



HYDROLOGY PROJECT-II

NEWSLETTER

जल Water

जल जीवन की अमृत धारा
संरक्षण कर्तव्य हमारा

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Message from the Project Coordinator

Dear friends and colleagues,

This is the third Newsletter that we are publishing under HP-II. The year 2010 is behind us and we have had a reasonably satisfying year. As we step into the New Year, let me take this opportunity to wish all of you a very happy New Year!

The World Bank reviewed the progress for a week from November 30 to December 7, 2010 and in a departure from the convention of holding meetings only in Delhi, this time a part of the review meeting was held in Hyderabad with the Water Resources Department of Andhra Pradesh playing the role of the host. In my opinion this gesture is a demonstration of the increased interest shown by the States in the Hydrology Project. Mission wrap-up meeting held on December 7, 2010 in Delhi has a clear message for us to step on the gas and accelerate the implementation of the progress. The findings of the Mission are summarized in the inside pages. With only about eighteen months of the project ahead of us, I urge all of you to place an increased emphasis on the three key aspects of project implementation i.e. procurement, training and awareness raising and ensure that we walk down path with our heads held high.

The official launching of the website on Water Resources Information System-WRIS (www.india-wris.nrsc.gov.in) is the manifestation of a confident step forward in the direction of placing all water resource related information in the public domain. The output of the Hydrology Project i.e. Hydrology Information System (HIS) becomes a stable foundation on which WRIS will be built. Consequently, we will be called in more often than in the past, to liaise closely with the Ministry at the national level so as to build a strong linkage between HIS and WRIS.

I am confident that together we can stand up to this challenge and make WRIS a truly meaningful data management system for improved water resource planning and management at the national level as well as at individual agency levels.

Once again, I wish all of you a Very Happy New Year and let 2011 be even more productive than the year that has gone by.

I also take this opportunity to wish good bye to all of you as I sign off from active service.

Narender Kumar
Project Coordinator, HP-II & Commissioner (B&B),
MoWR

Warm Welcome

We take this opportunity to extend hearty welcome to Shri Dhruv Vijai Singh, IAS and Shri G Mohan Kumar, IAS for taking over charge as Secretary and Additional Secretary respectively in the Ministry of Water Resources. In the remaining period of the Project, we are looking forward to the guidance and support of the two senior administrators to enable us to achieve Project Development Objectives.

Connecting to the 'Unconnected'

In the year that is just gone by i.e. 2010, the Ground Water Department of Andhra Pradesh had organized a series of HIS awareness workshops in many districts across the state. While the technical backstopping for these workshops was provided by the department, the logistics and user connectivity were anchored by local NGOs. In an informal conversation with TAMC representatives, **B.M. Muralikrishna Rao, Director**, who gave leadership to this initiative and **Mr. Rakesh Chander**, who led it from the front, narrate their experiences of conducting these workshops and how the department established connections with the hitherto unconnected stakeholders.

Please tell us who were the target groups of your HIS awareness activities and how did you go about it?

In India decisions about the use of groundwater are completely in the



hands of individuals or families who own the land. Andhra Pradesh is no exception to it. However, in the larger sense, it is a community resource. Therefore, its sustainable management requires collaboration amongst various users. Most ground water users in Andhra Pradesh are semi-literate and illiterate farmers and HIS in its pure technical form makes little sense to them. Therefore, we decided not to 'over expose' them to the technicalities of HIS. Instead, we decided to focus on ground water use and the relevance of HIS to water use and water conservation measures.

As a part of the awareness raising activity we organized workshops on groundwater availability, management, conservation of water resources and water quality in close participation with the farming community. The activities were basically focused on rural areas with

particular reference to over exploited regions.

Who were all involved in the awareness activities?

This was a major challenge for us. Since our work is technical in nature, our bandwidth to connect to farmers of all categories is restricted.



Therefore, we chose to work in close coordination with outreach departments such as agriculture, horticulture, irrigation, rural development and rural water supply. We also involved local politicians extensively. Towards this, initially we held pre-event interactions with the concerned departments in the districts. While the Ground Water Department provided the technical backstopping networking, logistics and other administrative arrangements were anchored by local NGOs.

In this regard, the role played by Mr. Vara Prasad Rao of Nellore district and Mr. Raghavendra Chari of Mahaboob Nagar district is noteworthy. They volunteered to shoulder the responsibilities and ensured smooth conduct of these events. Their inspired involvement in interfacing with various outreach departments, district collectors and NGOs worked as a role model for others.

What did you cover in the events?

The workshops covered a range of issues that farmers find it easy to connect with. The topics included effective utilization of available water resources, value of water audits, promotion of micro irrigation techniques and water recharge structures. How HIS adds value to

these critical aspects of ground water management was also a part of the agenda.

Can you tell us about the methods and tools you used and the number of events conducted?

Again, since most of the clientele belong to the semi-literate and literate farming communities and school children, we used a



mix of methods to generate awareness. We interacted with farmers through Adarsh Rythu (model farmers) Meets, Rythu Chaitanya Yatras (Farmer Awareness Campaigns) and Agricultural Research Station Meetings. The tools ranged from simple presentations, interactive discussions, question and answer sessions, use of colorful exhibits, use of popular folk media such as baladeer (Kalajatha), simple demonstrations (look and learn technique), competitions, interactive discussions etc. Since the commencement of the project in 2006, a total of 170 events in 22 districts have been organized. In 2010 alone we conducted over 15 events. Over 9000 farmers spread over 609 villages have been reached. We also interacted with planners and policy makers using Hydrology Data User Group (HDUG) forums.

Did you use any mass media tools?

Yes, we did use some mass media tools. Andhra Pradesh State Road Transport Corporation has a wide network of buses plying on the rural roads. Since its reach is wide, we decided to use the buses as a good media vehicle to create mass awareness. The messages were designed as catchy slogans in simple Telugu, accompanied by pictorial presentations. In total, 75 Villages were covered under this program including ground water over exploited areas. As we mentioned earlier, we leveraged Kalajathas to spread mass awareness. We have good results with mass media experiments.

Can you enlighten us with the lessons learned?



We have learned a few important lessons. Mass media and folk art should be used only as warm up activities. They can be used to catch more 'eye balls' during presentations and to ensure more 'foot falls' during demonstrations. While using folk media tools, it is important to ensure a strong

interface between subject experts and folk media players of the event, so that there is coherence between the two. Do not use folk media as a vehicle to disseminate complex technical information. There is an inherent disconnection between the very purpose of the folk media and the complex technical information. We have to make conscious effort to avoid overloading participants with information. Information overload creates quick fatigue as it loses the focus. ■

Quality Assurance of Hydrological Data

Quality assurance of HIS Data has been receiving increased attention by all agencies. To ensure high quality data flow, it is critical that data acquisition and processing methods are observed meticulously as per the laid down standards. With a view to understand this, TAMC consultants visited two states and undertook a review of the quality assurance systems in November 2010. They identified key operational bottlenecks and recommended some management practices that need to be put in place. The review included discussions, visit to section, sub-division and division offices and observations of data transfer methods.

Recommendations included the following simple and 'easy to implement' management actions.

- Pilot testing of quality assurance data format for 10 to 15 randomly selected gauging sites.
- A user conference to be organised for Surface Water Data Entry System(SWDES) together with CWC and steps should be taken to remove the bugs in the software
- TAMC to extend help in carrying out a survey of the defunct equipment and see what can be commissioned with minor repairs and to train the staff in its use and maintenance.
- All equipment procured, to include the AMC for ten years. This should be a pre-requisite to procurement
- TAMC to help in setting up pre-qualification barriers for suppliers of equipment so as to prevent entry of unqualified suppliers.

Transformation of Hydrology Information System (HIS) to Hydrology Information Network (HIN): Karnataka makes the concept work

We reported in the April to August 2010 Newsletter, how Maharashtra and Gujarat pioneered HIS awareness raising activities. It was the time of the west. This quarter we turn to south and report HIS awareness raising activities carried out by Andhra Pradesh Ground Water Department and Karnataka Surface Water, in two separate articles. We hope that now the enthusiasm spreads northwards and the southern and western states meet their match in the north. We look forward to an opportunity to report on the progress in the northern states next quarter.



Inspired by the idea of conducting the first HIS awareness workshop in Bangalore, the Chief Engineer (HP) convened a meeting of key project staff and some Chief Engineers of the Water Resources Department in May 2010. Not many staff from the line departments was enthusiastic as much he was and it looked as though he has lost the battle even before it began. Many had asserted “Data dissemination is tricky issue because of inter-state complexities and political sensitivities. What purpose will the workshop serve?” But it did not work as a dampener for him and he fought the battle solo. His persistence eventually resulted in conducting a one-day workshop that included presentations and discussions on Decision Support System(DSS) outputs. The turnout of participants beat the expectations of every one as over 120 representatives from within the department and outside, universities, consulting organizations and NGOs attended the workshop.

The presentation and discussions covered general HIS issues, user connectivity, availability of both surface water and ground water data sets, potential value adds of HIS to natural disaster monitoring committee work, role of GIS in water resource management, DSS models for



Karnataka, HIS in relation to water quality in Bangalore and drinking water supply and sustenance of sources. In the open session towards the end of the workshop some participants raised their concerns about duplication of work and put forward ideas on how to strengthen networking between departments so that HIS truly adds value to water resource management. Because of the huge potential for networking and achieving synergy in hydrology data processing in the state, one creative thought that was floated in the workshop was HIS (Hydrology Information System) to derive greater mileage by its transformation to HIN (Hydrology Information Network). A typical example cited was possible data

networking with the Karnataka Natural Disaster Monitoring Committee (KSNDMC), because they have installed telemetric rain gauge network in over 600 blocks and plan to expand it further to cover all Gram Panchayats. HIS Data Centre can share hydrology data with them, which will make it a classic example of 'win-win' situation.

This suggestion if taken forward will result in further strengthening of user connectivity. In the coming days, we look forward to hear more on this. Good luck for Karnataka Network! If you can make it work, it is likely to tick. ■

Purpose Driven Studies (PDS) under HP-II

Purpose Driven Studies (PDS) are the corner stone of on-going Hydrology Project-II. A total of forty one PDS have been taken up under Surface Water and Ground Water domains across fourteen Implementing Agencies(IAs) and some of them have been fast tracked in the recent months. These studies provide an excellent opportunity for IAs to share experiences and initiate cross learning.

A two-day workshop on PDS was held in Delhi on October 20 and 21, 2010 by PCS and the Principal Investigators of all the studies were invited to present the status and discuss the progress made. The workshop was intended to **i)** review the progress of all approved PDS undertaken **ii)** conduct technical review of all the results obtained till date and discuss the future work plans **iii)** establish a framework for future monitoring of PDS and identify areas of assistance required from TAMC and PCS.

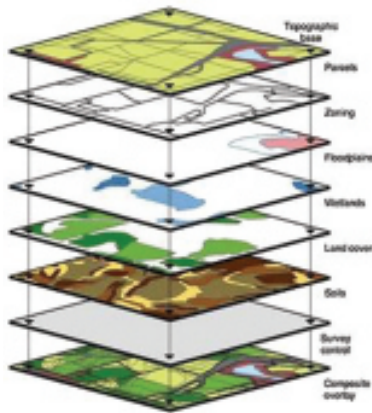
It was observed in general that good progress has been made on many PDS, with important results emerging. Some of those which are held up with procurement problems are being resolved with active assistance from TAMC and PCS. ■

CGWB pitches in to raise HIS Awareness

To spread the awareness among the stakeholders on ground water availability and management of resources, CGWB has planned six awareness raising programs. As a part of this plan, a one-day awareness raising program was organised at Goa Science Centre, Panjim by Bangalore Regional Office on October 20, 2010. The theme of the program was “Water Use and Quality Criteria with special reference to Goa”. The participants from central and state government agencies, NGOs, farmer groups, students from universities and professionals from industries participated in the event.

Geographic Information Systems (GIS) within Water Resource Management (WRM)

Geographic Information Systems or Geospatial Information Systems is a set of tools that captures, stores, analyzes, manages, and presents data that are linked to locations. Therefore, in the simplest terms, GIS is the merging of cartography, statistical analysis, and database in a form which can be more readily visualized and appreciated.

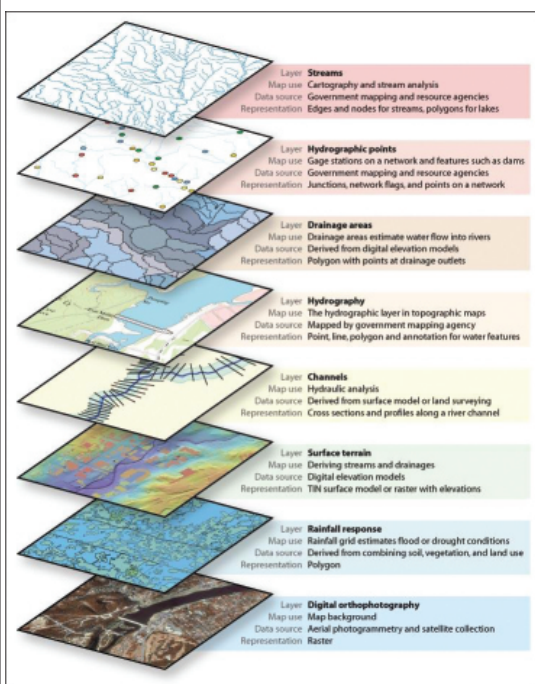


As GIS can be thought of as a system, it digitally creates and "manipulates" spatial information that may be jurisdictional, purpose or application oriented for which the GIS has been developed.

Within the Hydrology Project GIS is being used to assist in WRM by enabling each of the HPII State Implementing Agencies to place rivers, reservoirs and ground water resources within a geospatial context. The initial steps of the collection and referencing State information has progressed well with most States having a GIS data base which includes the most essential data layers for WRM. These layers include Geology, Soils, land parcels and hydrological features.

Within each state there are a variety of fixed and mobile systems which form part of the hydrological monitoring system. These include metrological (weather) stations, river gauging stations, groundwater piezometers (groundwater level and quality monitoring boreholes) and surface water quality monitoring sites. Previously these sites would have been physically mapped in a 2D format which only located the site and these the relative data from each site would be stored and manipulated by the relevant departments.

Under HPII the aim is to develop an integrated 3D system in which the sites and the data are linked through a GIS.



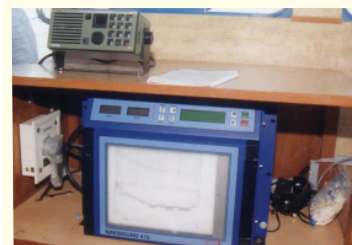
In conjunction the development of a Decisions Support System (DSS) will also capture the data from multiple interlinked hydrographical basins to enable complex cause and effect models to be developed to support the annual and seasonal planning requirements of each department. The integration of site, data and decision process will facilitate the long-term sustainable use and management of water resources within India.

Getting Tech Savvy: Reservoir Sedimentation Survey

Reservoirs are national assets required for economic development. Creating reservoirs involves large investments. Such reservoirs continue to give economic benefits as envisaged at the planning stage. Sedimentation in the reservoir is of great concern for water management as it gradually reduces the reservoir capacity. Monitoring of the economic life of reservoir is undertaken by conducting sedimentation surveys at regular intervals because silting up of reservoirs is a continuous problem. This is not an easy task because the phenomenon of sedimentation in itself is very complex, owing to varying sizes of sediments and modes of their distribution, and it is difficult to evaluate the life time of reservoirs from general criteria. However, the task cannot be avoided because a realistic estimation of the sediment deposition pattern in reservoirs is important in estimating the available water resources.



The sedimentation committee of Central Water Commission(CWC) recommends that the capacity of reservoirs to be estimated at intervals of five years, using hydrographic survey with automated data collection systems, comprising computers, data acquisition software, Global Positioning System and Echo-sounder. This system is superior to a conventional hydrographic survey, which is laborious and time consuming with poor accuracy record.



Under the Hydrology Project the procurement of an Integrated Bathymetric Survey (IBS) System has been made by all the participating states.

This State-of-the-art equipment will be very useful in conducting the sedimentation surveys of the reservoirs. The IBS system can measure the sedimentation at various locations in the reservoir area, analyze the measured data and estimate the area and capacity of the reservoir for different reservoir levels. The system allows a faster data acquisition with better accuracy than any previous hydrographic survey technique. Other advantages are its ability to achieve centimeter accuracy and to efficiently collect a large volume of data. Thus, this type of equipment will be very useful for better management of the reservoirs of the country.

In this connection it is worthwhile to mention that under phase II of Hydrology Project, Andhra Pradesh and Odisha are contemplating to organize reservoir sedimentation surveys of the reservoirs in their states as Purpose Driven Study (PDS).

The purpose of this PDS would be:

- Estimation of capacity survey of the reservoirs.
- Integrated watershed management.
- Allocation of funds at regular intervals by the State Government for reservoir surveys and related research activities (watershed management)
- Periodic in-service training and refresher courses to the engineers in charge of the reservoirs.

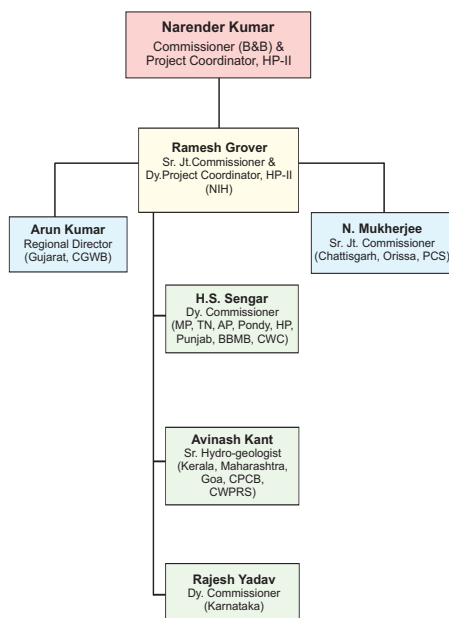


International Workshop on Ground Water Protection: India, the EU and the World Bank share issues and identify solutions

An international workshop on ground water management, held in India Habitat Centre in New Delhi on 14 and 15 September, 2010 was jointly organised by the EU-India Action Plan Support Facility and the Hydrology Project, funded by the World Bank. Introductory speakers were Mr. Hem Pande, Joint Secretary, Ministry of Environment and Forests, Mr Robert Donkers, Minister Counselor Environment of the Delegation of the European Union to India, Prof. S.P. Gautam, Chairman of the Central Pollution Control Board, Mr. Sushil Gupta, Member, Central Ground Water Board, and Ms Anju Gaur from the World Bank. All of them emphasised the importance of water in general, and raised common issues of ground water depletion and pollution in both Europe and India. ■

Project Coordination Secretariat

In the past quarter, some changes have taken place in the Project Coordination Secretariat (PCS) of HP-II. As a consequence, state-specific responsibilities amongst officers have been re-drawn. Despite the changes, the synergy in the team continues to remain vibrant, living up to the famous saying, “Change is the law of life. And those who look only to the past or present are certain to miss the future”.



Sharpening the Axe: Overseas Study Tours and Trainings

1. The UK and Egypt (20th to 27th September, 2010)

A delegation comprising following officers from Central and State Agencies visited UK and Egypt under HDA (Surface Water).

- Sh. C.M. Pandit, Chief Engineer (NWA), CWC, Pune.
- Sh. Rajesh Kumar, Chief Engineer (P&D), CWC, New Delhi.
- Sh. Bhopal Singh, Director (Hydrology-S), CWC New Delhi.
- Sh. R.K. Sharma, Engineer-in-Chief, IPH Deptt., Govt. of Himachal Pradesh, Shimla.
- Sh. S.T. Nadkarni, Chief Engineer (WRD), Govt. of Goa, Panji.

The visit to the United Kingdom and Egypt was organized to get apprised of the existing/prevaling international hydrological design practices and to study the feasibility of its implementation to Indian condition(s) both in respect of data requirement, accuracy and time constraint(s) so as to incorporate them in State-of Art during development of HDA-SW.

2. South Africa and Denmark (8th to 12th November, 2010)

A delegation comprising following officers from Central and State Agencies visited South Africa and Denmark under DSS-P.

- Sh. A.K. Bajaj, Chairman, Central Water Commission, New Delhi.
- Sh. Sushil Gupta, Member (SAM), Central Ground Water Board, Faridabad.
- Dr. Rakesh Kumar, Scientist 'F', National Institute of Hydrology, Roorkee.
- Sh. Ramesh Grover, Sr. Joint Commissioner, PCS, MoWR, New Delhi
- Mrs. P. Lathika, Chief Engineer (WRD), Govt. of Kerala, Thiruvananthapuram.

The visit to South Africa and Denmark was organized to get apprised of the advanced planning and management of scarce water resources using decision support systems developed by DHI, Denmark.

3. Denmark, Slovenia and France (22nd to 28th October, 2010)

A delegation comprising following officers from BBMB visited Denmark, Slovenia and France under DSS-RT.

- M.L. Gupta, Director (HP-II), BBMB, Chandigarh.
- Sh. R.K. Garg, Director (Water Regulation), BBMB, Nangal.

The visit to Denmark, Slovenia and France was organized as a part of the capacity building programme for BBMB and to have an overview of the available technologies and state-of-the-art solutions to water resources management and multi-purpose reservoir management.

4. Overseas Trainings

Two over-seas training courses on DSS-P and one on DSS-RT have been organized at DHI, Denmark under HP-II.

- DSS (P): The first training course comprising Nine officers from State Implementing Agencies and one officer from CPCB was conducted during 2nd August to 10th September, 2010. The second training course took place during 25th October to 12th November, 2010. Following officers from NIH attended the training course; Dr. D.S. Rathore, Scientist E2; Dr. M.K. Goel, Scientist E2; Dr. A.K. Lohani, Scientist E1; Dr. Vijay Kumar, Scientist E1; Dr. R.P. Pandey, Scientist E1; Dr. Surjeet Singh, Scientist C and Dr. Sanjay Kumar, Scientist C.
- DSS (RT): The course on “Decision Support System-Real Time” was held during 13th September to 22nd October, 2010. Following officers from BBMB attended the training: S/Sh. Rajeev Bansal, Executive Engineer; Arvind Sharma, Executive Engineer; Anil Vyas, ADE; G.S. Virk, ADE; Anil Dhawan, ADE; Maanek Ahlawat, ADE; J P Singh, ADE and Bhuvnesh Nauhria, Dy. Secretary (Power).

Software Systems being developed under HP-II

A cornerstone of the Hydrology Project is the software developed for data storage, validation and dissemination. We are seeking to update the software delivered under HP-I in a number of ways. Brief information is given below.

SURFACE WATER DATA

Surface Water Data Entry System (SWDES) is working very well – so there is no intention to make significant changes to this and it is expected basic data entry will continue to be through SWDES for rainfall and gauge-discharge data. Some updates to SWDES are being considered to improve its versatility.

For data storage completely new and simpler Water Information System and Data Online Management (WISDOM-DS) software is planned – a new database system for storage of water level, flow, rainfall and climate data. It is expected that each State will have a single copy of the database system for their data centres, and it will have flexible data uploading for transfer of data from data retrieval systems, SWDES and other data sources.

Hydrology Management Operational System (HYMOS) is no longer supported by its authors, so this software will be phased out. Some of its functionality will be built into SWDES, some into the new WISDOM-DS and some will be built into the Hydrological Design Aids (HDA-see below).

Terms of reference for the development of the WISDOM-DS software have been developed, and the bids for writing the software are expected to be invited in early 2011. There is a 12 month schedule for delivery of the software.

GROUND WATER DATA

Ground water data will be processed by a new version of Ground Water Estimation and Management System (GEMS) – called eGEMS. This will be web-based, and designed to include a data entry system that will run on-line and have a capability of off-line data entry. The “feel” and capability of the software is similar to GEMS software. The hardware will be centrally located at CGWB facilities, and the data system will be accessed through the internet. Simple desktop computers will be used to upload and download data, and run applications to analyze the data held on the central servers of CGWB. All existing data will be uploaded to the new system by the suppliers of the system.

The contract for developing eGEMS is due to go out for detailed proposals early in 2011. Development and installation of the software will take 12 months.

SURFACE WATER HYDROLOGICAL DESIGN AIDS

The development of the “HDA” has reached the stage where the Consultant is preparing Inception reports, containing detailed work plans for the implementation of the HDA. No details are yet available concerning the hardware requirements for the HDA, or how the software will be presented. The State of the Art report for the HDA is available on the project web-site (www.hydrology-project.gov.in)

Honing the skills of Master Trainers

Training is one of the most critical components of HP-II. As a part of their responsibilities, Nodal Officers, HIS Managers and other Senior Officers involved in HP- II are required to design and deliver training sessions to upgrade the skills of HIS staff. They are required to perform as Master Trainers within their respective agencies and expected to provide leadership to training initiatives. With the increased sophistication of HIS tools and the need to directly manage the performance of skilled staff, high degree of managerial competence has become an integral part of their job responsibilities. Therefore, a five day training program titled 'Train the Trainers (T3)' was conducted in the National Water Academy (NWA) from September 27 to October 1, 2010. The workshop was jointly organized by NWA and TAMC.

The objectives of the training workshops were multiple that included understanding adult learning principles, assessing primary and secondary areas of trainer self-development, applying the knowledge and skills required to design, develop and deliver training programs, self assessment of managerial styles and



applying required skills to promote improved performance.

A total of 19 participants representing Andhra Pradesh (GW & SW), Chhattisgarh (GW & SW), Karnataka (GW & SW), Kerala (GW), Maharashtra (SW), Tamil Nadu and Gujarat and the Central Water Commission attended the workshop. The feedback from the participants has been excellent. It is hoped that in the New Year this training will help the Master Trainers to initiate agency-specific HIS training programs in a big way.

“We have benefitted a lot from this program, both personally and professionally. Thanks to NWA and TAMC”

Participant from Andhra Pradesh

“Learning never stops. I gained new insights that adults learn differently. I will try to adopt this principle in our training programs”

Participant from Gujarat

National Institute of Hydrology (NIH) organized a three day training course on Hydrological Investigations for Conservation and Management of Lakes from March 1 to 3, 2011 at Roorkee. The target group was **i)** field engineers **ii)** in-service officers **iii)** scientists and **iv)** NGOs. The objectives of the course were to:

- Impart knowledge on various hydrological process in the lake
- Acquaint participants with the latest approaches for monitoring and investigating lake processes
- To share the experiences of lake research and to develop strategies for lake conservation and management.

For more information on the training course visit their website: www.nih.ernet.in

Third National Ground Water Awards

Central Ground Water Board organized the third National Ground Water Congress and World Water Day 2011 at NASC Complex, ICAR, New Delhi on March 22 and 23, 2011. The event was inaugurated by Shri Salman Khurshid, Hon'ble Union Minister of Water Resources & Minority Affairs. Shri Vincent H. Pala, Hon'ble Minister of State for Water Resources & Minority Affairs, Prof. M.S. Swaminathan, Hon'ble M.P, Shri D.V.Singh, Secretary, Ministry of Water Resources and eminent Scientists and dignitaries attended the program. The Union Minister of Water Resources & Minority Affairs released the volumes i) Collection of National/State/UT level Painting Competition on Water Conservation ii) Technical paper on water for cities responding to the urban challenges iii) Ground Water scenario in major cities of India and iv) Coastal Aquifer Systems of India. He also presented National Water Award and other ground water related Awards. More than 400 representatives from various Central/State Govt.

organizations, NGO's/academic institutions participated. Shri G. Mohan Kumar, Additional Secretary(WR), Shri Sudhir Garg, Joint Secretary(WR) and officers from MOWR and CGWB also participated in the event. Valedictory address was delivered by Shri Vincent H. Pala, Hon'ble Minister of State for Water Resources & Minority Affairs.

Following institutions and individuals were honored with awards:

National Award

East Zone: Jagaballa Micro Watershed Association, Village Ainalatunga & Baghbahri, Odisha

Ground Water Augmentation Award

North Zone: S.M.Sahgal Foundation, Gurgaon, Haryana

South Zone: Outreach, Association of Volunteers for Rural Development, Bangalore, Karnataka

West Zone: Sarvodaya Seva Sangh, Vankaner, Rajkot, Gujarat

North-East Zone: Rural Resources & Training Centre (RRTC), Meghalaya

Gram Panchayat Award

South Zone: Pudessery Grama Panchayat, Palakkad, Kerala

North-East Zone: Nawthawtieng Gram Panchayat, Meghalaya

Central Zone: Gram Panchayat, Chidawad Block, Madhya Pradesh

FPARP Awards

North Zone: Central Soil Salinity Research Institute, Karnal, Haryana

South Zone: Central Research Institute for Dryland Agriculture, Hyderabad

Corporate Award

West Zone: Ambuja Cements Ltd. Ambuja Nagar, Junagarh, Gujarat

Individual Awards/Institutional Awards (Joint Winners)

West Zone: Shri Shyam ji Bhai Jadhav Bhai, Rajkot, Gujarat

Central Zone: Shri Uma Kant Umarao, Watershed Mission, Bhopal

South Zone: Loyala High School Margao, Salcete, Goa ■

Department of Mines and Geology, Karnataka showcases PDS

With the official release of the document titled "Ground Water Hydrology and Ground Water Quality in and around Bangalore City" and the conduct of a state level workshop, the Department of Mines and Geology, Karnataka stands out as a pioneer in showcasing results of the PDS. The state level workshop on PDS was held on March 30, 2011 in Bangalore, in which over 250 delegates participated. Mr. V. Ranganath, Chief Secretary inaugurated the workshop and Mr. D S Satyamurthy, Principal Secretary, WRD presided over the function. Shri P.N. Sreenivasachary Secretary WRD (MI) and Shri. B.S. Ramaprasad, Secretary, Commerce and Industries department were the Guests of Honour. The Chief Guest for the valedictory function was Mr. Yogendra





Managing Director of Karnataka Power Corporation Limited while Mr. H. R. Srinivasa, Director, Department of Mines and Geology presided over. The presence of top level administrators of the WRD lent credibility to the workshop and participation of three administrators from line departments, indicated the establishment of close connections with line departments. This enabled the department to mainstream HIS outputs.

The field investigations and sample collection were logically organized by a team of department officials, led by Dr. G V Hegde, Senior Geologist and Ms. M V Shashirekha, Chief Chemist. Close to 3000 groundwater samples were collected from the city spread over 800 sq.km area. The city was divided into four quadrants and each quadrant was further divided into one sq.km grid. The key findings of the study are:

- The ever increasing demand continues to place strain on the groundwater aquifers in the city.
- Mining of groundwater has reached an alarming situation.
- About 29% of groundwater samples showed nitrate contamination. Deeper bore wells have high TDS and fluoride content. These are attributed to discharge of untreated sewage into natural drainage system.
- Groundwater pollution is primarily because of human activities.
- One redeeming factors is that there is a declining trend in non-potability of water. About 31% of the groundwater is found to be non-potable as against 50% found in the previous study in 2003.



“The study is an example of meticulous logistics, timely analysis, contribution from all”, says Mr. Khuyam Ali, Additional Director of the department.

Two representatives of the groundwater department Andhra Pradesh also actively participated and they shared their 'take away' during the valedictory function. “Bangalore and Hyderabad are birds of the same feather, competing to attain rapid economic growth. While Bangalore takes the cake in IT space, we are the leaders in the pharmaceutical sector. There are some good lessons for us to take home from this study and this exposure will help us in disseminating our results in a more meaningful manner” articulated Dr. Venugopal, Joint Director of the department. ■

Photo Competition

A picture is worth a thousand words”, goes a popular saying. Do you have some eye catching, high resolution HIS photographs in color? We are running a photo competition. The selected photographs will be published in the cover pages of the up-coming Newsletters with credit to the original photographer. The photograph can be related to technology, equipment used in HIS, HIS events, data collection sites, laboratory activities, mesmerizing water scenery etc. Mail your choice of photographs to TAMC. Winning photographs will be awarded attractive prizes.

Farewell

Mr. Narender Kumar, Commissioner (B&B) & Project Coordinator HP-II superannuated from active service on March 31, 2011, after over thirty years of distinguished service. All members of HP fraternity wish him a satisfying retired life. Post-retirement, Mr. Kumar intends to pursue other life goals that are close to his heart.

Childrology

My father works as a 'site in-charge' in a big government department. I live in a small village that shares its border with another state. I was born in 1996 and that makes me a fifteen year old now, with thin moustache line sprouting on my upper lip. I never had a chance to step out of my village and that is why all my cousins call me 'a frog in the well'. Never mind the frog, my croak is all about my father and his big government department.

We have a river that passes through our village. No, the villagers used to call it a river. Now we play foot ball on the river bed. "This is a big river that passes through three states and I am in charge of one site here. I am supposed to measure the flow of water in this river", my father used to tell me proudly.

It was a fine morning and cool breeze was blowing. I wanted to oversleep a bit cozily. "My Big Boss from the head quarters is coming to your school today. Our department is conducting a **Hydrology Information System** awareness campaign. I got your Head Master's permission after a lot of persuasion. Get up and go to the school, did you hear me?" my father barked at me. I hated his order and wanted to tell him "Go and fly a kite" but lacked the courage. I got up quickly, completed the morning rituals rapidly and marched to the school as fast as my two little feet could take. What about my school?. I will tell about it another time. The hero of this story is my father and his pet subject Hydrology is the central theme.

As soon as we finished the morning assembly, the Head Master announced, "We have some big officers from the government

coming today and they will tell us all about the importance of water and Hydrology Information System. Children, you better behave well, while they are here". His expressionless face and the pretentious high pitched voice failed to hide his boredom.

It was around three in the afternoon and we were keenly waiting for our games period. Do you recall the dry river bed doubling up as our play ground, which I mentioned earlier? That is where we normally spend our games period playing football. I am the best footballer in the school. But last week, Chinkoo from Class IX had beaten me and my team. I was churning out thoughts in my mind and trying to figure out how to take revenge on Chinkoo and restore my lost pride, when the announcement came. "All children are instructed to gather in the assembly hall immediately for the HIS Awareness Campaign". It was our school monitor's voice. I wish he was the football. I would have kicked him straight to the goal. Nevertheless, I followed the crowd like a sheep and sat in the last row of benches. An over imposing banner "AWARENESS CAMPAIGN ON HYDROLOGY INFORMATION SYSTEM" was unevenly hung at the main entrance.

"These big government officers, why did they have to encroach upon my games period?" I wondered mutely. Noticing some noise, I raised my half shut eyes and I saw my father carrying a heap of files, following the big officer meekly. "My father is a tiger at home but why he is behaving like a sheep here", I wondered. I joined the standing crowd of children, who all stood up to show respect to the big officer. The manner, in

which everyone stood silently, waiting for a signal from the Head Master to sit, looked more like a moaning ceremony rather than an educational campaign. What began as the drooling sermon by the big officer, Head Master followed by my father, went on for more than two hours. I had clandestinely carried a small note book and a pencil with me and I scribbled all that they said and what I understood. I invite you to take a peek at my impressions.

What they said: Water is life giving. Not all water that is available to us is fresh water. Three sources of water available to mankind i.e. surface water, ground water and rain water. Water is a finite resource. Therefore, children should learn how to conserve water.

What I understood: I do not need all these big people to tell me water is life giving. Even my kid brother knows that. Surface water and ground water, it is all gibberish to me. The water flows in our village drain, is it surface water or ground water? The warm water that springs up during monsoons in the small hillock, is it surface water, ground water or rain water?

What they said: Hydrology is a science that enables us to assess our water resource availability. By measuring rainfall, flow of water in the river, the quantity of ground water stored in the aquifers, we will know how much is available and how much can be extracted. Hydrology Information System is a World Bank funded project that enables us to precisely do that. We have computerized our database and therefore, we are able to tell where to build a dam or where to drill a tube well.

What I understood: What is groundwater aquifer? Sounds like a name of the star up in the sky that our geography teacher told us in Class XII. Never mind, I have forgotten that. What is **World Bank**? It sounds like something BIG. I am sure that it is bigger than the Grameen Bank that has a branch in our village. I hope my father has an account in the World Bank. I would like to join this BIG thing when I grow up. What is this computerized database? I wish we had a computer in our school. I could play some games.

What they showed: My father set up a computer and a big screen to show a film in a strange language that he called English. Our Hindi teacher speaks better English than that. The film talked about the importance of water, how HIS data is collected, who collects it, what equipments

are used to collect data, how it is exchanged, tabulated, validated and stored etc. My father's picture walking across some long bridge with some instruments in hand and machines hanging over the bridge was impressive. It was so impressive that my friends opened their mouths wide in astonishment, until some flies hovering around forced them to shut.

What I understood: These people are very good film makers. They should try their hands at Bollywood. What do they mean by data exchange? How does it concern me and my village? I did not understand. Is it something like the lunch exchange that we ritualistically do during our lunch break?

What they made us do: At the end of the day, the Head Master instructed all of us to stand up and stretch our right hand, hold it straight and place our left palm on our heart.

Unwittingly, I did exactly the opposite till Pappu standing next to me pointed out the error. Before, I could correct my posture, I realized that it was an oath taking ceremony and it went on something like this. "In the name of God and in the name of my country citizens, I earnestly take this oath. I will not waste water, I will not pollute water, I will take care of this precious natural resource blah, blah and blah!!" "Luckily they did not force me to take an oath that henceforth I will **not drink water**", I thanked the Almighty silently.

End of the story. Pardon my satire. If I sound arrogant like a spoilt brat to you, I assure you that I am not. I am a simple village kid. It is impossible for me to rise up to your level and understand the precision with which you are working. May be it is easier for you to bend down to my level and explain in my own language. So long! ■

Reflections on World Water Day- Opportunity for all-expenses paid visit to UK!

Reading documents relating to World Water Day brought home to me a number of key water management questions that we do not currently have answers for – and yet the data within the HIS should be able to provide valuable insights.

I believe that it is very important that officers working with hydrological data should also have a close interest in analysis of that data. Data centre managers should interpret the data as it arrives to understand catchment behaviour and weather systems, and be able to detect and understand anomalies in the data. I do not think enough is being done in this regard – and so I have come up with an incentive to provide interest in data interpretation!

World Water day in India tends to focus on issue such as rainwater harvesting, and impact of climate change. But how effective are these measures, and what impact is there on other elements of the water cycle? I have compiled a number of key water management questions that I think we have yet to adequately answer:

- What is the impact of rainwater harvesting and ground water recharge schemes on surface water resources in a catchment?
- When groundwater exploitation is allowed up to the limits identified in the ground water assessment methodology, does this have a serious impact on surface water resources?
- Do land use changes in a catchment (increased urbanisation, increased "active management" of land resources) have a significant impact on surface water resources?
- Are there identifiable changes in hydrological behaviour that are likely to be caused by climate change?

My challenge: can you find data-sets that can be used to provide some answers to these questions? Are there catchments in your area where data quality is good, records are long, and development is such that you can identify definite "cause and effect" that allows answers to one (or more) of these questions?

The reward: I wish to develop a technical paper for presentation at the next British Hydrological Society International Conference, and will personally sponsor the attendance of the paper's lead author / collaborator to attend the week-long conference in the UK – plus additional stay in the UK as my guest.

I would love to hear from you all on these matters! With a good response, we can also hold a very important conference in India to discuss these key questions as well.

Any ideas and suggestions by email to Stephen.parsons@mottmac.com

Ground Water Information System

A web-enabled Ground Water Information System (GWIS), jointly developed by Central Ground Water Board (CGWB) and National Informatics Centre (NIC) predates the launching of WRIS. It was launched in March 2010. The system provides ground water related spatial and non spatial data in seamless manner to the users through Internet. GWIS when fully developed would provide access to various thematic layers as well as the nationwide database generated by CGWB on ground water level and water quality. The stakeholders involved in ground water development and management can have access to the ground water condition in the country around Multi-layer GIS. The system is currently available in government-to-government (G2G) domain. Eventually, it will enable even farmers to access ground water information through the e-kiosks being set up all over the country.

Some of the salient features of the system are:

- Framework spatial data service oriented architecture
- State-of-the-art solutions using latest GIS technology developed around SOI reference system in 1 :2,50,000 scale
- Data mirroring and data update with staging server at CGWB
- Integrated watershed boundaries as per CGWB guidelines
- Rich spatial and non-spatial data content on ground water resources
- Easy navigation based on administrative/hydrological boundary
- On line help and support services

The site can be accessed at:
<http://gis2.nic.in/cgwb>

World Bank Mission to Hydrology Project – November 30 to December 7, 2010

Winston Yu, Senior Water Resources Specialist and Hydrology Project Task Team Leader from the World Bank in Washington made another visit to the project in November and December 2010 to review progress. In this work he was supported by Anju Gaur, Dharendra Kumar and Papia Bhattacharji of the Delhi Resident Mission of the Bank.

For this Mission much of the work was done in Hyderabad – where the representatives of the implementing agencies, consultants and the Mission team were accommodated by the State Government in the peaceful surroundings of Dr. Marri Channa Reddy Human Resource Development Institute of Andhra Pradesh. Project stalwarts of the AP implementing agencies Mr. B. M. Murali Krishna Rao and Mr Y. V. Chalam facilitated the meetings, with Principal Secretary of the Irrigation Department Dr. Prasanta Mahapatra, IAS acting as host. The arrangements made were highly appreciated by all participants.

The wrap-up meeting of the Mission was held in Delhi on 7 December, 2010 chaired by Shri G Mohan Kumar, IAS, Additional Secretary, Ministry of Water Resources. In his summing up of the findings of the Mission, Winston Yu observed:

- Progress made is variable, with some good and some poor
- With only 18 months left on the project, tough decisions have to be made concerning what is achievable, and what should be dropped from the project as it is not achievable within the time frame
- The project is still an opportunity for all implementing agencies to upgrade and modernise technical equipment (and provide training to staff)
- There is a strong need to improve (speed up) procurement
- Only a small proportion of the Annual Work Programme for 2010-11 had been completed at the time of the mission (about 10%), and only about half of the 6 month targets set for September, 2010 had been achieved.

The Additional Secretary in his comments stressed his vision that as India is all set to become a major economy in the World, it should also be seeking to achieve “state of the art” skills in water resources management – and Hydrology Project is a key step towards such a target. He stressed the opportunity provided by the training elements of the project are very important.

The Additional Secretary invited participants to the official launch of the Water Resources Information System web-site later in the day – see www.india-wris.nrsc.gov.in for details. ■

Project WRIS (Water Resources Information System)

With the aim of providing 'single window' platform to all water resource related information on a standardized GIS framework, **Project WRIS** (Water Resources Information System) has been launched on December 7, 2010. It is a user friendly web enabled database that allows users to search access and analyze water resource data. The project is a joint venture of Central Water Commission (CWC) and Indian Space Research Organization (ISRO).

The water resources related data in the country is distributed across geographies, sources and levels. This makes the task of data compilation extremely complex for users. Therefore, WRIS compiles data from various sources and organizes the information under standardized GIS formats. The database will have 30 spatial layers arranged under five major group heads. All maps will be laid on 1:50,000 scale. WRIS forms a centralized database and application server to all water resource departments and organizations. It will also provide a foundation for advanced modeling and spatial decision support system. Project WRIS is a classic example of transforming millions and millions of bytes of 'data' into 'information' that makes meaningful decision making truly possible.

The data outputs of Hydrology Project will constitute one of the most important inputs for WRIS. Aren't we all proud of meaningfully contributing to the process of water resource planning and management in the country? The launching of GWIS and WRIS should work as motivation for all of us to work even harder!

The beta version of the website can be viewed at: www.isro.org

Views expressed in this Newsletter do not necessarily reflect views of MoWR, GOI