, Dehradun on 24-25 June, 2016.
- Sri Anubhav Nautiyal and Sri Manish Shankar Sant, Assistant Engineers, attended following training / programme in connection to National Hydrology Project:
 - Hydro-meteorological network design and installation at Kolkata from 06.04.2015 to 11.04.2015.
 - Training program on introduction to HEC RAS based modelling at IIT Roorkee from 01.06.2016 to 05.06.2015.
 - Course on River Basin Planning using HEC - RAS software under NHP from 11.07.2016 to 16.07.2016 & 05.09.2016 to 10.09.2016.
- Sri L. K. Sharma, Superintending Engineer, Sri M. K. Khare, Executive Engineer, Sri Anubhav Nautiyal and Sri Manish Shankar Sant, Assistant Engineers attended meeting for “World Bank Review Mission regarding National Hydrology Project” at New Delhi on 03.08.2016.
- Sri Sumit Malwal and Sri Deepak Joshi, Assistant Engineers attended “Inception course on State Specific Action Plan For Water Sector” at NERIWALM, Tejpur, Assam on 03.06.2016



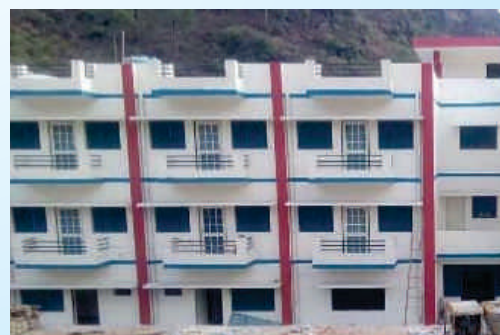
Paper Published/Lecture Delivered

- Sri Rajendra Chalisgaonkar, EinC delivered a Lecture on 12th September 2016 in an International Training Course on Diversion Structure and Dam Design of Hydropower Projects to Druk Green Power Corporation Limited, Bhutan organized by IIT Roorkee.
- Paper titled **Estimation of Scour Depth in Upper Himalayan Rivers** authored by Pratibha S. Sant, Manish S. Sant and Rajendra Chalisgaonkar was published in the National Conference on Water Resources and Hydropower, organised by University of Petroleum & Energy Studies, Dehradun on 17-18 June 2016.

Girls Hostel under Deposit Works Executed Recently



Kaushal, Thauldar, 185.85 Lac



Tuini, Dehradun 186.11 Lac



Kalsi, Dehradun, 175.9 Lac



Bandiwala, Haridwar 176.05 Lac

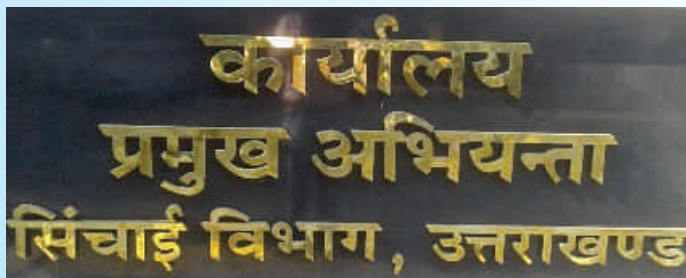
Forthcoming Events

- *Foundation Day Celebration* of Irrigation Research Institute, Roorkee in November 2016.
- One Day Workshop on **Problems of Non-Glacier fed Rivers and their Rejuvenation Strategy & Digital Mapping of Streams/Rivers using GIS** at Dehradun on 10th November 2016.
- 29th Meeting of Technical Advisory Committee for Anti-erosion and Flood Protection Works on 11th November 2016 at Dehradun.
- Training Course on Canal Law for Executive Engineers and Zileedars from 18 Nov. 2016 to 30 Nov. 2016 to be organized at Haldwani.

Restructuring of the Department

Following Cadre Structure of the Department was sanctioned by the Govt. of Uttarakhand on Sep 5, 2016:

Engineer-in-Chief	01
Chief Engineer Level-1	01
Chief Engineer Level-2 (Civil)	06
Chief Engineer Level-2 (Mech)	01
Superintending Engineer (Civil)	25
Superintending Engineer (Mech.)	05
Executive Engineer (Civil)	79
Executive Engineer (Mech.)	13
Research Officer	06
Assistant Engineer (Civil)	356
Assistant Engineer (Mech.)	53
Assistant Research Officer	18
Junior Engineer (Civil)	906
Junior Engineer (Mech.)	150



Office of Chief Engineer and Head of Irrigation Department has been elevated to Office of **Engineer-in-Chief** from 5th September 2016 and **Er. Rajendra Chalisgaonkar** has taken over as the 1st **Engineer-in-Chief**, Irrigation Department, Uttarakhand.

Chief Engineers posted after Cadre Restructuring:

- Sri D. C. Singh**, Chief Engineer Level-1, Haldwani.
- Sri Ajay Verma**, Chief Engineer Level-2, Dehradun.
- Sri R. K. Gupta**, Chief Engineer Level-2 (Design) & Director IRI, Roorkee.
- Sri D. K. Pachauri**, Chief Engineer Level-2, Shrinagar.
- Sri N. K. Sharma**, Chief Engineer Level-2, & Director, State Engineers Academy, Roorkee
- Sri L. K. Sharma**, Chief Engineer Level-2, Almora
- Sri R. K. Gupta**, Chief Engineer Level-2, Haridwar (Additional Charge)
- Sri N. K. Sharma**, Chief Engineer Level-2 (Mech.), Dehradun (Additional Charge)

Uttarakhand Water Resources Management and Regulatory Commission

Uttarakhand Water Resources Management and Regulatory Commission has been formed in the State with Secretary, Irrigation, Govt. of Uttarakhand as Chairman of the Commission. Sri V. K. Pant, Chief Engineer Level-2, Irrigation Department has been posted as Secretary, Commission on 7th September, 2016.

Revenue of Rs. 28.17 crore on Account of Water Tax on Electricity Generation has been collected from UJVN Ltd for months of March and April 2016.

Over View – Irrigation Department

- Dams: 3Nos (Tumaria, Haripura & Baur)
- Barrages: 6 Nos (Gola, Dhela, Fika, Almora, Ramnagar, Baijnath)
- Canals: Nos 2891 (1764: Garhwal, 1127: Kumaon)
- Tube Well: Nos 1503 (718: Garhwal, 785: Kumaon)
- Lift Irrigation Canals: Nos 211 (85: Garhwal, 126: Kumaon)
- Flood Protection Works: 946 Nos
- Total Culturable Command Area: 3.645 lakh ha.
- Total Irrigation Potential Created: 4.266 lakh ha.
- Actual Irrigated Land: 3.034 lakh ha.

Works under Execution under various Schemes

- ◆ 5 Water Conservation Projects costing Rs. 10crore
- ◆ 76 Canal Projects costing Rs. 490crore
- ◆ 14 Projects of Tube Wells costing Rs. 138crore
- ◆ 3 Projects of Lift Canals of about Rs. 8crore
- ◆ 155 Flood Protection Works costing Rs. 1117crore
- ◆ School Buildings & other Infrastructure Projects worth Rs. 100crore

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