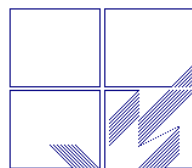


# PROFILE

## Water Resources & Irrigation



**JPS Associates (P) Ltd., New Delhi**



### ABOUT JPS ASSOCIATES

JPS Associates is a consulting firm specializing in management, development, agriculture & natural resources management, and engineering. The company was founded in 1987 and incorporated as private limited company in 1995. JPS has amassed a reputation for improving and enhancing performance excellence of some of the most reputed clients and has been working in development projects directly with and funded by international and bi-lateral development agencies like the World Bank, Asian Development Bank (ADB), United Nations Development Programme (UNDP), United Nations Environment Programme (UNEP), International Labour Organisation (ILO), Global Environment Facility (GEF), European Union (EU), United States Agency for International Development (USAID), Department for International Development (DFID), Japan Bank for International Cooperation (JBIC), Japan International Cooperation Agency (JICA), French Development Agency (Agence Française de Développement- AFD), Canadian International Development Agency (CIDA), Australian Agency for International Development (AusAID), Kreditanstalt für Wiederaufbau (KfW), Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and Norwegian Agency for Development Cooperation (NORAD). Our government clients include national institutions, central government, state government, local government and parastatals such as public sector undertakings and public sector banks.

We are a team with diverse range of expertise and experience. The Head Office in New Delhi is the driving force behind the Company activities, centralising the management specialists and design staff and providing overall direction and supervision to the on-going projects. We also have an extensive network of retained experts, who add strength to our team in sharing commitment to deliver exceptional results for our clients.

We leverage our more than 30 years of experience, deep knowledge of processes, insights, and best practices internalised through implementing about 1000 projects. These are supported by strong IT/technology, reengineering, analytics and global delivery capabilities to deliver a comprehensive client solution. From strategy through implementation, our hands-on approach has achieved success in delivering quantifiable and value-driven results. Our partnership with our clients ensures a lasting effect which is ultimately their asset and knowledge. Our reputation for being leaders in specialised fields of central and local government has built us a solid clientele in our home base India, and a reach into the international arena.

JPS is an ISO 9001: 2015 certified company. We pursue our quality policy and all business units integrate the policy and further strengthened by quality surveillance and project monitoring team.





# Water Resources & Irrigation

## FIELDS OF SPECIALIZATION

### Management

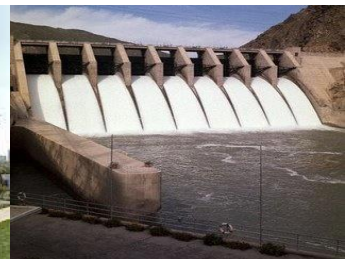
- Governance, Public Services and Policy
- Organisation Development & Institutional Strengthening
- Monitoring and Evaluation
- Information Management & E-Governance

### Development

- Social Development & Surveys
- Public Health
- Urban Development Planning
- Regional and Rural Development Planning
- Tourism
- Natural Resource Management
- Environmental Management
- Agriculture and Agri-Business

### Engineering

- Water & Environment Engineering
- Transportation
- General Engineering





**RANGE OF SERVICES:**

**JPS provides specialist sector specific services which are presented under each business units. The general services include the following:**

- Policy
- Project Planning and Preparation
- Program Management Consultancy Services
- Master Planning & Conceptual Designs
- Field Surveys & Investigations
- Pre-Feasibilities and Feasibilities Studies
- Detailed Designs/ Detailed Project Reports
- Financial Management & Accounting Services
- Project/Program Monitoring & Evaluation
- Capacity Development and Institutional Strengthening
- Human Resources Planning
- Manpower Analysis
- Business Planning
- Information Management Services/ Management Information System (MIS)
- Environmental Impact Assessment And Management
- Socio-Economic Studies & Social Impact Assessment
- Community Development
- Resettlement & Rehabilitation
- Livelihoods and Sustainable Development
- Efficiency Improvement/ Cost Reduction Study/ Profitability Improvement Studies
- Tender Documentation
- Concession Agreements
- Bid Processing
- Procurement Assistance
- Owner's Engineers and Independent Engineers Services
- Project Management / Construction Supervision
- Third Party Quality Control/ Quality Assurance
- Impact Assessment Studies





**SPECIALISATION IN WATER RESOURCES & IRRIGATION:**

- Water Resources & Irrigation
- Hydrologic Studies & Modelling
- Water Resources Modelling
- River Basin Studies
- River Training & River Basin Management
- Flood Control
- Water Resources Development
- Hydraulic Engineering
- Reservoir Engineering
- Ground Water Studies & Development
- Tube-wells
- Irrigation and Drainage Engineering
- Lift Irrigation Systems
- Irrigation Canals, Tunnels and Related Structures
- Integrated Water Resources Management
- Command Area Development
- Participatory Irrigation Management
- Water User Association
- Water Governance & Institutions
- Water Policy
- Water Economics
- Water and Food Security

**SERVICES IN WATER RESOURCES & IRRIGATION:**

- Project Formulation & Development
- Studies & Modelling
- Appraisals and Reviews
- Techno-economic & Management Advisory Services
- Topographical & Cadastral Surveys
- Crop Water and Irrigation Requirements
- Crop Planning and Irrigation Management
- Catchments Area and Hydrological Studies
- Master Plans
- Pre-Feasibility and Feasibility Studies
- Civil, Hydraulic, and Structure Designs
- Electro-Mechanical Designs
- Process Selection & Design of Treatment Plants.
- Technical Specifications, BOQ,
- PPP Modelling,
- Tender Documents & Concession Agreements
- System Rehabilitation and Upgrading
- Procurement Assistance
- Owner's Engineers
- Independent Engineers Services
- Project Management Services
- Construction Supervision
- Project Commissioning & Start Up Services
- Operation and Maintenance
- Third Party Quality Control of Projects
- Monitoring and Evaluation of Projects
- Capacity Building & Technical Trainings



## Water Resources & Irrigation

**Location:** Uttar Pradesh, India

**Client:** UP Irrigation & Water Resource Department (UPIWRD) Government of Uttar Pradesh

**Funding Agency:** World Bank

**Period:** June, 2019 - 31st March, 2021

**Associate Firm:** Nil

### RELEVANT EXPERIENCE

**Consultancy Services for Planning Community Outreach and Enhancing Community Participation for Flood Management in Targeted Areas of Rapti River Basin (Credit No.5298-IN) under Uttar Pradesh Water Sector Restructuring Project (UPWSRP) Phase II of U P Irrigation & Water Resources Department, Government of Uttar Pradesh**

#### Brief Description of Project:

In the State of Uttar Pradesh, annually recurring floods in the Ganga, Yamuna, Ramganga, Gomati, Sharda, Ghagra, Rapti and Gandak rivers inundate about 2.7 million hectares, adversely impact more than 21.1 million people and cause INR 4.3 billion per annum as damages. More than 30% of the total geographical area of the state is flood prone including 23 districts in the eastern, western and central regions. Recurrent floods are devastating to the state economy and undermine poverty alleviation efforts. Floods affect lives, livelihoods, productivity and the security of existing investments, as well as acting as a disincentive for future investments.

The Government of India (GOI)/ Government of Uttar Pradesh (GoUP) has received a credit from the International Development Association (IDA) to finance the UP Water Sector Restructuring Project (UPWSRP) Phase-2 and JPS has been contracted for providing consultancy services for Planning Community Outreach and Participation in Emergency Flood Management in Rapti River Basin in Uttar Pradesh State.

#### Objectives:

##### Part-A:

- To review national and international experience on community involvement in embankment surveillance and protection.
- To recommend the appropriate strategic approach in organizing community participation, taking note of the community's needs, capacity and practicable implementation, in order to send localized embankment and river status reports to UPIWRD's Embankment Asset Management System (EAMS). The Strategic approach needs to address the participatory process, resources maximization and motivation.
- Pilot Implementation in select field divisions and submit report for basin-wide implementation.

##### Part-B:

- To review national and international experience on community participation in emergency flood response.
- To recommend the most appropriate community outreach program for dissemination of the flood alert from the UPIWRD's FFMS, taking note of status of community- level contingency action plans of the Disaster Management Department, community's needs, capacity and practicable implementation.
- Pilot Implementation in select field divisions and submit report for basin-wide implementation.

#### Services Provided:

Part A of the consultancy assignment covers communities adjacent to the embankments which are immediately impacted by any embankment breach or cut, that would need to be involved in surveillance of vulnerability or failure to take emergency action for strengthening. Community participation would include reporting on embankment vulnerability based on routine visual observations of embankment condition and river course changes during flood season and specifically in response to



embankment alerts from EAMS on specific reaches. In Part B, communities in the flood prone area need to have timely access to flood forecasts for better preparedness at the community level. For both parts (to be executed concurrently), the area coverage would be the main stem of Rapti River and four major flood causing tributaries (covered under the flood forecasting and inundation mapping consultancy).

- JPS is envisaged to interact with select communities on sample basis (making sure that the sample represents the varying degree and nature of flood hazard and vulnerability in the respective areas. The sample design will be based on sound statistical principles. JPS, as part of sample survey, is expected to also interact with concerned field divisions in the area for suggestions on how the community outreach for emergency flood management or inputs on embankment vulnerability can effectively supplement field staff inspection;
- JPS is to evaluate community participation modes for emergency flood preparedness or report on embankment vulnerability and recommend how the existing Panchayati Raj or other community institutions would be involved;
- Community outreach would include design of flood alerts from the flood model customized for community action, contingency planning and emergency management at community level; embankment surveillance and issue-reporting to supplement UPIWRD field offices; and targeted embankment and river surveillance based on predicted morphological changes from river morphological trend model;
- Review national and international experience to support the development of community participation mechanism. JPS is to also interact with the stakeholders to augment the findings and recommendations;
- Suggest types of embankment information to be transmitted by the communities in real-time and on need basis (as requested by the Irrigation Department) for integration in EAMS. The embankment information may include visual observation of river flow close to embankment, dramatic changes in river alignment, damage to river training works and embankment structures, wave action damaging the river-side slope of the embankment, seepage of water through embankment, rat holes, rapidly rising river water level, miscreants trying to cut the embankment, etc. In case of embankment failure they will report about the status of breach such as location, time, and approximate length. JPS is to take note of the means of community participation, the communication infrastructure at the community level, functional status and efficiency and community skill sets. JPS is expected to recommend whether the existing communication means will be utilized or new infrastructure will be needed;
- Recommend information flow to different identified recipients including EAMS, Irrigation Department Offices during normal and emergency situations;
- Develop community feedback mechanism by which the community can be kept informed about the action being taken by the department based on and after their reporting;
- Design flood alerts for effective use by the community, taking note of flood hazard, capacity and current status of community response;
- Evaluate typical communication infrastructure at the community level, functional status and efficiency, and community skill sets. JPS is to recommend how the existing communication means will be utilized and recommend additional capacity building that will be needed;
- Develop plan, approach, protocol and mechanism for community participation in embankment surveillance, pilot in select communities in the basin, and prepare plan for basin-wide implementation;
- Broadly assess the financial implications of community participation and recommend the appropriate mix of voluntary and funded participation;
- Develop the Action Plan for implementation in the whole basin and also a plan for piloting it in a selected portion (say, one Irrigation Department Division) in Rapti River Basin.



## Water Resources & Irrigation

**Location:** Panchkula,  
Haryana

**Client:** Administrator  
Command Area  
Development Authority

**Funding Agency:**  
Administrator Command  
Area Development  
Authority

**Period:** 14<sup>th</sup> October,  
2014 – 2017

**Associate Firm:** Nil

### **Concurrent Evaluation Study of Bhakra Canal Command Phase-II, Western Jamuna Canal Command Phase-VI and Jawahar Lal Nehru Canal Command Phase-II Projects of CADA, Haryana**

#### **Brief Description of Project:**

Command Area Development Authority was setup in Haryana in the year 1974 under a Centrally Sponsored Scheme. The main objective of CADA is to bridge the gap between the irrigation potential created and that utilized, through micro-level infrastructure development and effective farm water management, to enhance agricultural production and productivity and to improve socio-economic condition of farmers. Presently, following projects are ongoing through CADA Haryana:

1. Bhakra Canal Command Phase-II covering districts of Hisar, Sirsa, Fatehabad, Ambala, Kurukshetra, Kaithal, Karnal & Jind;
2. Western Jamuna Canal Command Phase-VI covering districts of Hisar, Gurgaon, Panipat, Rohtak, Sonapat, Jhajjar, Bhiwani & Jind; and
3. Jawahar Lal Nehru Canal Command Phase-II covering districts of Jhajjar, Rewari, Mahendergarh, Bhiwani & Gurgaon.

Through this assignment, CADA Haryana contracted JPS to conduct concurrent evaluation of above ongoing projects. The assignment includes evaluation of ongoing projects which together cover an area of about 272,271 ha within three CAD Circles and twelve CAD Divisions.

#### **Services Provided:**

- a. Overall Planning & Execution
  - i. Credible construction plan to complete the project within stipulated period as per MOU;
  - ii. The positions of tenders and award of work vis-à-vis credible construction plan;
  - iii. The budgetary provisions commensurate to item (i) and (ii) and situation of flow of funds for carrying out above activities; and
  - iv. Whether works have been carried out as per approved DPR, deviation being made, status of seeking approval.
- b. Organizational Setup
  - i. Adequacy of organizational setup vis-à-vis the physical & financial planning;
  - ii. Administrative machinery required as per sanctioned strength vis-à-vis filled up post with the project organization; and
  - iii. Monitoring mechanism available to resolve: inter departmental issues, intra-departmental inter-ministerial issues.
- c. Contractual mechanism (Arrangement)
  - i. Whether the action for award of contract commensurate with credible construction/work plan; and
  - ii. Does the progress of work during the year was an envisaged in contract document i.e., start of work, completion time supply of materials, quality checks, release of payment to contractors to achieve the milestones as per PERT/CPM planning.
- d. Quality aspects
  - i. Whether the independent quality control mechanism exists in the setup and its adequacy; and
  - ii. The quality checks being carried out in general as prescribed by BIS.
- e. Bottlenecks





## Water Resources & Irrigation

- i. Planning & technical issues;
- ii. Flow of funds from State Government to project authorities;
- iii. Contractual arrangement (award of works aspect);
- iv. Inter Department/Ministerial issues;
- v. Litigation, court cases & pendency claims and their impact on overall project execution;
- vi. Land acquisition; and
- vii. Adequacy of establishment, workforce, Plant & Machinery & scarce material.

f. Overall assessment

A comprehensive review on the overall assessment for the implementation of project, with suggestions/recommendations there upon to complete the project in balance period of MOU.

**Location:** Bihar, Odisha and Delhi

**Client:** Asian Development Bank

**Funding Agency:** Asian Development Bank

**Period:** 01 July, 2015-15th October, 2015

**Associate Firm:** Deltares, Netherlands  
RMSI Private Limited (RMSI), India

### TA-8089 IND: Operational Research to Support Mainstreaming of Integrated Flood Management under Climate Change

#### Brief Description of Project:

ADB's country partnership strategy for India (2009-2012) identified a need to focus on knowledge solutions, the preparation of operationally relevant knowledge products, exposure to best practices, and promoting learning across sectors and states. The ADB water operational plan (2011-2020) forecasts more frequent and severe extreme weather events in India and states that the effects of worsening of weather can be mitigated by structural and nonstructural measures such as water governance and flood management.

The TA is envisaged to undertake operational research to identify and test integrated flood mitigation and flood plain management strategies appropriate for India. The strategies will balance structural and nonstructural measures and provide the mechanisms for mainstreaming IFM at different government levels. The TA is expected to help promote change from a current narrow, structurally focused flood protection intervention approach in the country and support mainstreaming of integrated and holistic management measures. The TA is envisaged to study two sub-basin states (Orissa & Bihar) - one intra-states (within state) and another inter-state (more than one state). The study will develop strategies and approaches appropriate for implementation in the two sub-basins which are also replicable in other flood-prone sub-basins and states.

The expected project outcome is improvement of knowledge of IFM for decision making and program implementation.

#### Services Provided:

##### Water Resources Economist (WRE)

- Identify the preferred measures of cost effectiveness and cost-benefit analyses, as applied to flood risk management;
- Review the data available to support value-for-money assessments in states and sub-basins;
- Bring existing data together for use in value-for-money assessments; and
- Prepare an outline approach to primary data collection and analytical tools.

##### Legal:

- Review the current regulatory arrangements relating to the water and flood management practice in India;
- Assess gaps and potential requirements for integrated planning and management



**Location:** Bihar, Patna  
**Client:** Flood Management Improvement Support Centre, Water Resources Department, Government of Bihar  
**Funding Agency:** World Bank  
**Period:** 27 Nov. 2014 – June, 2016  
**Associate Firm:** Nil

- across stakeholders; and
- Outline the necessary legal arrangements to support the implementation of river basin organizations.

**Environmentalist:**

- Review of the environmental impacts of flood management strategies in the focal and secondary sub-basins; and
- Proposals for integrating environmental conservation with flood and flood zone management during an IFM planning process and RBO operations.

**Consultancy Services for Developing Approach, Protocols and Mechanisms for Community Participation in Embankment Surveillance and Piloting in Select Communities in Kosi River Basin, Flood Management Improvement Support Centre, Water Resources Department, Government of Bihar**

**Brief Description of Project:**

The Government of Bihar intends to strengthen the flood management and flood forecasting system (consequent to the impact of Kosi Flood 2008) under the 'Bihar Kosi Flood Recovery Project' (BKFRP) through a credit from the International Development Association (IDA). The credit amount of US\$220 million is envisaged to be used for the payments for goods, works, related services and consulting services to be procured under this project. The overall project objective is to support the flood recovery as well as future oriented risk reduction efforts of GoB through (i) reconstruction of damaged houses and road infrastructure (ii) strengthening the flood management capacity in the Kosi basin (iii) enhancing livelihood opportunities of the affected people and (iv) improving the emergency response capacity for future disaster.

The objectives of captioned consultancy assignment are as follows:

- To review past community involvement in embankment surveillance and protection, and identify reasons for subsequent failure of the involvement;
- To recommend the most effective modalities to effectively associate the communities for embankment surveillance in normal time and during flood, to patrol and send localized embankment reports to EAMS, support WRD flood fighting efforts, etc;
- To plan and conduct workshops in select communities to develop consensus on suggested modalities;
- Develop plan for basin-wise implementation and piloting in Kamla-Kosi basin; and
- Pilot Implementation in select field divisions to demonstrate and finalize strategy.

The scope of work includes the following:

- Interact with selected communities on sample basis (making sure that the sample represents the varying degree and nature of flood hazard in the project area). The sample size and selection of communities is envisaged to be designed by JPS based on sound statistical principles, and shall cover the embankments along Kosi and Kamla rivers. JPS, as part of sample survey, will also interact with concerned field divisions for suggestions on how the community feedback can effectively supplement field staff surveillance;
- Evaluate community participation modes for embankment surveillance in normal times and during flood to supplement the institutional efforts. JPS is envisaged to recommend how the existing Panchayati Raj Institutions would be involved;
- Suggest types of embankment information to be transmitted in real-time and on need basis (as requested by the WRD) for integration in EAMS. The embankment information may include visual observation of river flow close to embankment, dramatic changes in river alignment, damage to river training works and



embankment structures, wave action damaging the river-side slope of the embankment, seepage of water through embankment, rat holes, rapidly rising river water level, miscreants trying to cut the embankment, etc. In case of embankment failure, JPS to envisaged to report about the status of breach such as location, time, and approximate length. JPS to envisaged to take note of the means of community participation, the communication infrastructure at the community level, functional status and efficiency, and community skill sets. JPS is envisaged to recommend whether the existing communication means will be utilized or new infrastructure will be needed;

- Evaluate typical communication infrastructure at the community level, functional status and efficiency, and community skill sets. JPS is envisaged to recommend how the existing communication means will be utilized and recommend additional capacity building that will be needed;
- Recommend information flow to different identified recipients including BAPEPS, FMISC- EAMS, FMC, and field WRD Offices during normal and emergency situations;
- To sustain the community participation, JPS to envisaged to develop community feedback mechanism by which the community can be kept informed about the action being taken by the department based on and after their reporting;
- Hold workshops in selected communities in the basin area to reach consensus on the proposed participation modalities;
- Develop a plan for the annual pre-season workshops for ensuring community preparedness;
- Assess financial implications of community participation, recommend whether the participation would be voluntary or funded and assess the fund requirement;
- International experience would be reviewed to further support the development of community participation mechanism. JPS is envisaged to also interact with the stakeholders and the consultant undertaking Establishment of Embankment Asset Management System to augment findings and recommendations;
- Develop the action plan for implementation in the whole basin and also a plan for piloting it in a selected portion (say, one WRD Division) in Kosi Basin; and
- The plan will be piloted in select field divisions to demonstrate and finalize strategy.

#### **Services Provided:**

##### **➤ Review of Current Status in Community Participation and Develop Plan for Consultancy:**

- To review international, national and Bihar experience in community participation for embankment surveillance and identify possible approaches;
- To review past community involvement in Bihar in embankment surveillance and protection, and identify reasons for subsequent failure; and
- Develop plan for sample survey of communities to evaluate community capacity, and potential for optimal participation in embankment monitoring. The sample size and selection of communities will be designed by JPS based on sound statistical principles, and shall cover the whole length of embankments along Kosi-Kamla.

##### **➤ Develop Approach, Protocols and Mechanisms for Community Participation:**

- Conduct sample surveys of communities along embankments, and concerned field divisions, on the most effective modalities for community participation in embankment surveillance in normal times and during flood, to patrol and send localized embankment reports to EAMS. The survey may include community level flood risk, motivation for participation, institutional set-up, communication infrastructure at the community level, functional status and efficiency, community skill sets, etc;
- To suggest community participation modes in embankment surveillance in normal



times and during flood to supplement the institutional efforts, and recommend how the Panchayati Raj Institution would be involved;

- To recommend the nature, contents and format for the community reports, based on visual observations of embankment condition and river flow. Community reported embankment and river status data will be integrated with EAMS for developing the maintenance and planning module. JPS would refer Bihar Checklist finalized for inspection of embankments;
- To recommend the modes and information flow to different identified recipients including BAPEPS, EAMS, FMISC, FMC, and field WRD Offices during non-flood and emergency situations;
- To develop community feedback mechanism and formats by which the community can be kept informed about the action being taken by the department after their reporting; and
- To assess financial implication of community participation and recommend whether the participation would be voluntary or funded.

➤ **Conduct workshop, training and piloting in select communities:**

- Conduct workshops in select communities, along with concerned field division staff, to develop consensus on community participation modalities, and finalize in stakeholder workshop in WRD in Patna;
- Develop a plan for the annual pre-season workshops for ensuring community preparedness, and conduct pilot workshops to improve plan. The plan would include training material to be used in workshop;
- Develop a plan for implementing recommended approach in the basin and to pilot in select communities; and
- Pilot in select field divisions to demonstrate and finalize strategy.

➤ **Place of Performance for Different Tasks:**

- Area Covering Kamla-Kosi Basin and Patna

**Location:** Rajasthan

**Client:** Office of the Superintending Hydrogeologist, (S&R), Ground Water Department, Government of Rajasthan

**Funding Agency:** Government of Rajasthan

**Period:** 2005-2006

**Associate Firm:** Nil

**Ground Water Management in Pilot Project Areas of Rajasthan under Rajasthan Water Sector Restructuring Project (RWSRP) for Ground Water Department, Government of Rajasthan**

**Brief Description of Project:**

The main development objectives of the Rajasthan Water Sector Restructuring project (RWSRP) were to: a) strengthen the capacity for strategic planning and sustainable development and management of surface and groundwater resources in Rajasthan; and b) increase the productivity of irrigated agriculture. The captioned assignment involved social assessment to identify the social issues associated with the proposed approach of community based ground water management, understand its ramifications and problems, develop a strategy to involve local communities in the overall planning, implementing (including operation and maintenance of structures and systems developed) and monitoring the pilot activity under the groundwater component of the project, provide an integrated and participatory framework for gathering, analyzing, prioritizing and incorporating socio-economic information in developing, implementing and monitoring the pilot activity of the ground water component of RWSRP.

**Services Provided:**

- Developing a framework for promoting and strengthening community-based approaches to groundwater management involving all the stakeholders with an emphasis on the participation of vulnerable groups (e.g. women, landless, tribals) to have a greater voice in decision-making, through focus group discussions.
- Identifying different groups of stakeholders (including the beneficiaries, those



who can influence the project outcome like NGOs and CBOs, project promoters and implementers, affected persons etc.), their concerns, roles and responsibilities in planning, implementing and monitoring the pilot projects.

- Developing strategies to mobilize communities to form ground water user groups at different levels (Village/Gram Panchayat (GP)/pilot area) and examine and suggest institutional arrangement for the implementation of the pilot projects to ensure the representativeness, effectiveness, and sustainability of ground water institutions.
- Address issues of gender and other vulnerable groups.
- Focus on the agricultural situation in the project area and its relationship with the ground water.
- Budget the ground water usage by assessing the use of ground water by various stakeholders and by purposes - agriculture, drinking, industrial activities, construction, etc. and identify problems faced and areas of minimizing ground water requirements and possible reallocation of water.
- Assess the hydrological situation in terms of both surface and ground water resources. The assessment of ground water resources included a census of wells in each of the pilot areas, types of wells (manual, mechanical and electrical), density of wells, water level by seasons, and usage of well water by purpose (drinking, agriculture, industries, etc.) and problems faced by the owners/users.
- Identify the type and extent of adverse impact on people occupying/using lands required for physical works under the Project, irrespective of the ownership of land required.
- Ensure participation of tribal communities in the project.
- Analysing the possible legal framework for regulating and managing ground water, institutional strengthening, capacity building on community based ground water management and outlining key enabling policy reforms that would be required in the short, medium and long-term.
- Outlining institutional arrangements and capacity building required to successfully implement the ground water pilot projects, taking into account the operations of other community based groups (like watershed development committees) and develop adequate linkages between ground water committees and other users groups/Panchayat Raj institutions.
- Integration of awareness building to regulate ground water usage, social conflict resolution mechanisms, participatory decision-making as well as community training in a number of skills including participatory monitoring and evaluation, book keeping, financial management, etc. in IEC strategy, training strategy and programme proposed for groundwater component.
- Provide a framework including parameters/indicators and institutional arrangement for monitoring the implementation of pilot projects.

**Location:** Arunachal Pradesh, India

**Client:** Water Resources Department, Government of Arunachal Pradesh

**Funding Agency:** Asian Development Bank

**Period:** Jan 2008 – June, 2008

**Associate Firm:** Kellong Brown & Root Pty Ltd

### **TA 4814-IND Project Processing and Capacity Development-Package 10: Preparing the North Eastern Integrated Flood and River Bank Erosion Management Project for Water Resources Department, Government of Arunachal Pradesh**

#### **Brief Description of Project:**

The Assam Integrated Flood and Riverbank Erosion Risk Management Investment Program (AIFRERMIP) was aimed to enhance the effectiveness and reliability of flood and riverbank erosion risk management (FRERM) systems in three existing flood embankment systems (or subprojects) protecting urban, suburban, and other strategic areas of Assam. The Program also aimed to strengthen the policy, planning, and institutional bases to support better FRERM operations. Comprehensive and adaptive structural and non-structural FRERM measures were provided in the three subproject areas. The captioned technical assistance (TA) supported the preparation of the North Eastern Integrated Flood and Riverbank Erosion Management Project (NEIFREMP) for Arunachal Pradesh (AP), with four components:





- Sector review, strategy and action plan preparation for integrated flood and riverbank erosion management (FREM) at the state level
- Sample subproject selection and feasibility studies
- Institutional development and investment roadmap
- Investment packaging

**Services Provided:**

JPS supported the development of a comprehensive framework for FREM, adopting an integrated approach on the basis of river basins in AP, and incorporating regional perspectives. Investment programs were aimed at ensuring improvement in management systems from scheme identification to maintenance with beneficiary participation, with an emphasis on higher cost effectiveness, efficiency, transparency, and sustainability. This also was supported by appropriate non-structural programs along with strengthening of policy and institutional framework. Services provided included the following:

- Sector Review and Preparation of Strategy and Action Plan
- Sample Subproject Selection and Feasibility Studies
- Sample Subproject Selection and Exploration of Design Options
- Beneficiary Participation and Social Assessments.
- FREM Technical Assessment and Design
- Complementary Program Assessments
- Safeguards Assessments
- Feasibility Studies and Sub-Project Implementation Plan
- Institutional Development Roadmap and Investment Programs
- Integrated FREM and IWRM
- Sustainable Maintenance Funding
- Investment Programming and Roadmap
- Project Packaging
- Organisation of Workshops and Seminars

**Location:** Chhattisgarh

**Client:** Water Resources Department, Government of Chhattisgarh/ADB

**Funding Agency:** Asian Development Bank

**Period:** 2005-2012

**Associate Firm:** Kellogg Brown & Root PTY LTD, Australia

**ADB TA 4573-IND Water Users Association Empowerment for Improved Irrigation Management in Chhattisgarh Project for Water Resources Department, Government of Chhattisgarh**

**Brief Description of Project:**

The purpose of the seven-year Technical Assistance project was to help develop (i) an enabling framework and capacity for effective WUAs that will be able to assume responsibility for irrigation system management and operation and maintenance (O&M), and (ii) farmer capacity for diversified and rabi (dry season) cropping. An additional goal was to integrate monitoring and evaluation (M&E) into project activities with broad stakeholder involvement. The TA was envisaged to result in the following: (i) creation of a WUA Capacity Development Program that will provide core training for WUAs throughout Chhattisgarh; (ii) a Training of Trainers (ToT) program to develop the skills of project contracted staff and Water Resources Department (WRD) staff who will train WUAs in the field; (iii) development and refinement of the process for WUA participatory rehabilitation and upgrading of irrigation systems under the ADB project including needs assessment, design, construction supervision; (iv) support to develop a comprehensive institutional framework for participatory irrigation management (PIM) and WUAs in Chhattisgarh, including a revised PIM Act, a standardized contract outlining management responsibilities for WRD and WUAs, and development of bylaws that specify responsibilities of WUAs and their members; (v) a capacity development program to assist WUAs and farmers with improved farm practices for rabi and



diversified cropping based on market requirement and pricing; and (vi) development of an M&E program that addresses livelihood impacts and includes WUA participation.

**Services Provided:**

**Phase 1 – Revision of the PIM Act**

- A PIM Act already exists as a legacy from the reform process undertaken in Madhya Pradesh in 1999; WUAs were established and their rules and regulations defined. The Project was to provide assistance to strengthen the institutional and policy framework and including a revised PIM Act. The review envisaged was to make the existing Act more effective and relevant to the situation in Chhattisgarh.

**Phase 2 – Capacity Building for WUA Empowerment**

- WUA Mobilization: The TA consultants, with support of the Project consultants and WRD, contracted an NGO to execute WUA mobilization and an awareness campaign to inform WUAs about revised PIM policies, basic WUA organization, and the coming elections as a means to initiate the WUA development process.
- CIDP - WUA Capacity Development and Support: TA consultants trained WRD staff for the PIM Unit to be developed under the project and provided capacity development to ensure WUAs manage irrigation systems effectively, develop rabi and diversified cropping based on market requirement and pricing, and provide sustainable O&M after Project R&U.

In summary, the activities of JPS included: (i) development of WUA Capacity Development Program (WUACDP) that will provide core training for WUAs throughout Chhattisgarh; (ii) a training of trainers program to develop the skills of NGO members and WRD staff who will be involved in delivering training to WUAs in the field; (iii) development and refinement of the process to be used for WUA participatory rehabilitation and upgrading of irrigation systems under the ADB project; (iv) support to develop a comprehensive institutional framework for PIM and WUAs in Chhattisgarh including a revised PIM Act; a contract process outlining management responsibilities between WRD and WUAs; and development of by-laws that specify responsibilities between WUAs and their members; (v) a capacity development program to assist WUAs and farmers with improved farm practices; and (vi) development of a monitoring and evaluation program that will be institutionalized into WRD activities.



## Water Resources & Irrigation

**Location:** Punjab, India

**Client:** Project Management Unit (PMU), World Bank Project, Department of Water Supply & Sanitation, Water Works Complex, Phase-2, Mohali, Government of Punjab

**Funding Agency:** World Bank

**Period:** Dec. 2005-June 2006

**Associate Firm:** Nil

### **Baseline Survey of Coverage for Water and Sanitation Sector (WSS) for Preparation of Project Implementation Plan (PIP) for Department of Water Supply & Sanitation, Government of Punjab**

#### **Brief Description of Project:**

The Government of Punjab, with an intention to scale-up statewide demand responsive and decentralized service delivery approach, was seeking World Bank assistance for implementing its 5 year medium-term Rural Water Supply and Sanitation (RWSS) program. The Program's main components were:

- **Institution Building:** Sector management and monitoring and evaluation (M&E) systems, IEC campaigns, capacity building of program staff and support agencies, technical assistance for reorganization of DWSS.
- **Community Development and RWSS Infrastructure Building:** i) community and village panchayat capacity building ii) women's development programs, iii) construction/ upgradation of drinking water supply, drainage and sanitation schemes, including water quality programs and targeted SC development plan (It was proposed that ground water recharge and rainwater harvesting will be integral parts of drinking water source development); and
- **Future Sector Planning:** Developing long term policies and strategic plans, strengthening sector information management systems and learning and piloting innovative approaches.

The program was envisaged to be implemented in the rural areas of all the 17 districts of Punjab. Villages were to be included in the project by adopting a self-selection process, a prerequisite of demand-responsive development.

#### **Services Provided:**

##### **1. Development of a framework for measurement of outcomes:**

- a) Key indicators
- b) Decisions on appropriate approach and sampling methods
- c) Drafting questionnaire along with pre-testing

The standard questionnaire sets used in large multi-purpose household surveys such as National Sample Surveys, Demographic and Health surveys and Welfare Monitoring Surveys and focus group discussions (FGDs) were utilized to arrive at appropriate questions and questionnaire design.

Two sets of modules were used in surveys viz. i) a community village module and ii) a household module. These modules were pre-tested in 100 households from 5 villages to devise the final questionnaire. The sampling methodology was worked out to carry out the questionnaire survey in selected villages.

##### **2. Canvassing the questionnaire**

The questionnaire was canvassed as per the agreed sampling methodology and for carrying out analysis of the results. Training was provided to enumerators and the quality control was ensured through cross-checks during the survey.

##### **3. Developing Monitoring Approach for RWSS assessment**

This involved an assessment of the baseline situation from the baseline survey and suggesting an approach to DWSS for periodic assessment of RWSS program.



## Water Resources & Irrigation

**Location:** Madhya Pradesh

**Client:** Project Implementation Coordination Unit, MPWSRP, Water Resources Department, Govt. of Madhya Pradesh

**Funding Agency:** Project Implementation Coordination Unit, MPWSRP, Water Resources Department, Govt. of Madhya Pradesh

**Period:** 2009 -2011

**Associate Firm:** DHV India

### **Institutional Strengthening of Madhya Pradesh Water Sector Restructuring Project (MPWSRP) for Water Resources Department, Government of Madhya Pradesh**

#### **Brief Description of Project:**

The Madhya Pradesh Water Sector Restructuring Project was aimed at improving the productivity of water in selected basins of the state. The project goal was to improve the overall management of water resources as well as for irrigation service delivery through a combination of institutional strengthening and substantial investments in modernizing about 650 minor, medium and major irrigation schemes covering an area of about 620,000 ha in the five focus basins (Chambal, Betwa, Sindh, Ken and Tons). The objective of the captioned assignment was to envisage a comprehensive program of reforms in management of state's water resources in general and irrigation and drainage in particular. Strategies envisaged to be adopted to achieve the objectives of the Project were as follows:

- To increase productivity of water through effective allocation of water resources amongst sectors by integrated and environmentally sustainable river basin planning, development and management processes including conjunctive use of surface and groundwater resources;
- To achieve efficient, financially sustainable, knowledge based and technically appropriate irrigation and drainage operation through:
  - Enabling institutional, policy and legislative reforms;
  - Use of computer systems to strengthen and improve decision making and enable efficient use of available resources;
  - Sustainable user participation;
  - Modernized irrigation and drainage infrastructure; and
- To improve the living standards of rural poor through enhanced agriculture productivity from intensification and diversification; sustainable management of wetlands and other water based eco-systems.

#### **Services Provided:**

JPS was involved in formulating an implementable Human Resources Development Strategy that addressed the following, amongst others:

- Policies relating to recruitment, promotions and transfers of personnel;
- Manpower and career planning, maintenance of personnel records, pay fixation, promotions, transfers;
- Developing and implementing appropriate performance appraisal system;
- Development of incentive programs for employee motivation;
- Developing and implementing a grievance redressal system;
- Interfacing with unions and other staff related bodies;
- Initiating disciplinary proceedings, punishments and rewards, with appropriate follow-up action;
- All administrative matters related to personnel;
- Assessment of database management requirements of the restructured WRD and preparing an implementation plan for computerization of MIS;
- Assessment of the impact of IT infrastructure and Information Management System (IMS), Geographical Information System (GIS) and computerization in all spheres like planning, design and construction of irrigation infrastructure, administrative management, financial management and technical management;
- Providing process improvement suggestions in the context of new vision and modern tools and technology, need for cost-effectiveness and transparency, involving IT-enabling processes for monitoring and learning;



## Water Resources & Irrigation

**Location:** Madhya Pradesh

**Client:** Project Implementation Coordination Unit, MPWSRP, Water Resources Department, Govt. of Madhya Pradesh  
**Funding Agency:** Project Implementation Coordination Unit, MPWSRP, Water Resources Department, Govt. of Madhya Pradesh  
**Period:** 2009 -2011

**Associate Firm:** iBILT Technologies Ltd

- Change management activities through structured stakeholder consultations, envisioning goals /objectives, mission, etc. for making MP Water Resources Department (MPWRD) a flexible, learning, forward-looking and effective irrigation service delivery organization in the context of changing realities and trends and formulate performance indicators and monitoring strategy in respect of change management; and
- Preparation of a change management strategy and road map for movement of the WRD from its current role to a department focusing on service delivery promoting public private partnerships. The transitional process and change management strategy embodied the detailed proposals for workshops, seminars and public consultations, etc.

### “Development of Computerized Financial Management System for Water Resources Department, Govt. of Madhya Pradesh”

#### Brief Description of Project:

Madhya Pradesh Water Sector Restructuring Project development objective was to improve productivity of water for sustainable growth and poverty reduction in selected focus river basins (Chambal, Sindh, Betwa, Ken and Tons) of Madhya Pradesh. The MPWSRP components provided support for institutional reforms in water resources management as well as for irrigation service delivery and complementary investments in improving and modernizing physical assets.

The objectives of the captioned consultancy were to develop a Computerized Financial Management System (FMS), implement FMS in MPWSRP divisions and PICU offices and train project staff to use the system. This was envisaged to be achieved by:

- Studying systems requirements i.e. Systems Requirement Specification for the Financial Management System (FMS) as documented in the Financial Management Manual (FMM) and other related project documents and concept papers;
- Design and develop a computerized system based on SRS;
- Implement the system in designated project locations; and
- Provide training and implementation support for use of the computerized FMS to related project staff

#### Services Provided:

The specific objectives of the Financial Management Information system covered the following:

- Comparative costs in all activities in different locations/projects;
- Comparative costs of overruns/economies in all activities in different locations/projects;
- Comparative costs in work elements in different locations/projects;
- Implementation monitoring with plan using indicators;
- Budget monitoring to expenditure;
- financial database;
- Trends analysis on different parameters;
- Feedback to all implementing agencies on their performance;
- Comparative performance (time & costs) of various activities in different locations/projects;
- Financial indicators of performance (Inputs, Activities, Outputs and Impact);
- Cost-benefit analysis;
- Data for social benefits - cost analysis;
- Data for impact assessment; and
- Comprehensive financial information for next phase





**Location:** Uttar Pradesh

**Client:** National Capital Regional Planning Board, Government of India

**Funding Agency:** National Capital Regional Planning Board, Government of India

**Period:** 2005- 2006

**Associate Firm:** WAPCOS

Provision for Improved Revenue Administration under MPWSRP Schemes:

- Demand assessment;
- Recovery monitoring;
- Trends in revenue demand/recovery;
- Impact of alternative strategies of supply, assessment and recovery; and
- Return on investments on major, medium and minor projects

Provision for People Participation through Web Enabled Systems (Hindi):

- Information on various projects, programmes, schemes and activities of WRD;
- Information on investments;
- Information on revenue demands;
- Reactions to new policy initiatives;
- Suggestions and complaints;
- Impact assessment;
- Comparative assessment of the performance of WUAs; and
- Economic Opportunities

### **Consultancy Services for a Study on Water Supply and Its Management in National Capital Region for National Capital Regional Planning Board, Government of India**

#### **Brief Description of Project:**

The National Capital Region (NCR) in India was constituted under the NCRPB Act, 1985. The key rationale was to promote balanced and harmonized development of the Region, and to contain haphazard and unplanned urban growth by channelising the flow and direction of economic growth (on which the urban phenomenon feeds) along more balanced and spatially-oriented paths. The objective of the captioned study was to prepare a functional plan for water which will give a solution to the water requirement for National Capital Region focusing an identification of all the potential surface water sources, ground water aquifers, inter basin transfer of water, demand supply gap, leakages in the existing supply system etc., and to evolve a mechanism for improving the water supply scenario in the region including water management.

#### **Services Provided:**

- **Surface Water Supply Component:** To prepare and update water demand for domestic, institutional, commercial, industrial and agricultural; analyze present coverage and need for additional water production; analyze unaccounted water and suggest measures for reduction; access transmission and distribution basis; assessment of various water resources and study possibility of inter basin / sub basin transfer; preparation of cost estimates and suggested use of waste water for non-drinking purposes.
- **Legal and Institutional Development:** Review and analyse institutional models of delivery in the water supply sector including institutional restructuring and economic instruments for demand management mechanism to optimize the use and also to ensure that the poorest of the end users are not deprived of water; undertake a SWOT analysis of various options for alternative institutional arrangements; assessment of the applicability of the private sector participation in water sector on the lines of telecom and power sector; development of a framework for sector reforms to enable PSP; assessment of the changes required in legal framework for reforms in water sector and to evolve a regulatory framework for sustainability of water sector reforms including private sector participation in water supply sector.



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- **Finance:** Assessment of the requirement in the finance sector; existing modes of funding; study of existing financial framework viz. i) assessment of financial requirements and resource mobilization strategy; and (ii) assessment of existing tariff structures in selected towns from the perspective of O&M cost recovery in particular.
- **Urban Development:** Reviewing the current land use pattern of the NCR; provide inputs related to urban planning aspects of various water supply projects to NCRPB; collection of available data, maps, details of past schemes, reports for project cities; supervise and organise various surveys required for master planning of the Water supply in NCR; reviewing the current development plans of the urban areas; provide guidance on preparing concept designs and master plans wrt water supply; and prepare report to check further encroachments and remedial measures.
- **GIS:** To procure relevant GIS imageries from National Remote Sensing Agency (NRSA), Hyderabad and Indian Institute of Remote Sensing (IIRS), Dehradun; to obtain relevant maps or from the State Government Departments; to digitize these maps and imageries for utilizing them in the project; and to assist the Team in carrying out water resource studies using GIS techniques, land use and infrastructure maintenance.

**Location:** Una, Himachal Pradesh, India

**Client:** Swan River Integrated Watershed Management Project, Forest Department, Government of Himachal Pradesh

**Funding Agency:** Japan International Cooperation Agency (JICA)

**Period:** Apr.2008–2016

**Associate Firm:** Nil

### Management Consultancy for Swan River Integrated Watershed Management Project (SRIWMP) for Forest Department, Government of Himachal Pradesh

#### Brief Description of Project:

In India, damages to the agricultural production and human lives caused by soil erosion and floods are substantial enough to require adequate counter-measures for soil and water management in the affected areas. It is more important to protect small, but valuable cultivable land in the intermediate area between the mountainous regions and the flat plains. The captioned Project is envisaged as an integrated watershed management project containing such activities as afforestation, flood management, soil management and agricultural land protection in such low areas in India, with the experience envisaged to be expanded to other areas. Swan River Integrated Watershed Management Project is being implemented with financial assistance from Japan International Cooperation Agency over a project area of 61,900 hectares, covering 95 Gram Panchayats in Una district of Himachal Pradesh. The catchment area of Swan River in Una District is a typical low mountainous area and suffers from damages to agricultural fields/ lands caused by deforestation and consequential soil erosion and deteriorated flood damages, which are more serious than other districts. As such, Una district was selected as the target area for the model case to stabilize and develop the watershed area of Swan River catchment and to check the flood losses in Una District of Himachal Pradesh.

The Swan River Integrated Watershed Management Project envisages works like afforestation, soil conservation, institution building, livelihood improvement activities etc which would be carried out by involving community members and with active involvement of PRIs and other community based organizations such as Mahila Mandals, Yuvak Mandals, Self-Help Groups etc. The main objective of the Project is to work in an integrated manner, i.e. in collaboration with other departments such as Agriculture, Horticulture, Animal Husbandry & Irrigation and Public Health so as to achieve and stabilize and develop watershed area of Swan River catchments and to check the flood losses in Una district of Himachal Pradesh.

The objectives of the captioned consultancy services are to assist Project Implementation Unit (PIU) and other departments to implement the Swan River Integrated Watershed Management Project through (a) advisory services and (b) services by task concept mainly during the first half of the project period in close



collaboration with the Forest Department and other line departments. The Project envisages interfacing with the Forest Department through the Office of Chief Conservator of Projects (Externally Aided Projects). JPS is accountable to the Project Director, the leader of PIU.

The broad scope of services are under the consultancy assignment are as follows:

- 1) **Advisory Services:** Preparation of operational and technical manuals, technical survey for selection of the target villages, assistance in review of planning, implementation, O&M of civil structures, synthesization of project experiences and lessons, and advice for overall project management; and
- 2) **Services by Task Concept:** Site selection, design, cost estimation and monitoring of major civil works for soil and river management.

**Services Provided:**

Advisory services for project management and implementation, including the following:

- a) Assisting in the formulation of operational and technical manuals related to the project;
- b) Assisting in technical (geographical, topographical, soil, land use, etc) surveys for selection for the target villages;
- c) Assisting in detailed plan for soil protection and land reclamation and civil works for soil and river management;
- d) Assisting in review of planning, implementation, O&M of civil structures;
- e) Assisting in bidding (LCB) in compliance with the guidelines of JBIC;
- f) Assisting in the supervision and evaluation of Project progress;
- g) Assisting in annual planning and budgeting;
- h) Assisting in the report preparation such as the progress reports;
- i) Assisting in the development of a financial system, including reporting of accomplishments from the line offices and flow of funds to the front line offices;
- j) Assisting in synthesization of project experiences and lessons replicable to other areas, and
- k) Assisting in liaison with JBIC regarding Project implementation

**Services by Task**

The consultants are envisaged to conduct site selection, detailed design, cost estimation and monitoring the following structures, which will be constructed by contractors;

- a) Silt detention dams (large scale check dams)
- b) Spurs and embankments
- c) Ground sills

**JPS is envisaged to assist in the preparation of the following reports and documents:**

- Inception Report including the organizational procedures/decision making procedure, time schedule, obligation of the client and consultant, etc;
- Report on priority area selection;
- Detailed plan for soil protection and land reclamation and civil works for soil and river management;



## Water Resources & Irrigation

**Location:** Himachal Pradesh

**Client:** Principal Chief Conservator of Forests, Forest Department, Government of Himachal Pradesh

**Funding Agency:** Government of Himachal Pradesh

**Period:** August, 2010 – 2014

**Associate Firm:** Nil

- Detailed design and tender documentation;
- Tender evaluation reports;
- Progress reports (monthly and quarterly);
- Necessary technical reports; and
- Other necessary reports and documents.

### **Preparation of Comprehensive CAT Plan for the Ravi River Basin in Himachal Pradesh for Forest Department, Government of Himachal Pradesh**

#### **Brief Description of Project:**

The Ministry of Environment & Forests has stipulated preparation and implementation of Catchment Area Treatment Plan in cases related to diversion of forest land for medium and major irrigation projects and for hydroelectric power projects under Forest Conservation Act, 1980. The Catchment Area Treatment Plan is an essential document as it portrays the ecological health of the catchment area and various soil & moisture conservation and watershed management programmes required to arrest soil erosion to improve free drainage in the area and to rejuvenate the degraded ecosystem in the catchment. With the demand for power on the increase, especially in the northern region, there has been considerable stepping up in the harnessing of the hydro power potential of Himachal Pradesh. The treatment of the catchment areas of the river is mandated to the H P Forest Department, which implements the approved Catchment Area Treatment Plans (CAT Plans) funded by the individual Hydro-Electric Power Projects (HEPPs). The Government of Himachal Pradesh, however, has switched over from individual project based planning to a more holistic approach involving river basin based planning and management.

The broad objectives for comprehensive catchment area treatment for Ravi river basin are:

- Checking soil erosion and land degradation by taking up adequate and effective soil conservation measures, both engineering as well as biological, in erosion prone areas (mainly under very severe and severe erosion intensity categories);
- Rehabilitation of degraded forest areas through afforestation and facilitating the natural regeneration;
- Rehabilitation of degraded slopes and landslide prone areas;
- Improvement of land capability and moisture regime in the watersheds;
- Promotion of land use to match land capability of the sub-watersheds;
- Prevention of soil loss from the catchments to reduce siltation of reservoirs;
- Prevention of soil erosion from downstream areas so as to reduce the siltation of streams, path roads and agricultural fields;
- People's involvement in the treatment and management of catchment, including payment for eco-services to the local communities;
- Upgradation of the skills in planning and execution of land development;
- Improvement of pasture land by introducing improved palatable grasses;
- Plantation of wild fruits species and creation of water resources for wildlife management; and
- Capacity building of the personnel of HPFD in handling the dynamic process involved vis-a-vis technology transfer and knowledge sharing.

#### **Services Provided:**

The consultancy comprised of the following tasks:

- Preparation of baseline data for the Ravi river basin (from the source of the Ravi river upto upstream of Ranjit Sagar Dam and its catchment in HP) having approximately 5450 sq km catchment area with the primary objective of obtaining a realistic picture of the status of each micro-watershed in their catchments. For this, a holistic approach of using GIS based maps and satellite images as well as



other land based information using primary and secondary sources was adopted. Moreover, GIS Base Maps were prepared on micro-watershed basis with in-built capacities for updating continuously, with enough storage for historical trend data for each parameter for the River basin. The baseline would serve as a tool for assessment of the current situation, inventories, future planning of works in the catchment areas and their subsequent monitoring as well as an important benchmark for environmental impact assessment in future. The micro-watershed shall be the basic spatial unit of data collection and shall allow for flexibility to convert into distinct beat, range, division and district level data.

- Undertaking a detailed environmental and socio-economic baseline comprising of the following activities:
  - Preparation of Base Maps using GIS;
  - Collection of baseline data from the Forest Department;
  - Collection of other secondary data;
  - Collection of primary data;
  - Finalisation of GIS Overlays
- Collecting primary and secondary data in respect of the following:
  - Geographical features such as boundaries of watersheds, slope (contours, elevation), drainage and major landslides;
  - Hydrological, geo-hydrological and hydro-meteorological data, precipitation, run-off, water resources in the basin covering quality and quantity aspects of surface as well as ground water resources;
  - Land use and land classification;
  - Forests and vegetation (forest types; density; legal status including identification/demarcation of division, range and beat boundaries; pastures; plantations; area available for plantation; nallah treatment and other soil and water conservation works undertaken in the past five years; unculturable area; and protected areas);
  - Infrastructure (roads, highways, power projects, industries, trekking routes etc);
  - Towns, villages, settlements, demographic (human and livestock) and socio-economic data;
  - Soil and erosion intensity (gradation and/or prioritization of MWS into high, medium and low erosion intensity classes); and
  - All other features relevant to basin-wide planning.
- Analysis of the current situation based on the development trends in the State for categorization of micro-watersheds in the river basin on erosion intensity and their susceptibility to sediment loads and analyzing the micro-watershed level forest coverage and quality data and identify patterns that are responsible for higher sediment loads;
- Organising stakeholders meetings for each sub-watershed to seek feedback on the reasons for such patterns of sediment loads as well as the potential and possible methods and activities to reduce the sediment load;
- Identifying (i) in what type of context, what kind of treatment measures or combination of typical treatment measures will be required (ii) where treatment will give best results (benefit/cost ratio) (iii) the cost of these treatments in different physical contexts and (iv) the methods of monitoring and evaluation of success from each type of treatment in each physical context;
- Based on an analysis of development trends in the State, identifying whether degradation of forest areas, erosion (such as from road construction) and sediment load will be increased, and which micro-watersheds in the river basin are more susceptible to such increased sediment loads;
- Based on the above data, preparing an integrated Catchment Area Treatment





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Plan for the river basin, complete with micro-watershed treatment plans, implementation arrangements, cost estimates, monitoring and evaluation strategy etc;

- All MWS specific action plans were prepared for a perspective period of 10 years (with a scenario of unconstrained resources) detailing a full menu of treatment actions required, based on the particular need (sediment load) of the micro-watershed;
- For each MWS, estimating resources depending on the nature of work, site contexts, and for assured survival of plantation ( with estimate of capital costs and maintenance costs separately);
- Suggesting, in discussion with all relevant stakeholders, the implementation arrangements for the basin-wide CAT plan including detailed prioritization of the areas and treatments;
- Preparing model contract documents (for Panchayats, public or private agencies) to be entered with the responsible government agency;
- Describing a system of community supervision including how any breach of forest rules and regulations will be monitored and prevented;
- Preparing a financing plan based on an estimate of the trend of plan expenditure of the State Forest Department in last 10 years and suggest the financing mechanisms to implement the basin-wide CAT plan;
- Preparing a model format for preparing an annual plan by every implementing agency together with the principles of evaluation their performances;
- Making provision in the GIS Base Map for a number of overlays on financial management system including (i) fund requirement (ii) annual plan and fund release (iii) residual fund requirement and cumulative requirement (iv) all expenditures (from all sources) including current and cumulative expenditure, indicating instances of failure to implement or release funds on time;
- Preparing an effective Monitoring Plan and Review and Evaluation Mechanism for implementing the basin-wide CAT plan that is linked to GIS Base Map for automatic updation for periodic monitoring, specifying the locations/streams to be monitored, the frequency, the methodology, and the responsibility for monitoring along with a detailed plan for community monitoring and an online community grievance reporting system and disclosure of Annual Plan to the public for each Forest Division or Panchayat; and
- Preparing a Plan for prevention of further degradation of catchments, covering disposal of construction and excavated waste or muck in hill slopes, minimizing muck disposal and protection of dumping sites to acceptable standards for each road agency or road project, including rural roads.

**Location:** Himachal Pradesh

**Client:** Principal Chief Conservator of Forests, Forest Department, Government of Himachal Pradesh

**Funding Agency:** Principal Chief Conservator of Forests, Forest Department, Government of Himachal Pradesh

**Period:** Jan., 2011 – March, 2011

**Associate Firm:** Nil

### **Recasting Work/Action Plans of On-going Catchment Area Treatment Plans for Ravi River Basin in Himachal Pradesh, Government of Himachal Pradesh**

#### **Brief Description of Project:**

The Forest (Conservation) Act, 1980 stipulates that all Proposals for diversion of forest land for hydro-electric projects of 10 MW capacity or above shall invariably be accompanied by detailed Catchment Area Treatment Plans (CAT Plans). Accordingly, in Himachal Pradesh, many CAT Plans have been approved by the Government of India. Many CAT Plans, though compiled in the late 1990s and early 2000, could not be implemented in a timely manner, as the funds for these were deposited in the Ad-hoc CAMPA, which was not operational. The funds are gradually being released to the State since 2009, enabling the implementation of these CAT Plans. This time gap in the preparation of the CAT Plans and their actual implementation has rendered the documents outdated and impractical to execute. Even for CAT Plans approved at a later date, many changes have taken place during the last few years because of altered ground realities, review of technical/administrative decisions and new advances/ techniques in the field of soil and water conservation, necessitating the recasting of these CAT plans.



The HP Forest Department proposed to undertake recasting of the annual actions plans of the ongoing CAT Plans, based on ground realities, incorporating recent learning in silt management and in consonance with the stipulations on the subject of Catchment Area Treatment, in all the river basins of the State. Recasting of the current CAT Plans has become necessary as the time gap in the preparation of the CAT Plans and their actual implementation has rendered the documents outdated and impractical to execute. The recast Action Plans would prioritise the more cost-effective vegetative measures & bio-engineering methodology over civil structures and target-oriented plantation to encourage soil moisture retentivity, reduce soil erodibility and improved soil & water conservation measures. The objective was to start implementation of the recast Action Plans from April, 2011, by getting the APOs for the year 2011 – 12 approved, as per these recast Action Plans.

The consultancy only involves recasting of the balance unspent amount of the particular CAT Plan, after detailed reconnaissance of the catchment area, in order to maximize the impact of the treatment measures aimed at long term stabilization of the catchments. It does not involve complete re-writing of the CAT Plan document. JPS was expected to draw up year-wise, component specific work program for biological and engineering measures, complete with detailed planning of all sub-elements (nursery, afforestation, enrichment and subsequent maintenance, bio-engineering measures, fencing options, especially live- hedges, water conservation/ moisture retention, reclamation of landslides/landslips, pasture improvement) along with specific methodology to be adopted, and also define clear-cut interventions while making provision for the mandatory stipulations like Payments for Environment Services (PES), Monitoring and Evaluation (M&E), Eco-tourism etc. as per GOHP notification dated 30.09.2009. Under the existing CAT Plans, many treatment measures which were prescribed have not had the desired impact and needed to be substituted with alternatives, emphasizing bio-engineering treatment over civil/masonry structures, moisture retention works and propagation of indigenous, multiple-use species that would incentivize local support for soil and water conservation endeavours. Each CAT Action Plan was to be recast for implementation over the next 10 years and the prescriptions so made to spread the treatment/ funds in a balanced way over all micro-watersheds.

#### **Services Provided:**

- Delineate the sub-watersheds/micro-watersheds falling in each CAT Plan. Also mark the drainage lines, villages, plantations (last 15 years), nurseries, fire-prone areas, roads, forest buildings, rest houses and treatments already done/ existing on the GIS map available;
- Realignment of Forest Beat boundaries with the nearest MWS boundaries;
- Field reconnaissance of all major works/ drainage lines mentioned in the existing CAT Plan:
  - a. If works already done & existing, the GPS coordinates/ photographs of the same to be mentioned as also the efficacy of works, scope for further improvement through bio-engineering techniques;
  - b. Prescription of new works and reconsidering addition/deletion of unexecuted works as per existing CAT Plan. These to be suitably spread spatially (MWS wise) and temporally (over the next 10 years). Greater emphasis to be on cost-effective bio-engineering methodology and less on civil/ stone structures (at least 50% of the soil conservation budget should be earmarked for bio-engineering and approximately 50% of this for raising bio-engineering species in nurseries in accordance with bio-engineering instructions issued by the HPFD;
- Emphasis on nursery management: A separate chapter on nurseries is to be



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prepared. This is to be based on visits to all nurseries in the catchments and suggestions for increasing area under nurseries and improvement of infrastructure – water storage, vermi-compositing etc. and future planning to be made; and

- As per the GoHP notification provision for the following should be made:
  - i. 10% of the balance remaining for PES: The recast Plan must clearly list out the works to be done sub-watershed wise against the provision. The PES input be concentrated in areas practicing agriculture/horticulture;
  - ii. 5% for Monitoring & Evaluation: The Plan to include a Monitoring Schedule (for Third Party Monitoring) for the period of the revised CAT Plan. The recast monitoring schedule to also prescribe on-going monitoring of silt, catchment wise along with the sites/agency responsible for this. The HEP concerned/BBMB, would be appropriate sources as they possess the requisite resources/data for the catchment and hence all silt monitoring sites are to be located near to these establishments. In case silt monitoring has to be done by Forest Department, the sites should be at such places where presence of H.P. Forest Department exists in the shape of Forests Guard Hut, Forests Rest House, Range Office or Nursery etc;
  - iii. Training & Capacity build-up of forest staff/ locals with specific relevance to the recast CAT Plan provisions.

**Location:** Uttar Pradesh

**Client:** Irrigation Department, Government of Uttar Pradesh

**Funding Agency:** World Bank

**Period:** 2006 - 2008

**Association Firm:** Nil

### **Providing Assistance in Management of Uttar Pradesh Water Sector Restructuring Project (UPWSRP) Activities and Development of Project Management and Monitoring Information System (PMMIS) for Irrigation Department, Government of Uttar Pradesh**

#### **Brief Description of Project:**

The overall objective of this consultancy is to assist the Project Activities Core Team (PACT) in monitoring project activities and performance evaluation towards fulfillment of the objectives of the Uttar Pradesh water sector-restructuring project, component wise.

The specific objectives of the consultancy are to:

- Develop a Project Management Information System for Uttar Pradesh Water Sector Restructuring Project (UPWSRP) activities;
- Develop suitable baselines on key performance indicators to assess current situation;
- Assess project impacts by tracking key performance indicators (input, output and main business activities in irrigation system of pilot areas) such as:
  - Environmental Aspects
  - Operational Aspects
  - Financial Aspects
  - Water Access Arrangements
  - Customers
  - Social Aspects
- To provide self-monitoring feedback on lessons learned during implementation for introduction of corrective actions;
- To provide periodic reporting on project status (including data analysis, surveys, interviews, photographs, description); and
- To develop a computerized web-enabled project monitoring system to track all aspects of project progress (including physical and financial progress and project impact) at any point of time.

**Services Provided:**

**Analysis of the Project activities:** Study various components of the project and current implementation; review project documents; contracts, reports; discussions with PACT, DASP, WALMI, UOID and other agencies.

**Determine Key Performance Indicators with their monitoring parameters and Reporting Formats:** Based on the Project Appraisal Document (PAD), review project activities and discussions and determine a set of key performance indicators to assess the impact of the project. The list of specified performance indicators were envisaged to be modified and updated in consultation with PACT. Also, develop reporting formats, including easy-to-read graphics, in consultation with PACT.

**Determine baselines for the key performance indicators:** Develop baseline information for all key performance indicators. Conduct the surveys in consultation with PACT and other project line agencies, collate, computerize and analyze information in a Computerized Project Management and Monitoring Information System (PMMIS).

**Monitor Key Parameters and Input into the PMMIS:** Monitor on a regular basis the key project indicators and input these in a timely fashion into the PMMIS.

**Design, implement, and operate the Project Management and Monitoring Information System (PMMIS):** Develop integrated, user friendly web-based software to manage project activities and track the key project indicators. Advise PACT on any additional hardware and software required for this purpose and assist in their procurement. The PMMIS was envisaged to build upon inputs from other project information systems (including the financial management systems, MIS, etc.). The PMMIS was envisaged to include mechanisms for:

- ♦ Online web-based project management system to determine project activity scheduling, resource allocation, etc. These were to be accessed through the web with appropriate security and access provisions to input key project management parameters and be able to analyse this information with the functionality of modern project management systems (e.g. produce Gantt charts, schedules, PERT/CPM analyses, etc. for each component and activity);
- ♦ Input of key monitoring indicators for each project agency at appropriate administrative levels (e.g. 8 division offices of UPID in Jaunpur Branch Sub-Basin & Imamganj Branch Sub-Basin, DASP, WALMI, etc.) with appropriate security and access provisions, error-checking etc. in a spatial context using GIS;
- ♦ Develop standard queries (e.g. progress by component, activity, institution, month, year, canal system, etc) on the monitoring knowledge-base and appropriately processing data entered to generate user friendly reports, including appropriate graphics and schematics. This was envisaged to make use of appropriate GIS systems to facilitate spatial analysis progress;
- ♦ Determine data management needs and information flow arrangements: Work with PACT to determine data needs, reporting arrangements, information flow arrangements, data validation and checks, institutional arrangements and security precautions to ensure smooth and effective functioning of the PMMIS. This was envisaged to include both the information to be collected by JPS through surveys as well as information to be captured by various project agency staff; and
- ♦ Training: To provide training to key project staff in all project-related agencies (PACT, UPID, DASP, WALMI, etc.) to effectively use the PMMIS.



## Water Resources & Irrigation

**Location:** All over the Country

**Client:** Integrated Watershed Development Project Office, Government of Himachal Pradesh.

**Funding Agency:** Integrated Watershed Development Project Office, Government of Himachal Pradesh

**Period:** 2001-2003

**Association Firm:** Nil

### **Integrated Watershed Development Project Hills II (Financial Management Technical Support Consultancy) for IWDP Office, Government of Himachal Pradesh**

#### **Brief Description of Project:**

The objectives of the assignment were:

- To improve the productive potential of the Shiwaliks and the Karewas by evolving watershed treatment technologies and community participation approaches. Watershed protection and development includes watershed treatment; fodder and livestock development and rural infrastructure development; and
- To assist the states with institutional development and consolidate progress already made in harmonizing approaches to watershed development management among various programmes operating in the Shiwalik hills. Institutional strengthening includes policy reforms, studies on human resource development; beneficiary capacity building; income generating activities for women; information management; monitoring and evaluation; and support for strengthening project management

#### **Services Provided:**

- To ensure that all financial management aspects (including necessary financial and accounting aspects) of the project in the state are satisfactorily handled.
- Provide required technical support to project financial staff, including hands-on operational support, and be responsible to ensure that the service standards for financial management activities indicated in the Project Financial Management Manual are met.
- To provide training to project financial staff and enhance skills of project financial staff in improved financial management practices and develop their skills for operating the improved computerised project financial management system.
- Developing financial management capabilities of Village Development Communities (VDCs) by way of assisting the project staff in overseeing the financial management aspects of the VDCs to ensure that the VDCs develop the financial management skills required for their institutional development.

### **Study of Accelerated Irrigation Benefit Programme (AIBP) for Infrastructure and Project Monitoring Division, Ministry of Statistics and Programme Implementation, Government of India**

#### **Brief Description of Project:**

The Government of India launched the Accelerated Irrigation Benefits Programme (AIBP) during 1996-97 to provide Central Loan Assistance (CLA) to major and medium irrigation projects in the country with the objective to accelerate the completion of on-going irrigation/multi-purpose projects on which substantial progress has been made but are beyond the resource capability of the State Governments to complete and other major and medium irrigation projects which are in the advanced stage of completion and could yield irrigation benefits in the next four agricultural seasons. The objective of the study was to study the impact of the AIBP and to ensure effective implementation of the AIBP Scheme and develop a system of monitoring to actively analyze the desired benefits envisaged through the Scheme upto September, 2004.

#### **Services Provided:**

- Collect necessary information about project identified in the zone so as to complete the data base of these projects;
- Analyze the implementation of projects in the identified zone with respect to the envisaged benefits;

**Location:** Punjab and Rajasthan

**Client:** Ministry of Statistics and Programme Implementation, Government of India

**Funding Agency:** Ministry of Statistics and Programme Implementation, Government of India

**Period:** Feb. 2005-Sept. 2005

**Associate Firm:** Nil





## Water Resources & Irrigation

**Location:** Hyderabad

**Client:** JBIC

**Funding Agency:** JBIC

**Period:** 2005

**Associate Firm:** NJS  
Consultants Co. Ltd.,  
Tokyo, Japan

- Analyze the economic and social impact of AIBP Scheme in States in the identified zone;
- Identify all possible constraints in the implementation of the projects under AIBP and suggest remedies;
- Analyze the process of identifications of projects and their funding under the AIBP Scheme; and
- Study the existing monitoring mechanism of Central Water Commission & Ministry of Statistics and Programme Implementation and suggest a possible adaptable system

### Hussain Sagar Lake and Catchments Area Improvement Project

#### Services Provided:

The objective of the study was to assess financial and economic aspects for SAPROF for Hussain Sagar Lake Project in India.

#### Brief Description of Project:

The work involved the following:

- Confirmation of financial soundness of the project including possibility for allocation of the local cost portion by Gol and / or GoAP.
- Assessment of availability of necessary funds for maintenance of the project facilities after the completion of the construction for 20 years. To this end, the possible amount of revenues of sewerage cess and sale of treated water as well as the subsidy from the Government were assessed.
- Confirmation of economic benefits & calculation of economic internal rate of return of the project be quantified.
- Quantification of economic benefits which will be generated from the project.
- Estimation of construction and maintenance costs of the project including annual costs & revenues of the proposed project for a period of 20 years.
- Overall review of cost estimations for implementation of the project.

#### Quantitative estimation on annual basis for a period of 20 years for the following benefits to be generated as a result from expected improvement in water quality:

1. Increase in fish yield to be generated mainly from pisi-culture.
2. Increase in the price of prosperities in the region due to environmental improvement.
3. Increase in levy from supply to some bulk consumers of the treated water as above mentioned.
4. Increase in tourism revenues to be generated due to betterment of environment and scenery.
5. Other possibly expected benefits if any.

**Location:** Tripura

**Client:** Directorate of  
Planning & Coordination,  
Tripura Agriculture  
Development Project,  
Government of Tripura

**Funding Agency:** World  
Bank

**Period:** 2003 – 2004

**Associate Firm:** Nil

### Need Assessment Study for Tripura Agriculture Development Project for Department of Agriculture, Government of Tripura

#### Brief Description of Project:

The objective of the consultancy assignment was to identify underlying issues and constraints in the sector, using a combination of primary and secondary data, and propose a project design that would respond to actual needs and demands of key stakeholders. The study was also to identify key policy and institutional reforms needed to address existing constraints and opportunities and create an enabling environment for accelerated agricultural growth in the state.



## Water Resources & Irrigation

### Services Provided:

- Identifying key constraints in growth of agricultural products and markets;
- Identifying needs priorities, investment demands of village communities;
- Identifying areas of agricultural opportunity;
- Independent assessment of impact of the uncertain security situation in the state on agricultural development and delivery of government services in rural areas; and
- Developing policy and institutional reforms needed to accelerate agricultural development, marketability of products and increase private investment in the sector

### National Hydrology Project (Phase –I)

#### Brief Description of Project:

The Government of India launched Hydrology Project (HP) with World Bank (IDA) credit assistance. Besides, under the bilateral India-Dutch agreement, the Government of Netherlands provided a grant-in-aid assistance in the form of Technical Assistance as consultancy services and overseas training to all participating states and Central agencies. The Project was implemented in nine states viz; Andhra Pradesh, Gujarat, Karnataka, Kerala, Madhya Pradesh, Chhattisgarh, Maharashtra, Orissa and Tamilnadu and five Central agencies viz; Central Water Commission (CWC), Central Ground Water Board (CGWB), Central Water and Power Research Station, National Institute of Hydrology and India meteorological Department.

The aim of the Hydrology Project (Phase I) was to develop comprehensive, easily accessible and user friendly databases covering all aspects of Hydrological Cycle, including surface water and ground water in terms of quantity and quality and climatic measurements, particularly of rainfall involving complex web of inter-state and intra-governmental relationship. This was envisaged to assist in the development of more reliable spatially intensive data on water resources. The project further aimed at making the hydrological information available for planning and management of water resources and other legitimate uses and promoting its utilisation. Achievement of these goals involved improvement of institutional and organisational arrangements, technical capabilities, and physical facilities available for collection, processing and dissemination of hydrological and hydro-meteorological information. The ultimate aim of the project was to deliver a functional demand driven Hydrological Information System (HIS) with improved institutional capacity to build, operate and utilise HIS to the benefit of the different user groups and to encourage cooperation among the different participating agencies through data exchange. The development of the databases would support major aspects of India's Water Policy, particularly with regards to water allocation and planning and management of water resources development at the National, State, Basin and Project level.

The Hydrology Project (Phase I) improved institutional and organizational arrangements, technical capabilities, and physical facilities available for: measurement, validation, collation, analysis, transfer, and dissemination of hydrological, hydro-meteorological, and water quality data; and for basic water resource evaluations. It established a comprehensive Hydrological Information System (HIS).

#### Services Provided:

JPS experts were part of two key Task Groups under the Project, as follows:

#### Task Group III: HIDAP and HDUG Management

**Location:** India

**Client:** Ministry of Foreign Affairs, Directorate General for International Cooperation, the Netherlands

**Funding Agency:** Ministry of Foreign Affairs, Directorate General for International Cooperation, the Netherlands

**Period:** July 1996 - 2003

**Associate Firm:** DHV Consultants, The Netherlands  
Delft Hydraulics, The Netherlands



Introduction of a “Hydrological Institutional Development Plan” (HIDAP) as systematic planning tool, and assisting the implementing agencies in assessing the project performance in terms of outputs and human, financial and technical resources in relation to HIS objectives. Hydrology Institutional Development Action Plan (HIDAP) was an annually reviewed and updated agency-specific plan focusing on management, organizational, and institutional development aspects of the project. Hydrological Data User Groups (HDUG) were constituted for feedback on user orientation and satisfaction with hydrological information provision.

JPS experts were part of Task Group III which involved Institutional Development, addressing a gamut of organizational and institutional development issues and activities related to the development of the HIS and preparing the agencies for the sustainable operation and maintenance of the HIS beyond the project closing date.

#### **Task Group-IV: Training Services**

Training Services involved providing overall assistance and guidance to the agencies responsible for the various training activities supported under the project, through Central Training Institutes (CTI) and in-house trainers (Training of Trainers). JPS experts were also part of Task Group IV.

Specific activities undertaken by JPS included the following:

Our **IT Experts** assisted in the development and implementation of HIS, a comprehensive, easily accessed and user friendly database covering all aspects of the hydrological cycle, including surface water and ground water in terms of quantity and quality and climatic measurements, particularly meteorological, hydrological and hydro-geological systems on space and time.

Our **Institution Development Experts** helped in organization development to improve the internal structure and operations through (a) establishing a national level WQ Assessment Authority; (b) establishing and activating unified (GW, SW & WQ) Data Storage Centers and introduction of O&M procedures; and (c) systematic inter-agency data exchange practices, etc. Our Experts conducted workshops on network planning and assisted the agencies in reviewing their networks, documentation in joint inspection reports of integrated networks of states. Model bid documents were made and acceptance criteria formulated to support the procurement of reliable equipment, meeting the specifications. Workshops were held to make sure that the officers were capable of managing the procurement process. Station and installation plans have been reviewed. To ensure correct installation of the equipment, an intensive monitoring program was executed.

Our **Training and HRM Experts** developed Training Documents and provided training for trainers for 36 state and central government departments alongwith recommendations/ guidelines for improving the reviewed systems in line with practices acceptable to IDA/ World Bank and Dutch bilateral aid. One outstanding and most visible gain from the Hydrology Project has been the extensive skill building of HIS staff across levels. Over 10,000 people at the top, middle, and field levels have been trained in HIS concepts, methods, tools, techniques, and applications. The “Staffing and Training Information system (STIS)” was prepared by our team to manage the staff in HIS and keep track of the various trainings imparted to them at different times.



## Water Resources & Irrigation

**Location:** Country: Andhra Pradesh, Gujarat, Kerala, Karnataka, Madhya Pradesh, Orissa, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal

**Client:** Ministry of Water Resources, Government of India

**Funding Agency:** Ministry of Water Resources, Government of India

**Period:** 1997-1998

**Associate Firm:** Nil

**Location:** Kerala

**Client:** Ministry of Foreign Affairs, The Royal Netherlands Government

**Funding Agency:** Ministry of Foreign Affairs, The Royal Netherlands Government

**Period:** 1993-1999

**Associate Firm:**

Euroconsult The Netherlands, BKH Consulting Engineers

**Location:** Karnataka

**Client:** The Royal Netherlands Government

**Funding Agency:** The Royal Netherlands Government

**Period:** 1995-1998

**Associate Firm:** DHV Consultants, The Netherlands

### Command Area Development Programme

#### Brief Description of Project:

To carry-out an in-depth and comprehensive assessment of the Command Area Development Programme to determine the extent to which it has been able to achieve its objectives, identification of problem areas and suggesting time-bound measures to remove these problem areas.

#### Services Provided:

During the assignment, the following were evaluated:

- Adequacy of existing administrative structure
- Existing system of monitoring and impact assessment
- Existing management information system
- Support to extension services
- Social impact

This was followed by documentation of deficiencies, recommendation of measures to remove deficiencies, an action plan for implementation of these measures and a monitoring plan for charting implementation progress.

### Kerala Community Irrigation Project

#### Brief Description of Project:

Establishment of farmers organizations for designing and implementing irrigation schemes in Kerala.

#### Services Provided:

- Study of existing water management practices in the state;
- Designing Model Terms of Association and Bye-laws for the Water Users Association;
- Identification of resources gap and preparation of communities for taking over management responsibility;
- Selection and Training of Community Officers, facilitating the creation of community organization; and
- Conception, design and implementation of a monitoring and evaluation system

### Tungabhadra Irrigation Pilot Project (TIPP-II)

#### Brief Description of Project:

The development objective of the project was to contribute to the standard of living of the farmers in the Tungabhadra command area by improving management of land and water.

#### Services Provided:

- Provision of management and coordination support for project implementation;
- Development of project implementation plans through stakeholder participation;
- Monitoring of project activities;
- Evaluation of project impact; and
- Development in a management information system for monitoring the project.



## Water Resources & Irrigation

**Location:** India

**Client:** Ministry of Agriculture, Government of India

**Funding Agency:** Ministry of Agriculture, Government of India

**Period:** January, 1995 - March 1995

**Associate Firm:** Nil

**Location:** India

**Client:** Ministry of Agriculture, Government of India

**Funding Agency:** Ministry of Agriculture, Government of India

**Period:** January, 1995 - March 1995

**Associate Firm:** Nil

**Location:** India

**Client:** Ministry of Agriculture, Government of India

**Funding Agency:** Ministry of Agriculture, Government of India

**Period:** January, 1995 - March 1995

**Associate Firm:** Nil

### Evaluation of the Irrigation Scenario in East Zone of the Country

#### Brief Description of Project:

Evaluation of present scenario of irrigation development in East zone of India. Extent to which the traditional irrigation systems have been replaced by canal/ shallow tubewell was also evaluated.

#### Services Provided:

- Impact assessment of project interventions;
- A detailed evaluation of the present scenario of irrigation.
- Creation of an extensive database for the first time on the facts and figure available in the irrigation sector; and
- Recommendations to increase the irrigated area.

### Evaluation of the Irrigation Scenario in North Zone of the Country

#### Brief Description of Project:

Evaluation of present scenario of irrigation development in North zone of India. Extent to which the traditional irrigation systems have been replaced by canal/ shallow tubewell was also evaluated.

#### Services Provided:

- Impact assessment of project interventions;
- A detailed evaluation of the present scenario of irrigation.
- Creation of an extensive database for the first time on the facts and figure available in the irrigation sector; and
- Recommendations to increase the irrigated area

### Evaluation of the Irrigation Scenario in South Zone of the Country

#### Brief Description of Project:

Evaluation of present scenario of irrigation development in North zone of India. Extent to which the traditional irrigation systems have been replaced by canal/ shallow tubewell was also evaluated.

#### Services Provided:

- Impact assessment of project interventions
- A detailed evaluation was made of the present scenario of irrigation. An extensive database was created for the first time on the facts and figure available in the irrigation sector.
- Recommendations were made to increase the irrigated area.





## Water Resources & Irrigation

**Location:** India

**Client:** Ministry of  
Agriculture, Government of  
India

**Funding Agency:** Ministry  
of Agriculture, Government  
of India

**Period:** January, 1995  
March 1995

**Associate Firm:** Nil

### Evaluation of the Irrigation Scenario in West Zone of the Country

#### Brief Description of Project:

Evaluation of present scenario of irrigation development in North zone of India. Extent to which the traditional irrigation systems have been replaced by canal/ shallow tubewell was also evaluated.

#### Services Provided:

- Impact assessment of project interventions;
- A detailed evaluation of the present scenario of irrigation.
- Creation of an extensive database for the first time on the facts and figure available in the irrigation sector; and
- Recommendations to increase the irrigated area.



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