

## Strike a balance between use of Groundwater and Surface water

"Managing Our Water: Making Best Use of This Precious Resource" was the topic of a Roundtable on June 26 at Hotel Sheraton, organized by The Daily Star, a leading English language Newspaper of the country.

The Round Table was organized in the belief that the

other name of water is life. It is so essential for keeping us alive. But when this precious but apparently abundant resource is mismanaged or not managed on one hand and gets polluted on the other it takes its toll of the economy, environment and valuable lives as well. So the imperative is for its appropriate management and augmentation for the benefit of agriculture, navigation, pisciculture and also for keeping it safe for domestic uses. The discussions

generated a lively debate. WARPO, stressing the importance they attached to widespread consultation in developing their plans, gave particular emphasis to the issues of water quality and security of supply that are emerging as key concerns at the start of the new



Picture shows Dr. A.T.M. Shamsul Huda, Secretary, Ministry of Water Resources (5th from right) Mr. Tauhidul Anwar Khan, Director General, WARPO (4th from right) Mr. Malcolm F. Wallace, Team Leader National Water Management Plan (4th from left)

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millenium. The Director general said that these had not been given due prominence in earlier plans.

The participants, "stressed the need for striking a balance between use of ground water and surface water". The abundance in monsoon and its scarcity in dry season was identified as the major challenge for management of the water resources of the country. All the participants highlighted the importance of new thinking in the National Water Management Plan which is currently under preparation at WARPO.

Mr. Mahfuz Anam, Editor, The Daily Star acted as the moderator.

# PPCP – The New Paradigm in NWMP

The National Water Management Plan (NWMP) is expected to be based not only on high standards of technical and strategic analysis but



also on a demonstrable capacity to identify the concerns of all stakeholders. As a way of ensuring the integration of grass root opinion three rounds of People's Participation and Consultations have been planned in 28 districts spread across the length and breadth of the country. Round 1 was held between November 1998 to February 1999 when extensive consultations were held at the village, union, thana and district levels.



The findings of the first round of consultations show that water to meet basic human needs is the top most priority to all. Men cited the

shortage of dry season water for irrigation, waterlogging, siltation and overbank flooding as major problems. Women specially noted as basic problems lack of safe drinking water, the spread of water-borne disease, lack of surface water for domestic use, shortage of hand pumps, absence of appropriate sanitation facilities and, during the monsoon, serious disruption to life and living condition. People have also raised problems related to

water shortage and fish mortality due to pollution and enquired about treatment of water with heavy iron content, arsenic and about flood proofing strategies as well.

The field consultations of the 2nd Round started in the 1st week of July and ended in the first week of

September. The 2nd Round was conducted to solicit views on how the main issues raised could be realistically approached and to focus the discussions on what type of solutions the participants preferred. Opinions regarding the overall performance and impacts of existing water related projects were also sought. The consultations were considered so vital and important that not only Senior Officers of WARPO but the Director

General himself participated in many of the consultative meetings

Some common preliminary solutions emerging during the consultation process are:

- i) Ensure safe water for drinking and domestic/ municipal uses.
- ii) Improve the conveyance capacity of the rivers, khals etc. to improve drainage.
- iii) Excavate/ re-excavate water bodies so they store more surface water and rainfall.
- iv) Raise embankment levels and improve functioning of sluice gates to alleviate flood problem.



- v) Construct properly planned roads with higher levels and build bridges and proper culverts to avoid drainage congestion.

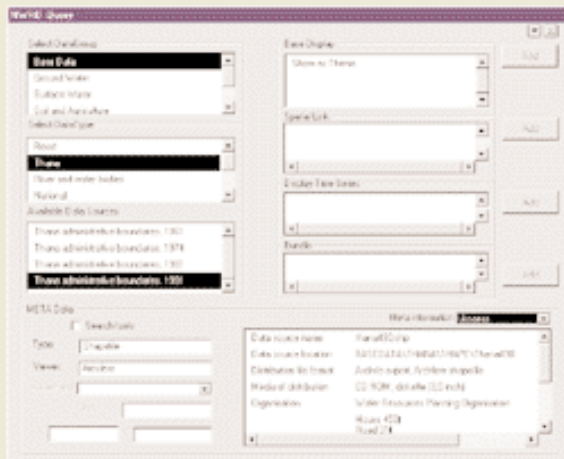
People everywhere had shown tremendous enthusiasm to be involved in water management right from the planning stage.

The People's Participation and Consultation Process is being conducted by WARPO, the NWMP team, BIDS and 13 NGOs (RDRS, PROSHIKA, SPS, CARITAS, CDS, UDDIPAN, TMSS, UST, BNPS, CRIS, CDA, HEED, UTTARAN) selected by ADAB/ CEN.

# The National Water Resources DATABASE

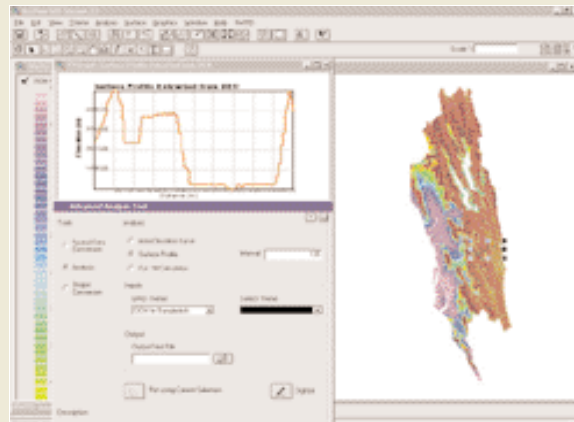
Development of the National Water Resources Database (NWRD) is in full swing at WARPO. Phase-I was successfully completed in June, 1999 with the following objectives:

- to consolidate and organize data collected from different agencies/ organizations/ projects.
- to develop a coherent, secured and sustainable database management system on water sectors.
- to develop and implement a metadata system for NWRD.
- to develop some application tools based on GIS and DB.
- to support national water management plan.



A data inventory report has been prepared giving details of the data held by 24 different agencies working in the water sector and related fields. The main objectives of this activity are to enhance the data collection process, future data exchange or sharing facility and documentation of data inventory. The Digital Elevation Model (DEM) has been updated by filling missing areas and with advance interpolation techniques. A digital

map of water bodies has been established from existing mapping and satellite images.



NWRD Arc View query interface is developed to interrogate and display spatial, time series and attribute data from NWRD. Geokey software is also integrated with NWRD for meta information about data. Other application tools have also been developed for data conversion, view, export etc. purposes.

During the second phase of development, emphasis will be given to a fully operational NWRD within WARPO. Other activities aim:-

- to establish data quality procedures and guidelines
- to develop the data quality tools for NWMP
- to identify and construct additional data layers to enhance and enrich the database to develop some decision support tools
- to prepare NWRD materials for WARPO website
- to establish future data management strategy for NWRD.

For more information on the NWRD, contact Mr. Md. Shah Alamgir, Head of NWRD at WARPO.



# The National Water Policy Is Born- What Next?

By Dr. Yusuf A. Choudhry, Chairman, The Water Policy Advisory Group (WPAG)

## Introduction

The National Water Policy is the first step towards sound management of Bangladesh's water resources. But the arduous task of implementing it starts now. The Policy lays down the intent of sharing and developing water in a systematic and sustainable manner so that no one is ever deprived of its use. Its implementation, however, is not that simple because over the years we have taken water for granted and developed a habit of wasting it, polluting it, taking it away from others, expecting nature to keep providing it without bounds, and being overwhelmed by it when nature does comply opulently. In an attempt to make people accept the fact that water cannot be absolutely controlled in this deltaic plain, and has to be managed judiciously and shared equitably, the Policy provides a Pereto Optimal solution, i.e. giving up something to achieve something without a great loss to anybody.

The Policy recognizes four salient principles for the development and use of water — economic efficiency and social equity, preservation of the natural environment and the quality of water, sharing of responsibility between the public and private sectors with full people's participation, and strong institutions to carry out the responsibility of developing and managing water. These principles are the guidelines for realizing the eventual goals of ensuring adequate, safe, affordable and sustainable supply of water for the inhabitants of this country. What comes next is a series of actions, on the basis of these principles, to realize the stated goals.

## Framing the water code

The existing laws, rules and regulations are too disjointed and outdated for individual organizations to act decisively for implementing water management programs within the Policy's framework. The Government, with the assistance of the Water Policy Advisory Group, is addressing the need for consolidating the laws and administrative mechanism for water management nationally. This task is expected to be completed by mid 2000.

## Developing New Guidelines for People's Participation in Water Management

People's participation in the management of water resources is needed from the smallest unit of activity (Chawk) to the highest level of the National Water Management Plan. The existing Guidelines in this regard are inadequate for meeting the participative framework of water management as envisaged in the Policy. A multi-agency Task Force is currently examining a series of proposals for reconstructing the Guidelines that would empower the stakeholders to determine the essential aspects of management. The new Guidelines should be ready by the end of 1999.

## Designing Administrative Rules and Procedures

The National Water Policy provides clear indications of the mandates of various agencies of the government towards synergistic water management. The Water Policy Advisory Group is working with different departments of the Government to formulate new rules of business to achieve this goal.

## Strengthening Organization for Efficient Water Management

Organizational weakness is the most critical shortfall for

implementation of the Water Policy. Options for meeting essential organizational needs, such as intersectoral coordination and interface, within the water sector are being formulated by the Water Policy Advisory Group. The restructuring of the apex water planning institution, WARPO, has already started. The principal water infrastructure development organization, BWDB, is being examined for decentralization and strengthening to meet the needs of the Policy and the upcoming National Water Management Plan.

## Preparation of the National Water Management Plan

WARPO is preparing the National Water Management Plan and eight Regional Water Resources Management Plans, corresponding to the hydrological zones in Bangladesh. These plans, expected to be completed by March 2001, will provide the macro framework and a set of procedures and guidelines to achieve the goals of water resources management as stated in the National Water Policy.

## Preparation of Sub-Regional Operational Plans and Projects

The NWMP will be the guiding plan for (a) managing the existing water systems in the country and (b) developing new systems to improve availability, delivery, and control of the water resources. Programs and projects will be developed after this in each of the sub-regions by different water related agencies of the Government and the private sector.

The above sequence of events, however, is by no means comprehensive and more will emerge from the studies under the NWMP.

# ENVIRONMENT

The current WARPO environmental assessment of ongoing and completed water sector projects aims to find out whether the targeted beneficiaries have been reached and whether they are happy with the project results. Other reasons are to feed back the 'lessons learned' into the ongoing water resources planning and to disseminate these to other projects, which might benefit from it. The assessment team speaks with farmers, fisher folk, landless people and female and male labourers involved in the earthworks to take their views of the achievements of the various projects.

## Water quality, a life threatening issue!

The site visits to the different parts of the country revealed the prevailing harmful practices to discharge untreated industrial wastewater into surface waters, the overwhelming problem of faecal pollution throughout Bangladesh and the total absence of



environmentally sound solid waste management practices. The Buriganga River probably sets the worst example of accumulation of solid and domestic waste making the entire area open to a large scale of environmental and human disaster. Oxygen levels in this river are at some places so low that they can not support aquatic life any more. It is also noticed that the high infant mortality rate in the country is in the first place caused by bad sanitary conditions and is directly related to water quality. Arsenic contamination of groundwater is now posing a serious threat to public health in about half of the country. This phenomenon is gradually reducing the reliance of people on groundwater for drinking purpose and makes surface water as a source of potable water even more important than it already was.

## Action is needed

Concerted actions are necessary to tackle the enormous water quality problems of the country. This requires a proper understanding of

the dimension and characteristics of the water quality problems and setting-up a nation-wide water quality monitoring system. Cooperation amongst the different authorities and agencies directly or indirectly involved in water quality management, and the involvement of the urban and rural population are also badly needed.



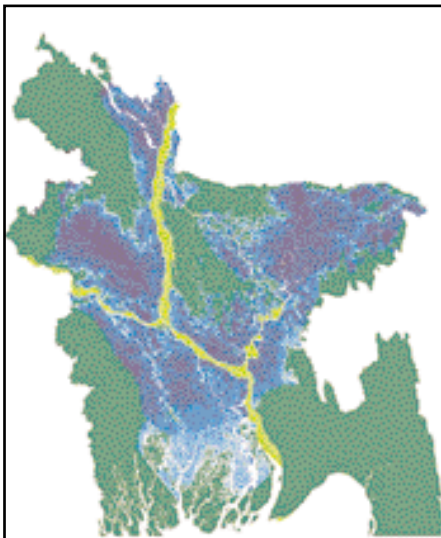
# water resource modelling in the nwmp

NWMP outsources some of its modelling work to Surface Water Modelling Centre (SWMC) to help with water resource assessment at different levels and to test various development and management options both for assessing benefits and possible negative impacts. In addition to the existing regional hydrological and hydraulic models, the NWMP is also using other specialized models such as the morphological, water quality, surface and groundwater interaction and salinity simulation models.

The model outputs are presently being used in the following areas:

### Flood zoning

Flood zoning study refers to the duration and depth of flooding experienced by a particular unit of land under a historical or a defined flood event. Model outputs in the form of flood inundation and depth-duration maps are used in flood phase analysis and to provide baseline data for environmental



Flood depth map for 2 year return period

profiles and planning. The maps have been prepared for different hydrological events such as 2, 5, 10, 20 and 50 year return periods.

### Stream flows

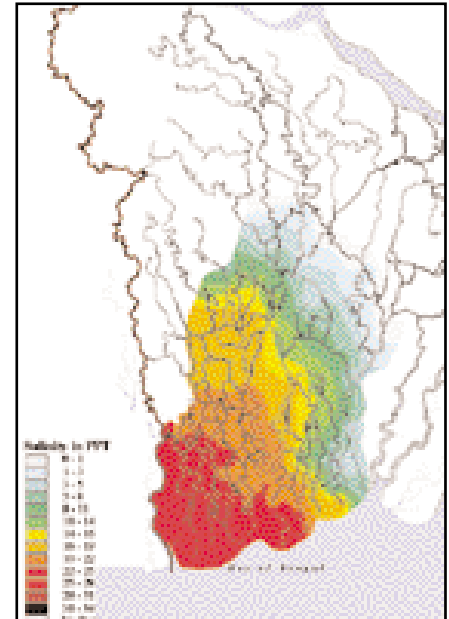
Stream flows are used for both water resources assessment and allocation planning in flood and low flow condition. Models have been used to simulate stream flow in all significant rivers and drainage routes covering the entire Bangladesh for different hydrological conditions.

### Salinity

Salinity data are required to identify the optimum option of water resources development and management. Salinity models have been used for the assessment of impacts of the changes in salinity distribution in the southwest region including Sundarban forest under different freshwater flow scenario. The model results show that salinity at Mongla and in the northern Sundarbans has decreased by 2-3 ppt with only a flow of about 46-100 cumec in Gorai during the critical dry period.

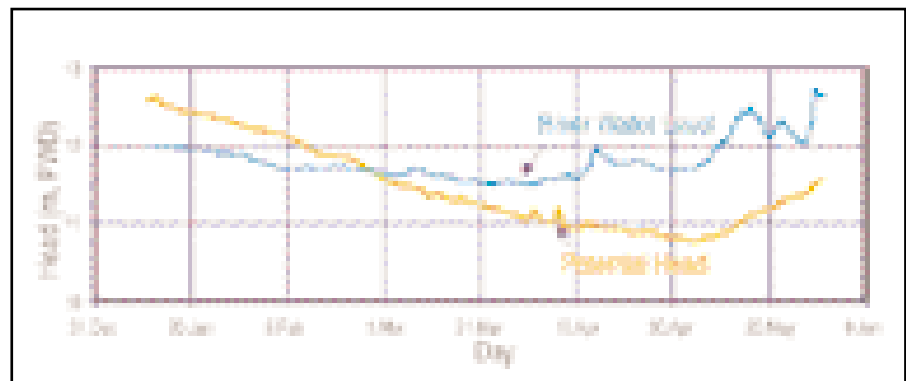
### Surface water /Groundwater interaction

In order to estimate the impact of



Flood depth map for 2 year return period

interaction between surface and groundwater on base flow as well as on groundwater table, a pilot study is now in progress for Atrai-Barind area in the northwest region. The model will be used for the assessment of dry season flow availability and to study the impact of over withdrawal of groundwater and conjunctive use of surface water and groundwater in the water management planning.



River — aquifer Exchange in Atrai area

## National Water Resources Council - A Profile

The National Water Resources Council (NWRC), reconstituted on the 17th November, 1996 is headed by the Honb'le Prime Minister and its membership represents various Ministries, Chairman and Members of the Parliamentary Standing Committee on Ministry of Water Resources, Planning Commission, Faculty of Law, University of Dhaka, Water Resources Planning Organization, Water Development Board, Joint River Commission, Institution of Engineers, Institute of Diploma Engineers, 6 Members of Parliament from 6 Divisions nominated by the Prime Minister, Association of Development Agencies in Bangladesh and 3 experts nominated by the Prime Minister.

As prescribed in the National Water Policy, the National Water Resources Council (NWRC) will coordinate all water resources management activities in the country, and particularly

- i) Formulate policy on different aspect of water resource management;
- ii) Provide directions for optimal development and utilization of the national water resources;
- iii) Oversee the preparation and implementation of the National Water Management Plan;
- iv) Provide directions on the development of efficient institutions for managing the water resources;
- v) Provide policy directives for appropriate coordination among different water sector agencies; and
- vi) Look after any other water resource management matter that may require its attention.

### NWRD PRESENTED IN The NETHERLANDS

Mr. Shah Alamgir, head of NWRD visited Netherlands to attend the 3rd users conference of Geokey held on 22nd June 1999 at Amsterdam where he presented a paper entitled, "Development of National Water Resources Database in Bangladesh". The same paper was presented in the Computer Science Division, International Institute for Aerospace Survey and Earth Science in the Netherlands.

### NWMP Topic Papers - seeking **YOUR** views

Preparation of the National Water Management Plan is currently WARPO's main activity. Work started in March 1998 and is due to be completed by March 2001. Currently, WARPO is engaged in preparation of a series of 18 Topic Papers to promote understanding and discussion of the issues and possible options. This will lead to preparation of the draft Development Strategy report in March 2000.

The first group of Topic Papers, covering process and the setting of the NWMP, should all be published shortly. Work on the second group, looking at the possible options, is already underway and these will be released over the next two months. Discussion of the strategic choices will follow. Each of the Topic Papers takes account of feedback on earlier papers and they will all be revised early next year, based on comments received, as a supporting document to the Development Strategy.

The Topic Papers are each posted on the WARPO web-site ([www.warpo.org](http://www.warpo.org)) as soon as released. Experts, drawn from widely different backgrounds, are invited to discuss the papers in a series of workshops. Discussions have already been held at two such workshops covering the economic, social and gender, environmental and institutional settings. The views expressed are being published on the web-site, as well as in periodic updates of the report on Outcomes of Consultations.

The Topic Papers are specifically written to appeal to a wide audience and are usually only about 30-40 pages long. If you are unable to access them through the web-site, please write to WARPO to be put on the mailing list.

WARPO wants to hear your views also.



## From the DG's Desk

*Water is of fundamental importance to us all, wherever we live and whoever we are. In Bangladesh, we are only too aware of the realities of having either too much or too little of it at any one time. In past planning exercises, much attention has been given to how we can overcome these issues and develop the strong agricultural base that we now have in this country. In framing a new National Water Management Plan, we have been asked to also consider the requirements of other sectors, and to do this in a manner that reflects the needs of all elements of our society. This we are doing our best to achieve.*

*Amongst the very valuable feedback we have already received from preliminary results of the second round of the PPCP, we have noted the wide concerns expressed over quality of our nation's water resources. We all wish to enjoy a safe and reliable drinking water supply, though sadly not all of us have access to this at present. We see issues of quality assuming ever-increasing importance as we enter the new millennium, and our planners will be giving extra attention to this over the coming months, alongside other important social and environmental issues.*

*Publication of the National Water Policy earlier this year was a major achievement and provides the necessary framework within which WARPO can develop the NWMP. However, the Policy goes well beyond this and points to the necessity for action by many other agencies in the sector. The Water Policy Advisory Group is actively following up on this. We are grateful to the Group's Chairman who has contributed an article bringing us up-to-date on this important work.*

*Much progress has been achieved in modernising WARPO since the last Newsletter. We have moved to our new offices and have already been able to host a number of workshops. Work has started on setting up the National Water Resources Database on our computer network. Our web-site is now up and running and new information is being frequently posted there. If you haven't yet visited either the office or the web-site, I encourage you to do so. You will be most welcome at either.*

*As always, we look forward to hearing from you and welcome comments you may have on any of WARPO's publications.*

**Tauhidul Anwar Khan**  
Director General, WARPO

## WARPO Website Update

The WARPO website is now available for browsing and downloading of documents. The domain name is [www.warpo.org](http://www.warpo.org).

Material already posted includes the NWMP previous newsletter, the inception report and the topic papers plus background information about WARPO and a listing of the main contents of the National Water Resources Database.

The primary purpose of the web site is to facilitate wider access to documents being prepared for the National Water Management Plan. However, it is intended to add maps, graphs, etc. which have been generated during NWMP studies but which will be of wider interest.

An important feature of the site is the feedback and discussion section where people can contribute to an on-line discussion of NWMP issues. This site is expected to be open 24 hours everyday.

Feedback is welcome about how the site can be improved, both in terms of function and the type of material placed on the site.

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