GETTING TO THE BOTTOM

Drinking Water Problem

With this begins our Interview series on utilities

"We have to Go for Combined Use of Ground and Surface Water"

— Managing Director, WASA

Such diabolical dual assault of shortage never afflicted our life before. If the fan over your head is not rotating to some relief of your perspiring person and swearing mind then there is no water either in the tap to help you make, however transient a retreat, from infernal conditions. The crisis was so acute in some parts of the city that people did not have enough water even to cook food. Newspapers ran stories and published photographs poignantly depicting the sufferings of a people caught in the welter of intolerable want of water. Parched, peeved consumers held demonstrations against the WASA, city's water supplying authorities. Things have looked up a bit since then. To know how bad the situation is and if there is any silver-lining for us The Daily Star correspondent **Chandra Shekhar Das** recently had an inter-face with **K. Azharul Haq,** Managing Director, Water Supply and Sewage Authority. Following are the excerpts:

The Daily Star (DS): What is the reason behind present water crisis ?

K. Azharul Haq (KH): The crisis did not descend all on a sudden. The ground was prepared. We inherited a deficit of 45 crore litre per day from June 1996. The daily requirement of water in Dhaka is 130 crore litre per day. WASA could supply 85 crore.

DS: What has been done to get rid of this chronic incapacity ?

KH: Obviously there was no way this huge deficit could be overcome overnight. We developed a plan to continuously reduce the deficit and we have already started implementing it. By the end of year 1999 we hope to supply water to 80% of the city population as against the previous 65%. And when all the projects are complete by 2002 we will be able to meet the need of entire population of the city..

DS: You said you are reducing dependence on ground water. Was it due to fall in the water

table and the threat of land subsidence?

A: Water table has gone down significantly. But that does not mean the city is on the verge of collapse. I feel this notion of subsidence has been blown out of proportions. Land subsidence due to ground water mining has occurred in some cities like Mexico City and Bangkok. But it is not likely to happen in Dhaka. One British expert on alluvial aquifer Professor Ruston of Birmingham University is of the opinion that if land subsidence were to occur here it would have happened ten years ago. So you see subsidence is a fear that borders more on assumption than reality.

DS: So there is nothing to be sacred of ..

KH: Not really. Certainly not at this point of time. You see a study on land subsidence was conducted through MotMcdonald, a consulting firm and BUET in 1991. The study very clearly and conclusively showed that there has been no subsidence in the Dhaka city and there was not any imminent threat either. The study however indicated that in Motijheel and its immediate adjoining areas like Purana Paltan, Gulistan, Nawabpur etc. extraction of ground water has reached its limit and recommended no further extraction be done there. Except for one or two isolated exceptions, WASA has decided not to install any more new deep tubewell in these areas. It has now been planned to fetch water from outside the city, especially from the area between Jatrabari and Demra. After the completion of the Sayedabad Water Treatment Plant all the areas I mentioned earlier will be supplied with water from there.

DS: Was it a mistake to rely on ground water so much from the beginning? What is the global trend?

KH: Global trend has been and still is of course to use surface water. I think the option for extraction got preference for economic consideration as well as time friendliness. Time required for installing deep tubewell is much less than that for setting up a treatment plant. For instance, Sayedabad Plant which will supply 22.5 crore litre of water per day is expected to cost around Taka 750 crore with an installing time frame of five years. A cluster of deep tubewells can produce the same volume of water at about 1/7 of that price, i.e. Taka 100 crore and the whole project can be completed in about 2 and a 1/2 years. However, dependence over the years has become persistently high on ground water and time has come to reverse the trend. WASA has developed a time bound plan for conjunctive use of surface and ground water. Through this plan, by 2002 contribution of surface water will be increased from less than 5%(at present) to 20% and by 2010, the share of surface water will be almost 50%. This 50-50 combination is expected to be sustainable and eco-friendly. One thing ,however, must be recognised that in the near future more tube wells will have to be installed to meet city dwellers' immediate demand for water. This will be done in the 'safe zones' and in the suburbs. It should be remembered that the surface water resources face increasing threat of contamination from industrial effluent. The water of rivers surrounding Dhaka have tested positive for hazardous chemical presences though WHO's approved level has not been crossed yet.

K. Azharul Haq

DS: So where does our future lie in between the contrary pulls of options?

KH: The key element in our battle against the crisis as I said earlier is conjunctive use of surface and ground water. At a later stage we may have to bring in rain water as the third component of the conjunctive use, especially for uses other than drinking. As I have indicated earlier dependence on ground water will grow in the short run, i, e up to year 2002 when the first phase of the Syaedabad project is completed in the year. After the completion of phase II and III additional 67.5 crore litre per day will be added and the conjunctive use scenario will be more meaningful and sustainable. We have also started building a security system for the water supply. If a major breakdown takes place today it takes about two months to reinstall the facility. About 50000 people who depend on the supply for this source is left high and dry. A project is under preparation to install stand by sources. In the beginning the plan is to have one standby tubewell for every eight tubewells. This ratio in due course of time will be reduced to 5:1.

We are also negotiating with a foreign firm to construct a large capacity (1.0 to 1.5 billion litre per day) surface water treatment plant using water from the Meghna river. This will be built on BOO (built-own-operate) basis. WASA will buy water from the company and distribute it to the customers. Two more small surface water treatment plants, one each on river Buriganga and Turag will be constructed. All these projects are expected to be completed before 2010.

DS: All these projects seem belated. Could n't these arrive earlier?

KH: You must recognise that a system with 35% short supply cannot be corrected overnight. Also to supply piped water to a city nearly of 10 million people is a formidable task. We however did not waste any time. All the projects that are being implemented now were developed during the last two years. Sayedabad project has been hanging there for nearly eight years mainly because the previous government did not pursue it seriously. Within six months of taking office the present government was able to get it approved by the World Bank. Implementation of the project has been started and hopefully it will be completed on time. Three more projects to augment the water supply, namely Third Interim, Fourth Interim and procurement of generators were also approved during the last one year. This is a redoubtable track record by any count. But I tell you there was a conscious and clear attempt to politicise and exaggerate the water crisis. Let's take Gopibagh for instance, the area that got so much coverage in the press. When our men went there to supply water they were denied entry with local influential people saying let the hartal pass off.

DS: You claim it was not a problem of vision. But you would not deny either the crisis and the suffering. Something must have gone awry. At least there was some delay in synchronising what you planned and what you achieved. Where and how your plans got delayed?

KH: If I have to point my finger to any one area for the delay then it has to be the planning process . It takes 18 to 24 months to approve a project and there is the routine delay in the process that follows. In a recent ECNEC meeting the Prime Minister has ordered a review of the planning process to make it faster.

DS: Why don't you push for privatisation ?

KH: My view is clear on this issue. Water production is a commercial operation. Why should the government pay for it? Government should spend on social programmes. But the problem is private sector in this country is not yet ready for this kind of responsibility. I also believe in phased approach. In fact we have already initiated privatisation. Two zones out of six in Dhaka have been handed over to the private sector for billing. This has been done on a pilot basis. The operation is in its ninth month and the performance is mixed. if successful , efforts will be made to hand over more zones to the private sector. Besides, some of the surface water treatment plant projects I have talked about earlier are going to be implemented and managed by the private sector entrepreneurs.

DS: All said and done the general feeling is one that of too little too late. What about managerial crisis that seems to have bedevilled WASA? Reports like WASA's emergency water supplying fleet being old and inadequate with most of the vehicles conked out and this sudden awakening to the solution of generators are all tell tale signs of authorities' inability to take stock of things and plan ahead.....

KH: Again I have to say there has not been any delay in identifying the problems and preparing to fight them. As far as water tankers are concerned, our fleet is very old. Most of them were procured between mid to late seventies from the East European countries. It is a real problem when they conk out .Because their spare parts are not available. Anyway, during the last 12 months We have added 13 new tankers to the fleet--three of them were added this month. Proposal for another 15 tankers are in the process.

As far as the generator project is concerned , it was initiated in April 1997 and was moving through the planning process. We are lucky that the honourable Prime Minister came to know about it during the last ECNEC meeting and ordered the relevant authorities to release the fund immediately. We have already initiated the process of procurement.

DS: What about WASA's notorious record of systems loss ?

KH: Yes, WASA's systems loss is notorious by any standard. At present we have about 45%. We have taken definite steps to reduce it. As per contract with the World Bank the systems loss shall have to be brought down to 32% by the end of year 2001. Privatisation of billing in two zones is one of the steps to stem the rot. Hundreds of illegal connections have been identified and are being brought into the billing process. A programme for detecting leakage and repair of the pipe lines have also been initiated.

DS: How safe is the supplied water? More often than not we see complaints about hazardous presences in Wasa's water...

KH: Generally speaking it is safe. But the complaints you hear are due to leakage at certain places in the network. Interestingly leakage accounts for 30% of pollution. 70% of it is caused by lack of maintenance and cleanliness of the overhead tanks and underground reservoir of the consumers.

DS: There are reports that WASA's water disinfecting process is in a mess. Sanitation engineers hold sway where actually microbiologists should call the shots. Then there are stories of large scale pilfering of disinfecting agent like bleaching powder..

KH: It is a good point you have referred to. It is true. We are trying to change things. But fixing that--having horses for courses, I am afraid will take some time. As for pilferage we have decided to opt for gaseous disinfectant. Although it is costlier it would stop illegal selling of bleaching powders, I hope.

What People Need to Know about Arsenic

Arsenic poisoning by ground water is a recent discovery and therefore it is an unfamiliar phenomenon. The average people of rural Bangladesh are unaware of the cause and effect of arsenic contamination. While the government donor agencies and NGOs are relentlessly working to evaluate the effectiveness of alternative sources of safe water and arsenic removal systems, here are few important messages for awareness building.

Message

1. Arsenic is a poison for the human system. It may be found in waters under the ground in different places and at different levels in Bangladesh. Arsenic may be found in waters of (shallow) tubewells; but not in surface water like ponds, ringwells and rivers.
2. Arsenic poisoning or arsenicosis is not contagious or hereditary. It is only caused by drinking arsenic contaminated water.
3. People, especially in rural areas are advised to get their tubewell water tested for arsenic with the help of the nearest Department of Public Health and Environment, or any NGO involved with the programme.
4. Do not use water for *drinking* or *cooking* from a tubewell which is marked *RED* as this will be contaminated water.
5. Water from tubewells marked *green* are safe for drinking and cooking purposes.
6. Arsenic contaminated water may still be used for other household purposes except for drinking or cooking purposes.
7. There is no medical treatment for arsenic poisoning, as yet. The problem is under vigorous research.
8. Symptoms of arsenic poisoning manifests as skin lesions, dark spots on chests, hands, palms and soles, chronic cough and cold, burning sensation on the skin and hardening of skin into nodules.
9. A patient in the early stage of arsenic poisoning may totally recover by drinking *arsenic free water.*
10. During the more advanced stage of the ailment, relief may be obtained by drinking *arsenic-free water.*
11. During the chronic stage of arsenic poisoning, the situation becomes irreversible. But drinking arsenic-free water is suggested, as it prolongs life.
12. An increased diet of green leafy vegetables and daal, fish, meat increases resistance to arsenic poisoning.
13. Arsenic cannot be removed by boiling contaminated water.
14. Safe water means, water, free from bacteria or arsenic.
15. Safe water means, water from protected ponds, ringwells (*kuaan*) and dugwells after proper filtering or boiling.
16. Safe water means, properly collected rainwater.
17. We should seek safe water from wherever it comes — be it tubewells, ponds, ringwells or rain water.

— Dharitri Feature

Managing Freshwater Resources

by Dr Khalilur Rahman

Concrete steps need to be initiated by the international community to strengthen capacity of the poor countries like ours to support their efforts towards information management on freshwater resources. Appropriate step is also required for the establishment of a global water information network with particular emphasis on water quality, water quantity and its use. . .

We learn to realise from our early childhood that the other name of water is "life". Water is the lifeblood of our whole surrounding environment; it is essential for the survival of all living species.

Bangladesh is a riverine country. Apparently, this country has no scarcity of water resources. But the irony is that there exists scarcity of safe and adequate water supply. Management of water resources for the benefit of health, sanitation and overall development of the country is also poor.

Less than five per cent of total available water on earth is freshwater. The freshwater supply is a continual motion through the hydrologic cycle. Each year, the sun's heat causes some 500,000 cubic kilometres of water from the earth's surface to evaporate — 86 per cent from oceans and 14 per cent from land. An equal amount fall back to earth as rain, sleet, hail or snow. The process, however, returns more water to the land than is evaporated therefrom. The World Resources Institute estimates that this cycle distills and transfers 41, 000 cubic kilometres of water from the oceans to the continents annually. To complete the natural cycle, the water then makes its way back to the ocean as runoff. Of this 41, 000 cubic kilometres of water, almost two-thirds return to the ocean as flood runoff and is untappable. Another 5, 000 cubic kilometres flow through uninhabited areas. The remaining 9, 000 cubic kilometres constitute the practical limit of the world's renewable freshwater supply.

Water quality is the most important aspect of freshwater management. Presently, more than one-fifth of the world's population do not have access to safe drinking water and more than one half of humanity lack adequate sanitation. Water quality has been an issue in the developing world where three out of five persons lack access to clean water supplies. The problem of ensuring adequate and quality water assumed such a proportion that the United Nations declared the 1980s to be the International Drinking Water Supply and Sanitation Decade and instituted a programme to provide safe drinking water and appropriate sanitation for everyone by 1990. The commitments of this decade, however, have not been fully met. Population growth, increasing and unplanned urbanisation offered challenges to the efforts made under the programmes of this decade. One of the significant conclusions of the decade is that the solution to ensuring safe drinking water supplies lies not just with the application of technology, but also with better trained people able to manage water adequately in all its uses through an integrated approach.

Mainly there are two major factors that affect water quality and that are sources of freshwater pollution. These are traditional organic waste — human and animal excrement and the toxic wastes generated by industry and products of industry, and pollution — contamination of freshwater by chemicals, radioactive materials and heavy metals (the most rapidly growing type of freshwater pollutant). While toxic pollution is most often associated with industry, pesticides used to improve crop yields are also a major problem. Like other parts of the world, the problem of assuring an adequate supply of freshwater and that of ensuring quality of water have been haunting people in Bangladesh. The shortage of water for agriculture and other development purposes and more importantly, for safe drinking and basic sanitation has become a chronic issue. As already mentioned, population growth, increasing demand and mushroom growth of urbanisation are a few of the reasons for this shortage. The shortage of water may be addressed by increasing supply — either by damming rivers or by withdrawing more groundwater. The unfortunate part, however, is that there is a grave danger of arsenic contamination of ground water in our country. Arsenic pollution of the drinking water has presently emerged as a major public health threat in this part of the region. According to a press reports, around fifty million people of 48 districts in Bangladesh are now at risk of arsenic poisoning through ground water.

The government of Bangladesh has formed a National Steering Committee on arsenic toxicity to survey and monitor arsenic contamination as well as to treat the arsenic infected patients. The Government is fully aware of this serious health problem and has been trying to mitigate the adverse impacts of arsenic pollution by drawing up appropriate programmes. Inter-Ministerial coordination and action are needed to effectively deal with this problem. Ministries of Health, Environment and LGRD should closely cooperate and coordinate in properly addressing this issue.

Donors have also come to assistance to check this menace. The World Bank in association with the Government of Bangladesh and other co-financiers like DFID, JICA, DGIS, DANIDA, UNDP, UNICEF and USAID has agreed to provide all possible help to mitigate the arsenic problem in the country and has drawn up a tentative budget expenditure of US $ 77,000,000 to produce safe drinking water as well as to strengthen the primary health care system in the rural and urban areas. Better coordination is needed among the various parties concerned to avoid overlapping and duplication in efforts.

Since the arsenic pollution of drinking water is also affecting a large part of West Bengal in India, WHO SEARO may be asked to strengthen their efforts under an appropriate subregional programme on this serious health and environment problem. Since the new administration of WHO under Dr. Bruntland, is also going to lay emphasis on health and environment issue, any viable and suitable programme on arsenic problem in Bangladesh and India can easily attract sufficient funds from WHO. The WHO SEARO has, however, been working closely with the Government of Bangladesh to adopt relief measures on a priority basis as well as short-term and long-term strategies to combat the problem since the eruption of the crisis.

The UN System as a whole has to play a role in containing the arsenic contamination menace. A well coordinated programme of the UN system is needed to address this serious problem affecting the country. The theme of the World Day for Water in 1998 is the ground water. The best way for sustainable development and management of ground water resources should be worked out to meaningfully observe this important theme. The UN system should get fully and actively involved in the issue of freshwater management. UNDP office in Dhaka may be approached to ensure a system wide coordination in managing arsenic pollution of the ground water in Bangladesh.

The management of water resources for an efficient and equitable water allocation among competing users is an issue of paramount importance. Close attention must be given to the issues of disposal of toxic substances and of persistent organic pollutants affecting water resources. A balance is to be struck between use of water as a major natural resource for development and the need for safeguarding water since its source is limited. It is also very important for a country like ours to protect this limited water source, thereby protecting habitats and species dependent on it. For sustainable development, we have to ensure that water resources are managed in such a way that they could support a strong economy and preserve a healthy environment not only for today, but also for the future.

In order for management of water resources, the Government may wish to recognise freshwater as an important factor required not only for economic development; but also for better health, sanitation and environment; promote integrated management practices for water that recognise the ecosystem aspects of water and its value in all uses for better coordination of different water uses; recognise and assess future demand and competition for freshwater resources; monitor and assess water quantity and quality; and to make adequate pricing and subsidy arrangements for water to ensure that it is better used and effectively conserved.

Attention needs to be paid to ways of forging new partnerships with donor organisations, such as Global Water Partnership and the private sector. NGOs can, perhaps play an important role in awareness programme against water pollution. Since pollution transcends the boundaries of countries and in view of huge water resources in South Asia, the Government may wish to reinforce its efforts in having a regional water management mechanism for optimal utilisation of the existing water resources in the region.

Concrete steps need to be initiated by the international community to strengthen capacity of the poor countries like ours to support their efforts towards information management on freshwater resources. Appropriate step is also required for the establishment of a global water information network with particular emphasis on water quality, water quantity and its use, with a view to improving the monitoring of progress related to sustainable development of freshwater resources. In all relevant international fora, we need to highlight our need for increased technical and financial assistance for managing our water resources.

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