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4th World Water Forum

The 4th World Water Forum convened in Mexico City, Mexico from Thursday, 16 March to Wednesday, 22 March 2006. The Forum is the largest international event on freshwater, and seeks to enable multi-stakeholder participation and dialogue to influence water policy-making at a global level, in pursuit of sustainable development.

The 4th Forum's main theme, "Local actions for a global challenge," was addressed through five framework themes: water for growth and development; implementing integrated water resources management (IWRM); water supply and sanitation for all; water management for food and the environment; and risk management. Over 200 thematic sessions were held, and almost 20,000 participants attended, representing governments, UN agencies, intergovernmental organizations, non-governmental organizations (NGOs), academia, business and industry, indigenous groups, youth and the media. Mr. Hafiz uddin Ahmad B.B, Hon'ble Minister, Ministry of Water Resources and Mr. H.S. Mozaddad Faruque, Director General WARPO participate in this Water Forum.



Mr. Hafiz uddin Ahmad B.B, Hon'ble Minister Ministry of Water Resources is seen in the 4th World Water Forum.

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5th Parichalana Parishad Meeting of WARPO

5th Parichalana Parishad Meeting of WARPO was held on 21 January 2006 in the Conference room of WARPO. Mr. Hafiz Uddin Ahmad, BB, Minister, Ministry of Water Resources and the Chairman of Parichalana Parishad of WARPO, Mr. Hafiz Uddin Ahmad, BB Chaired of the meeting. Some of the important decisions that were taken in the Parichalana Parishad Meeting are stated below:

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2nd Inter-Ministerial SC meeting of ICZMPP



Mr. Hafiz uddin Ahmad B.B, Hon'ble Minister, Syed mohammad zobaer, secretary Ministry of Water resources, H.S. Mozaddad Faruque, DG WARPO are seen in the meeting.

The second Inter-Ministerial Steering Committee Meeting of Integrated Coastal Zone Management Plan (ICZMP) Project was held on 13 February 2006 at 10:00 am in the Ministry of Water Resources (MoWR). Mr. Hafiz Uddin Ahmed (BB), Honorable Minister of Water Resources Presided over the meeting. Acting Secretary, Mr. Sayed Md. Jobayer, MoWR and Mr. H.S. Mozaddad Faruque, DG, WARPO was also present in the meeting. The main agenda of the meeting were the approval of draft Coastal Development Strategy (CDS), Priority Investment Programs (PIPs) and establishment of Program Co-ordination Unit (PCU) within WARPO.

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The Forum concluded with a Ministerial Conference on 21-22 March, with some 140 ministers and high-level officials gathering in both closed and open sessions, which included dialogues and roundtables on various aspects of water management. A Ministerial Declaration was adopted, calling for international action on water and sanitation issues.

Forum Co-Chair Fauchon announced that the 5th World Water Forum will be held in Istanbul, Turkey, in March 2009.

Ministerial Declaration: In this Declaration, Ministers reaffirmed the critical importance of water for sustainable development and underlined the need to include water and sanitation as priorities in national processes, particularly national sustainable development and poverty reduction strategies.

They also reaffirmed commitments to achieve the internationally agreed goals on IWRM and access to safe drinking water and basic sanitation, and the decisions of CSD-13 on: policy options and practical measures to expedite implementation in water, sanitation and human settlements; increasing resources for developing countries to achieve the internationally agreed goals; and improving governance, enabling environments and regulatory frameworks, which adopt a pro-poor approach with active involvement of all stakeholders. Ministers also acknowledged the input of the Forum for the follow-up segment on water and sanitation of CSD-16 to be held in 2008.

The Declaration recognizes the importance of domestic and international capacity building policies and cooperation to mitigate water-related disasters, the role of parliamentarians and local authorities in increasing sustainable access to water and sanitation services and support for IWRM. The Ministers also welcomed the launch of the WAND as a means of implementing the CSD decision to develop "web-based tools for the dissemination of information on implementation and best practices."



Syed mohammad zobaer, secretary Ministry of Water resources, H.S. Mozaddad Faruque, DG, WARPO are seen in the discussion in 4th WWF.

2nd Inter Ministerial ...cont'd

The draft CDS, prepared on the basis of CZPo-2005 and through consultation in district level, upazila, union, char and island level and with special groups, NGOs, autonomous organizations, was presented in the meeting for approval. After a detail discussion, the Committee approved the draft CDS. Then the Committee discussed on 23 PIPs which were endorsed in the 9th Technical Committee meeting and recommended for approval in the 2nd Steering Committee. The Committee decided to send the PIPs to relevant ministries. The necessity of PCU for the co-ordination of projects in the coastal zone was discussed by the Committee members. The Committee approved the proposed PCU structure and recommended that PCU may be established in the 2nd phase of ICZMP project.

Introducing the PCU as new unit of WARPO

Integrated Coastal Zone Management plan (ICZMP) project was taken by Water Resources Planning Organization (WARPO) in 2002 and completed 31 December 2005. One of the major component of the project is Coastal Zone Policy. The Coastal Zone policy developed and approved by the Government on 17th January 2005. The Coastal Zone Policy (MoWR 2005) Directives:

Quote

? "A program Co-ordination Unit (PCU), based within the lead agency (WARPO) will be established to discharge the coordination functions during the implementation stage

? PCU will be established to provide technical support to the lead agency in the discharge of their coordination functions "

Unquote

●The main functions of PCU

- Promotion of an enabling institutional environment
- Supporting continued efforts in the process of establishing Integrated coastal zone management as specified in the coastal development strategy (CDS) and Coastal Zone Policy (CZPo)
- Preparing, Monitoring and assess the Priority Investment Program
- Knowledge Management and Social Communication
- Formulation of rules, regulations, guidelines manuals supporting the CDS
- Review CDS, CZPo, ICRD and PIP updating/revision (if needed)
- Facilitating inter agency discussion for continuous development of concept notes and possible investment
- Preparing Integrated District Development Plan (IDDP) for coastal district.

It is a multi-disciplinary and multi ministerial setup headed by one director of WARPO. PCU will have strength 27 (17 from WARPO Professional 5 GOB deputed Expert from different ministries and 3 supporting staff).

continued....

5th Parichalana Parishad meeting (21-11-05)

1. According to the decision 5(2) of 4th Parichalana Parishad Meeting that is Rule no. 12 of Water Resources Act 1992 (Act No. 12), WARPO will prepare a treasury fund regulation and present its draft in the next Parichalana Parishad Meeting.
2. WARPO will request the Ministry of Finance through the Ministry of Water Resources to repay the required money of Life Insurance Premium of officers and staffs from establishment budget.
3. A committee coordinated by 3 members was formed to assess and give recommendations on promotion criteria of 1st and end class officers of WARPO and base on that committee report, WARPO will present the promotion criteria in the next Parichalana Parishad Meeting for approval.
4. ODP of WARPO will be included a complete discussion issue in the next Parichalana Parishad Meeting.
5. As the recommendation of Technical Committee of WARPO, the comments on the report of "Clearing House" given by all related organization will be discussed in the next Parichalana Parishad Meeting.

Study Tour in Canada:

Mr. Abdul Haque Sardar PEng., Additional Chief Engineer/Director, WARPO participated in a study tour on "Modernization of the Ministry of Water Resources Financial Management Capability" was held from 11-22nd November 2005 at Ottawa, Montreal and Toronto in Canada. The study tour was covered the subjects of Integrated Accounts System (IAS) several departments of Canada, the Engineering Science and Technology, Water Supply & IWRM of about 900 lakes of Canadian Territory. The tour was attend by 8 (eight) high officials in a team from Planning Commission, & Ministry of Water Resources. It was performed to gain the knowledge of main technology of modernization of a accounts by computer data base & in this Connection the team visited Co-operate Renaissance Group, Health Canada, Industry Canada Canadian International Dev. Agency (CIDA), Co-water International. Brace Centre for WRM, provincial Ministry of Environment, Drinking water division. Provincial Ministry of Government Services Integrated Financial Information System (IFIS), Roundtable with International Joint Commission (IJC) of Canada. In each department the responsible high officials presented the papers with full explanations. The study tour was very much helpful for capacity building in accounts system, Engineering Science and General Science.



Involvement of WARPO in the National Adaptation Program of Action (NAPA) Project for the Formulation of the Bangladesh Program of Action for Adaptation to Climate Change

NAPA is a UNDP project funded from GEF (Global Environmental Facilities) component and executed by the Ministry of Environment and Forest (MoEF) with the Secretary as the National Project Director. The project has been implemented during July 2003 to July 2005. The main goal of NAPA was to identify priority activities of the Least Developed Countries (LDC) that encompasses the urgent and immediate needs and concerns to adapt with the current and anticipated adverse effect of climate change including the extreme events.

As part of the implementation of the NAPA process, Sectoral Working Group (SWG) concept was developed to work on 6 different sectors who were responsible to the National Team for submitting the SWG reports. The output of these sectors has been used to formulate the central NAPA report.

WARPO submitted the final Report of the Sectoral Working Group Water, Coastal Areas, Natural Disaster and Health to the MoEF and UNDP on 29 November 2005. During preparation of the final NAPA report the findings of the six SWGs have been critically examined and the output of the exercise is reflected in the final NAPA report.

The proposed projects of the SWG coordinated by WARPO have been accommodated in the list of proposed programs of the final NAPA report. It is expected that as a member of the LDC Countries, Bangladesh would be able to negotiate in the next Conference of Parties of the UNFCCC for allocating funds for implementing some of the priority projects in the coming years.

Impact of Climate Change in the Coastal Zone of Bangladesh

In Bangladesh, about 28 percent of the population living in the coastal area (PDO-ICZMP 2004) is victim of frequent natural calamities like tropical cyclones, tornadoes, floods, storm surges and droughts. Sea level rise (SLR) due to climate change has also been included as an additive in these natural calamities.

WARPO has taken up an study for the assessment of impacts of climate change scenarios in the coastal zone of Bangladesh under Integrated Coastal Zone Management Plan Project. Institute of Water Modelling is engaged in December 2004 for the study. The potential effects of climate change on the coast area have been projected for the year of 2030, 2050 and 2100. The specific objective is to assess the impact of climate changes (in particular sea level rise) on flooding, salinity intrusion and estuarine dynamics.

Sea level rise has been considered as the main variables, quantification of which is based on the recommendations of the Third Assessment Report (TAR) of the Intergovernmental Panel on Climate Change (IPCC) and National Adaptation Program of Action (NAPA) scenarios.

Study Area

19 districts have been distinguished under coastal zone of Bangladesh. The three basic natural system processes and events that govern opportunities and vulnerabilities of the coastal zone of Bangladesh are: tidal fluctuations, salinities and cyclone and storm surge risk. These 19 districts have been considered as shown in Figure.

Major Output of the study

The following are the output from the study:

(a) Inundation depth, inundated area and percentage of increase in area for 2030, 2050 and 2100 projection years; (b) Maximum inundation depth, inundated area and percentage of increase in area due to sea level rise and extreme upstream flooding like 1998 for projected year 2050 ; (c) Drainage congestion in the coastal polders ; (d) Contours of different salinity level and intrusion length for the projection years; (e) Surge inundated area due to sea level rise considering 1991 cyclone and (f) Probable area of erosion and accretion for projection year 2100 in the Meghna Estuary

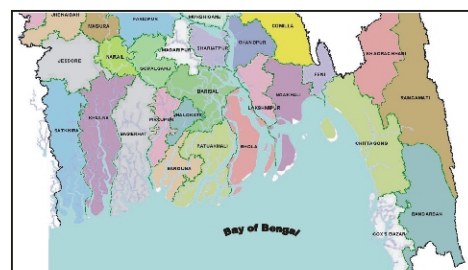


Figure: Coastal zone showing coastal districts

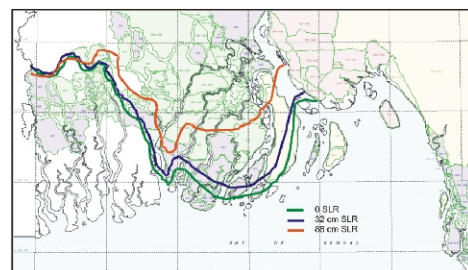


Figure : Line of equal salinity (5 ppt) for different sea level rise in dry season

National Water Resources Database (NWRD)

Dissemination of data and information:

NWRD holds wide range of spatial, time series and attribute data and information, that are continuously giving support to the multi-sectoral and multi-disciplinary planners, researchers, projects etc. Some NWRD data users are:

Planning Commission
Diff. Projects of BWDB
Projects of LGED
Projects of DPHE
Projects of DoEnvironment
BARC
DMB
BRRI
BMDA
Atomic Energy Comm.
RRI
Petrobangla/Gas Field
BPDB
RAJUK
BAPEX
Wheat Research Center
Asiatic Society
etc.

ICDDR
USAID
DFID
World Bank
WFP
JICA
CARE
IUCN
IRRI-CRESMIL
World Fish
ATDP
BCAS
CNRS
Telephone Companies
Projects of WARPO
CEGIS
IWM
Others

BUET
IFCDR/IWFM
DU/CU/KU/RU
DUET/CIET/RIET
Jahangirnagar University
Shajalal University
Agriculture University
North South University etc.

Foreign Universities of
UK, USA, Australia,
the Netherlands,
Japan, Germany,
Thailand etc.

DDC, EPC
HCL, BCL, etc.

Coastal Portfolio Projects Under PIP

The Priority Investment Program (PIP) is the operational arm of the Coastal Development Strategy (CDS) and the linking mechanism to streamline the coastal development into national planning process. PIP is considered as a vehicle to implement the process of identification, preparation, implementation and monitoring of priority interventions. Issues can be identified in different ways and are elaborated through participatory approaches. Concept notes for investment projects were developed through multi-agency participation. The CDS preparation proposed structured steps in identification of (priority) interventions through identification of strategic thrusts, types of interventions and finally specific interventions/actions.

The PIP is a portfolio of concrete proposed actions in the format of the Concept Notes (CNs). Concept Notes contain proposals for implementation, inviting and enabling GoB and donors for immediate actions. Development of Concept Notes precedes identification of concept and preparation of concept proposals. The nine strategic priorities, elaborated in the Coastal Development Strategy, are translated into a portfolio of the following projects. These have been prepared through consultations at different levels and with full participation of agencies.

The portfolio projects are expected to be funded from development funds of the Government of Bangladesh (ADP) with support from development partners. The portfolio projects will be implemented by different line agencies.

<p>Integrated Management of Coastal Water Infrastructures Lead Agency: BDWB, Associated Agencies: DAE, DoF, FD, LGED</p> <p>Groundwater Management in Coastal Zone of Bangladesh Lead Agency: DPHE, Associated Agencies: GSB, BWDB, CEGIS IWM</p> <p>Development and Settlement of Accreted Land Lead Agency: FD, Associated Agencies: BWDB, DoF, DPHE, LGED, WARPO</p> <p>Marine Fisheries Development Program Lead Agency: DoF, Associated Agencies: CG, MMD, FD, SPARSO, DoE, MFD, MFA</p> <p>Strengthening Sanitation and Safe Water Supply Programs in Arsenic & Salinity Affected Areas (in 10 selected upazilas) Lead Agency: DPHE, Associated Agencies: BRDB, DWA, WARPO</p> <p>Integrated Water Resource Management of Greater Noakhali Lead Agency: BWDB, Associated Agencies: LGED, DoF, DAE, FD, DPHE, BRDB</p> <p>Integrated Drainage Improvement of Tidal Influenced SW Region of Bangladesh Lead Agency: BWDB, Associated Agencies: LGED, DoF, DAE, FD, DPHE, BRDB</p> <p>Strengthening & Rehabilitation of Sea Dykes Lead Agency: BWDB, Associated Agencies: FD, DoF, LGED,</p> <p>Reduction of Severe Vulnerability in the CZ Through Multipurpose Cyclone Shelters-including Coping Mechanism Lead Agency: LGED, Associated Agencies: BMD, DMB, BWDB, BRDB, WARPO</p> <p>Coastal Land Zoning Lead Agency: MoL, Associated Agencies: BARC, DLRS, DoE, DoF, FD, SRDI, BARC, LGRD & C</p> <p>Enhancement of Livelihoods in the Coastal Char Area Lead Agency: LGED, Associated Agencies: DoF, DMB, DAE, DLS, DPHE, FD, BRDB</p> <p>Enhancement of Coastal Livelihoods through Small Medium Enterprise (SME) Development Lead Agency: BRDB, Associated Agencies: DoF, DLS, BSCIC, PKSF, DYD, DoSS</p>	<p>Tourism Development in the Coastal Zone for Improvement of Livelihood and Poverty Reduction Lead Agency: BPC, Associated Agencies: FD, LGED, DoF, MoL, BIWTA, BWDB</p> <p>Environmental and Social Responsive Shrimp Farming in 4 selected upazilas Lead Agency: DoF, Associated Agencies: DoE, BWDB, FD, LGED, DAE, FRI, LGIs</p> <p>Capacity Building of Female Fish Processors in Cox's Bazar district Lead Agency: DWA, Associated Agencies: DoF, FRI</p> <p>Comprehensive Rehabilitation Program for Erosion Victims of Coastal Zone of Bangladesh Lead Agency: MoL, Associated Agencies: BWDB, LGED, DAE, BRDB, DPHE, GSB, DoF, DLS</p> <p>Improvement of Livestock Services in the Coastal Zone (in selected 29 upzillas) Lead Agency: DLS, Associated Agencies: DWA, DoYD, BRDB, NGOs</p> <p>Promotion of Coastal Community Services Through Establishment of Community Radio Lead Agency: BNNRC, Associated Agencies: NGOs</p> <p>Strengthening of Coast Guard for Improvement of Coastal Safety and Security in Coordination with Other Law Enforcing Agency Lead Agency: CG, Associated Agencies: FD, B Police, BRD</p> <p>Empowerment of Women Members/Commissioners of LGIs of the CZ Lead Agency: DWA, Associated Agencies: LGED, DYD, DPHE, BRDB</p> <p>Capacity Building of LGIs (Union Parisads and Pourashavas) for Integrated Coastal Resource Management Lead Agency: LGD, Associated Agencies: BRDB, BWDB, LGED, DWA, DYD, DMB, DPHE, WARRPO, DoSS</p> <p>Development of Coastal Agriculture Lead Agency: DAE, Associated Agencies: BRDB, BARC, BWDB, BARI, SRDI, BADC, DAM</p> <p>Integrated Development of Remotely Located Island Lead Agency: LGED, Associated Agencies: BWDB, DoF, FD, DPHE, BRDB, DAE, MoL</p>
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The portfolio projects are expected to be funded from development funds of the Government of Bangladesh (ADP) with support from development partners. The portfolio projects will be implemented by different line agencies.

Future Twinning Mission Support for WARPO ODP Implementation

Extended Twinning Arrangement (2006-2007) was signed on 14 February 2006, in between the representatives of Government Netherlands and Bangladesh Government. Objective of the Extension of Twinning Arrangement (TA) is to continue the unattended of area of first TA. Twinning Mission-XIII visited Bangladesh from 3-9 February 2006 for completing the activities under first TA, finalize the extension of TA (2006-2007) and signing arrangement, formulation of future framework of Twinning Activities. Future Twinning activities will be guided by extended Twinning Arrangement in view of overall framework of present draft ODP based on the adopted strategy.

Future support areas of TM are:

- Twinning Mission may continue to build synergies among BWDB, WARPO & MoWR, towards changes through regular visit & monitoring the progress & making strategies.
- TM may take special attention in the implementation of the inception phase of ODP through the priority tasks under "Human Resources Development" & "Clearing House & PCU role of WARPO."
- It is proposed that TM take some initiatives to arrange some tour program/field visit for WARPO professionals in Netherlands.

Reviewing the Terms of Reference of MoU signed between GoB and GoN on November 2000. It may be mentioned that so far TM has been involved to assist the formulation of draft ODP of WARPO. It is further suggested to broadened its activities in the followings:

- To strengthen capacities of WARPO in the field of integrated approach for planning, implementation and maintenance of water and coastal resources and water related coastal infrastructure,
- A long term basis for interagency/ institutional collaboration in the water sector is also required to be defined by the TM taking into accounts the policy framework of bilateral development and cooperation of the two countries.



Twinning Mission and WARPO Officials are seen in the picture

ToT course on IWRM: Introduction and Orientation

Aiming to raise awareness and build up capacity among the water sector stakeholders in IWRM a three days training entitled "Training of Trainers (ToT) course on IWRM: Introduction and Orientation" were organized by WARPO and CEGIS in cooperation with Bangladesh Water Partnership (BWP) on 3-5th January 2006 at CEGIS. A total of 27 participants from 14 different organization including 3 professionals from WARPO were attended in the Course. Highly skilled renowned experts from respective sectors delivered their thoughtful presentation on different aspects of IWRM i.e.: Introduction & GWP perspectives on IWRM; IWRM Concept and Principal; Water Governance; Environmental Consideration in IWRM; Disaster & Climate Variability Consideration in IWRM; Social and Economic Consideration in IWRM; Water Supply and Sanitation in IWRM; Principles of Water Allocation; Trans-boundary Water Issues; Use of Modeling in IWRM; Water Quality Aspect in IWRM; Arsenic Mitigation and Rural Water Supply and Gender Perspectives in IWRM etc. Director General, WARPO presented two papers on "IWRM consideration in NWMP" and "Linkage between IWRM & ICZM "as a resource person. In overall coordination, Director, WARPO; CEGIS & BWP's supports are worth mentioning.

The three days training course ended on awarding of certificate among the trainees by the President, Bangladesh Water Partnership in the presence of DG, BWDB; DG, WARPO and ED, CEGIS expecting successful dissemination and implementation of acquired knowledge on IWRM in their respective organizations.



Mr. Sharif Rafiqul Islam, DG, BWDB, H.S. Mozaddad Faruque, DG, WARPO, Mr. Kamrul Islam Siddique, Chairman, BWP, Mr. Giasuddin Choudhury, ED, CEGIS are seen in the ToT Course.

WARPO participated in Peer Review Training in Support of the Benchmarking Activity of National Water Sector Apex Bodies held at Manila, The Philippines

Mr. Hossain Shahid Mozaddad Faruque, Director General and Mr. Md. Arzel Hossain Khan Principal Scientific Officer(Water Resources) participated a four day long training programme in Peer Review Training in Support of the Benchmarking Activity of National Water Sector Apex Bodies held at Manila, The Philippines during 4-7 October 2005. The Training was organized by the Asian Development Bank. Apart from Bangladesh participants from India, Malaysia, Thailand, Philippines, Sri Lanka attended the programme.

The programme was divided in two parts. First part was dedicated on the presentation relating to the different roles of National Water Sector apex Bodies like Water Resources management; Water resources Data Collection and Management; Mapping Water Demand, Supply and Risks; Establishment and Strengthening of River Basin Organization; Improving Service Delivery; Encouraging Stakeholder Participation and dialogue etc.

The second part of the programme analyzed the Self Assessment Report (SAR) prepared by the National Water Resources Board (NWRB), the secretariat of the Philippine National Water Sector Apex Body. Participants visited NWRB and meet the professionals of NWRB in-groups and conducted random interviews and gather additional data, about their responsibility, performance and limitations which was further compared with SAR prepared by NWRB. Latter they appeared before the peer reviewers to defend their SAR.

On the concluding day participants were asked to write report on the visit and presented the same. It was also decided that Thailand will be the next country whose apex body will be reviewed (Thailand Came out voluntarily to assess the performance of their apex body).



Mr. H.S. Mozaddad Faruque, DG, WARPO, Mr. Arzel Hossain Khan, PSO are seen in the Peer Review Training.

Training on Climate Change and Bangladesh

A training Course for Government Officers on Climate Change and Bangladesh was held on 28 February, 1 & 2 March 2006 in BIAM Foundation, Dhaka. Nine of WARPO Officers were attended this revealing training course.

The training course offered basic knowledge on the changing climate, possible impacts that are likely to happen in Bangladesh, and to find out ways to respond to the changes so that development is not compromised. It is expected that the course will help the professionals serving in various official positions in government ministries, departments, directorates, agencies and organizations to identify how climate change will affect the scope of their work, duties, role and responsibilities in the various decisions they take, particularly in making policies, programs and projects for development in respective sectors and in addressing key national priorities and concerns. This training course also provides guidance to knowledge sources on climate change, explaining the relevance of each module of this training to the learning process.

The training was organized by the Climate Change Cell, Department of Environment of the Ministry of Environment and Forests, Government of Bangladesh.



WARPO Professionals on the training course program

We Mourn



On going Collaborative Research Projects

WARPO has been involved in a number of applied research projects in collaboration with different institutes in the country.

WARPO collaborated with two projects (1,2) implemented by BUET under the framework of "BUET-DUT Linkage Project Phase-III. The projects started in February 2001 and will be completed in May 2006. Other institutes involved in the project are BWDB, JRC, LGED, NSU, DU, SRDI, BARC, DoF, IWM and CEGIS.

Project-1: Holistic Planning, Design and Management of Water Resources System.

This study attempted to develop an integrated water resources management methodology and investigate a number of issues related to the environmental, social and institutional aspects of major water projects. The study recommended a number of technological and institutional options for water and environmental management that will be most suitable for the project areas in Bangladesh.

Project-2: Management of Rivers for In-stream Flow Requirements and Ecological Protection.

This study attempted to evaluate different approaches to quantify "environmental flow" for selected rivers. Four rivers namely Teesta from NorthWest region, Surma-Kushiyara from NorthEast region and Gorai from SouthWest region were selected for this purpose and a number of approach were tested to quantify "environmental flow" for these rivers.

Research Project with IWMF, BUET

Recently WARPO has also signed two MoUs with the Institute for Water and Flood Management (IWMF) of Bangladesh University of Engineering and Technology (BUET) to collaborate in two other research projects (3, 4). Both the Studies were launched officially in September 2005. A workshop was organized by WARPO on 6th April 2006 at WARPO conference room to share views with members of the collaborative institutes and WARPO professionals.

Project-3: Development of a Water Resources Model as a Decision Support Tool for National Water Management.

The proposed research will attempt in the development of grid-based water resources model in the context of flood plain hydrology of the country. The model comprises coarse resolution global hydrologic model for Ganges-Brahmaputra-Meghna (GBM) basin, a fine resolution National Level Hydrologic Model and a wetland focused Water Balance Model for Haor basin for wetland management in the Northeast region of Bangladesh. It is a three-year project. The project is expected to enhance WARPO's computational capacity in macro planning.

Project-4: Risk based Evaluation of Brahmaputra Water Development in Meeting Future Water Demand.

The proposed study would investigate options for long term development of Brahmaputra River to meet demands for irrigation, navigation, fishery, municipal, industrial and domestic uses and also to arrest environmental degradation of the Brahmaputra depending Area (BDA) in Bangladesh. The study aims to develop stochastic model, a set of criterion to enable improved assessment of the options for the river development. Risk based performance indicators e.g. resilience, vulnerability and reliability will be used to provide detail information on likely future behaviors of water development options under likely different hydro climatic scenarios. The tools and indicators are widely accepted for water resources planning and expected to contribute in the future update of National Water Management Plan. It is a two-year project.

Introducing Integrated Coastal Resources Database (ICRD)

WARPO received a mandate through the 'Coastal Zone Policy 2005' to set up ICRD, which is linked to NWRD as a sub-set. ICRD is more than a simple database (better termed as 'knowledgebase'). ICRD is a multi-sectoral database and will hold all the data and information needed for Integrated Coastal Zone Management (ICZM).

ICRD Data Sets

Presently about 490 data layers have been collected and generated for ICRD. The summary of data can be presented based on 6 indicators as follows:

- Administration and Institutions (ADM): Administrative Area, Participation, FMOs/ CBOs, GoB Organizations, Informal Organizations, NGOs, Laws, Regulations, Policies etc.
- Economics and Finance (ECO): Credit, Employment, Foreign Currency Earning, GDP, Savings, Wages, Agriculture, Fishery, Industry, Services, etc.
- Funds and Interventions (FUN): Water, Health, Food Assisted Program etc.
- Human beings and Social Conditions (HUM): Demography, Financial Assets, Gender Related Data, Education and Skills, Health, Income, Natural Assets, Physical Assets, Social etc.
- Assets, Infrastructure and Services (INF): Agriculture Sector, Communication Sector, Education Sector, Health Sector, Power Sector, Protection, Transport Sector etc.

Natural Resources and Environment (NRE): Chars and Inter-tidal Areas, Estuarine Dynamics, Fish and other Aquatic Resources, Plain Land Forest, Shallow Aquifer, Homestead Gardens, Mangroves, Agricultural Land, Ponds and Ghers, Settlement Area/Industrial, Area/Infrastructure: Air, Humidity, Rainfall, Sunshine, Wind, Gas and Oil, Sand and Minerals, Deep Sea, Estuary Branches and Coastal Waters, Floodplains (Wetland), Perennial Water Body, River etc

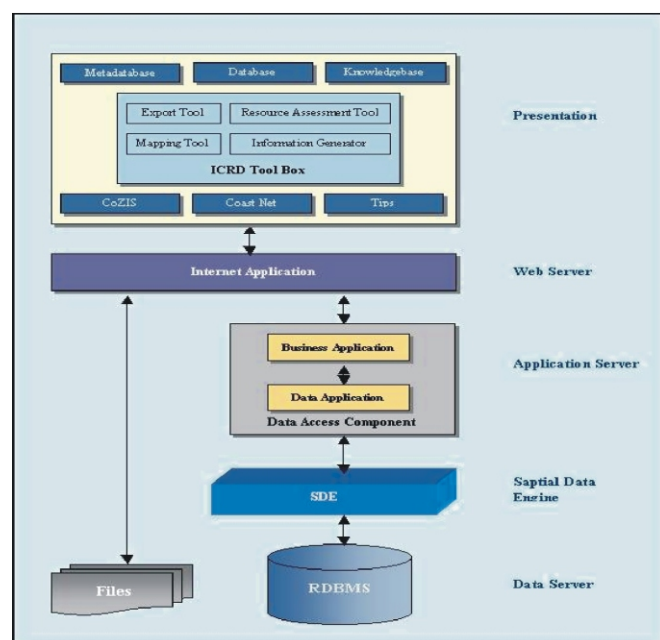
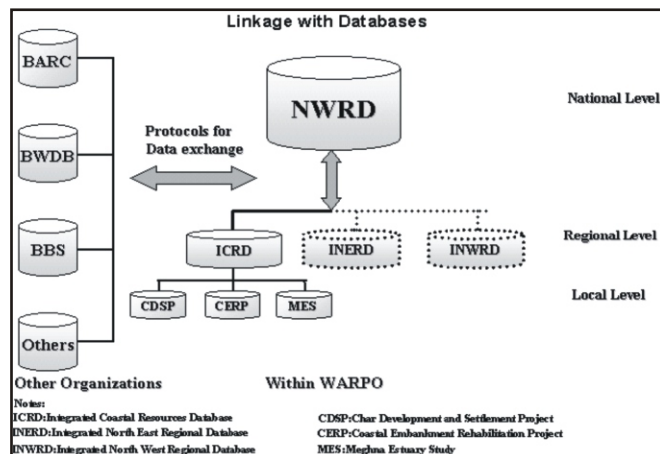


Figure: System Architecture of ICRD