Editorial

The active cooperation and write up contributions from the committed stakeholders made publishing the issue possible. The arsenic crisis and the hydrogeological investigations and attributes stunned the stakeholders and put them in a very challenging situation. We look forward to see that the situation is in the grip.

We hope the contents will meet to some extent the thirst of the readers of the time.

Happy New Year

Message from the Chief Engineer

It gives me immense pleasure to see that the DPHE Newsletter is finally published. It will facilitate exchange of information on policies, plans, activities and achievements and research outputs. It will thus pave the way to the cooperation and concerted efforts of the stakeholders including donor organizations and NGOs in the water supply and sanitation sector. I hope the Newsletter will continue to be published regularly with added attractions and usefulness, and will contribute adequately for the improvement of the sector. Wishing success.

-SMA Muslim

A Story of Achievement in realizing a basic Need for the People of Faridpur Pourashava

Action Research In Community Based Arsenic Mitigation In 15 Upazilas

In 1998, DPHE-UNICEF undertook a programme in the name “Action Research on Community Based Arsenic Mitigation in 5 Upazilas” (Sonargaon, Kachua, Bera, Jhikargacha and Manikganj Sadar). Water from all the tubewells under the upazilas were tested and tubewells were marked red or green depending on the presence or absence of Arsenic. Alternative water supply options were introduced along with different types of household arsenic removal units. These were tested and monitored. Arsenicosis patients were identified and worse cases were referred to Dhaka Community Hospital (DCH) for treatment. The programme is about to be completed.

With the lessons learnt from the 5 Upazila programme, DPHE in association with UNICEF, drew up a TAPP to address the arsenic mitigation activities in additional 15 upazilas.

This project will articulate community participation in the process of arsenic mitigation to ensure sustainability of the project activities.

UNICEF has committed to provide $ 2.5 million of which 60% will be spent for providing safe water supplies and the rest for other project activities like software services.

Government of Bangladesh has approved the TAPP for two years, from July 2001 to June 2003.

The major activities under the project are:
- Raising awareness on arsenic contamination and
mobilising communities.
- Formation of Arsenic Mitigation Committees at District, Upazila and Ward levels.
- Screening of arsenic contaminated water sources.
- Identification and management of arsenicosis patients.
- Facilitation of the communities in obtaining arsenic free and bacteriologically safe water.
- Strengthening local government capacity for arsenic mitigation, and
- Development of replicable model for arsenic mitigation with community participation.

The partners with DPHE for implementation of the project are DGHS, UNICEF, NGOs, local government (Union Parishads) and the target communities.

The project is progressing satisfactorily.

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**DPHE-Danida Collaboration in Urban Water Supply and Sanitation**

Danish assistance for Water Supply and Sanitation has been continued through UNICEF from 1972 to improve the water supply and sanitation situation in rural areas of Bangladesh.

To improve water supply and sanitation situation in medium sized urban areas, an agreement was signed between the governments of Bangladesh and Denmark in April 1990 for phase-I of DPHE-Danida Urban Water Supply and Sanitation Project. The Department of Public Health Engineering (DPHE) of Ministry of Local Government, Rural Development and Cooperatives (MLGRD&C) was designated as the implementing agency, with support from Danida. The Phase-I activities covered two Pourashavas, Chaumohani and Laxmipur with an integrated approach to water supply, sanitation, drainage, solid waste management and hygiene promotion. The Phase-I was implemented during 1990 to 1997.

Another agreement between the governments of Bangladesh and Denmark was signed on 22 December 1996 for Phase-II. The Phase-II includes 53 component areas covering Pourashavas, Upazila Centres and Growth Centres in the five coastal districts of Noakhali, Laxmipur, Feni, Patuakhali and Barguna.

Geographical Coverage under DPHE-DANIDA Urban Water Supply and Sanitation Programme is shown below.

<table>
<thead>
<tr>
<th>District</th>
<th>Pourashava</th>
<th>Upazila Centre</th>
<th>Growth Centre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greater Noakhali</td>
<td>3</td>
<td>2</td>
<td>15</td>
</tr>
<tr>
<td>Feni</td>
<td>1</td>
<td>4</td>
<td>6</td>
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<tr>
<td>Laxmipur</td>
<td>2</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>Patuakhali</td>
<td>3</td>
<td>3</td>
<td></td>
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<tr>
<td>Barguna</td>
<td>4</td>
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- The Phase-II was originally scheduled for 1997 to 2001. The component will be included under the current Sector Programme Support (SPS) period from January 2002 to June 2004 as Phase III.

The target group of the urban component covers the entire population of the 53 centres, including slums, fringes and squatters.

The development objective of the component is to improve health conditions in the target communities by providing safe drinking water and environmental sanitation services, with particular emphasis on the sustainability of the systems.

Local governments, NGOs, CBOs and communities are involved closely for implementation of the project.

The project has so far provided the following:
- Improved and expanded piped water supply in 9 selected Pourashavas
- 3400 deep hand tube-wells installed
- 142 km drains rehabilitated and constructed
- Household sanitation improved through the provision of 5580 household latrines
- Environmental hygiene improved through the introduction of new or improved solid waste collection systems, including dustbins, pushcarts and trailers/trucks
- Staff trained to administer, operate and maintain the new facilities and systems
- Raised awareness of hygiene among target groups
- Improved capacity of local authorities and stakeholders including communities.

Further information on Danida assisted Urban Water Supply and Sanitation Programme may be obtained from:

**Central Co-ordination Unit, CCU, Dhaka**
DPHE-Danida Water Supply and Sanitation Components
DPHE Bhaban, Kakrail, Dhaka-1000
Tel: 88-02-9346167-70
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E-mail: watsap@dhaka.agni.com
Faridpur Pourashava is one of the nine towns where development and expansion of water supply and sanitation is being implemented under 9 District Towns Water Supply and Sanitation Project with the financial assistance of Asian Development Bank (ADB). The other towns are Tangail, Sylhet, Rangpur, Pabna, Kushtia, Jamalpur, Dinajpur and Bagherhat.

The area of the Pourashava is 20.5 km² of which some 40 percent is developed mostly with residential buildings and institutions and some commercial and industrial units. The remaining 60 percent is used for agriculture with a low lying and flood prone areas. The average population density is 35 per hectare with a range from 20 to 95. The town is protected from flood caused by the bordering Mara Padma and Bhubaneswar rivers by embankments.

Water supply system was first commissioned in Faridpur Pourashava in the year of 1928 in a very limited area.

Before commencement of the project work in 1995, piped water supply was being run with 4 production wells, 2 overhead tanks, 1 iron removal plant and 50-Km distribution network (pipeline). The daily total water production was 2200 m³ which covered 29% of population through 1746 house connections and the supply period was 5 hours a day.

In view of improving the water supply and sanitation system in Faridpur Pourashava along with other eight towns, the project commenced in early 1995 having three components. These were

- Part A: Water Supply Services
- Part B: Environmental Sanitation Services
- Part C: Project Management and Institutional Development.

Rehabilitation Phase: In this phase, existing water supply system was rehabilitated to maximise the benefit of the system. Two production wells, one iron treatment plant, 30-km pipeline, one overhead tank and 842 house connections were rehabilitated.

Expansion Phase: Water supply system was expanded to increase the service area and to provide the quality services as well. Five-production wells, one treatment plant, 30-km pipeline, one overhead tank and 942 house connections were rehabilitated.

Water source of Faridpur Pourashava is groundwater. Initially, iron was the only problem in the groundwater but later on, due to emergence of arsenic in the ground water, the water quality appeared to be a great concern to the community. To overcome these problems, the earlier design of the IRP was modified to accommodate the provision for removal of arsenic. The modified IRP has been commissioned and the people of Faridpur Pourashava are provided with quality water free from iron and arsenic.

**A Story of realizing a basic Need for the People of Faridpur Pourashava**

After completion of the work, now 5940m³ water can be yielded form the production wells which will cover 68% population through 5500 house connections.

**Twenty-four hours water supply service:** The Project is designed for 24-hour water supply system. As 24-hour water supply service is costlier the project took a pilot scheme in Faridpur to provide 24-hour water supply in a particular area and it was found that a better service was ensured without involvement of extra operating costs.

**Household sanitation programme:** This programme comprises installation of latrines and hand tubewells in fringe areas where piped water supply is not feasible. Under this programme a revolving fund has been established. Loan is being given to the poor people in view of creating an opportunity for them to have hand tubewells, latrines and sullage pits installed in their premises. They pay the loan back to the revolving fund with an interest over two years period (100 installments). NGOs have been appointed to support the Pourashava in the field of site selection for tubewells, awareness creation and loan collection. Under this programme 1203 hand tubewells, 1898 latrines and 534 sullage pits have already been installed in Faridpur Pourashava. Loan amounting to Tk. 67 lakh has so far been disbursed against which Tk. 55.00 lakh has been recovered.

**Environmental sanitation programme:** The objective of this programme is to keep the town clean and environmentally safe. Under this programme 170 rubbish bins were constructed and one truck, one tractor-trailer and 34 pushcarts have been supplied. Apart from this, 7 public toilets were constructed in public places such as bus-stands, markets etc. to facilitate the floating people to use the latrine and to keep these places clean as well.

**Institutional Development:** One of the main objectives of the project was to make the water supply system self sustained. To materialize this objective institutional strengthening activities have been carried out. These activities relate to technical as well as financial aspects. PWSS staff were provided technical training for ensuring effective O & M of the water supply facilities. Financial training was conducted to improve the billing and collection system of revenue, maintaining books of account, budget preparation and other aspects of financial management. Now the collection efficiency of water tariff is 75% and the
O & M cost of water supply can be met up by its revenue income.

Conclusion: Inadequate and under quality water was being provided for a long time to the dwellers in Faridpur Pourashava. After completion of the project an easy access to water supply facilities having quality service has been established. So water supply, a basic need, is no longer a dream for the people of the Faridpur Pourashava—it is now a reality.

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Action Research for Development Of Sustainable Water Supply And Sanitation Programme

Bangladesh has achieved a remarkable success in drinking water supply. In rural areas, 97% of the populations have access to water points within 150 meters, and about 30% people use safe water for all domestic purposes.

The coverage under sanitation is about 45%, which is far behind the coverage under the water supply. This imbalance is a hindrance to achievement of the desired health benefits out of water supply. Moreover, sustainability of water supply and sanitation services has surfaced as a major issue globally.

To address the above and to contribute to the establishment of sustainable environment in the country, the project entitled COMMUNITY BASED WATER SUPPLY AND SANITATION PROJECT (CWSSP) is being implemented by the DPHE. It is one of the 26 components of Sustainable Environment Management Programme (SEMP) undertaken by the Ministry of Environment and Forest with the assistance of UNDP as a followup of National Environment Management Action Plan (NEMAP).

The project areas for the action research project are five Upazilas of the country namely Bhaluka of Mymensingh, Dacope of Khulna, Madhabpur of Habiganj, Gangachara of Rangpur and Tazumuddin of Bhola, located in diversified hydrological regions.

The development objective of the project is to develop a model of sustainable water supply and sanitation programme.

The immediate objectives of the project are:
(i) Development of a demand responsive planning process of WSS service provision;
(ii) Enhancement of community participation in the implementation of WSS services;
(iii) Development of a mechanism of community management of WSS services, through the development of O&M procedures;
(iv) Development of a methodology of adaptive project design, through learning and documentation; and
(v) Mainstreaming the achievements to macro-level WSS interventions, through policy reforms.

The major activities of the project are:
(I) Promote Water Supply and Sanitation
(II) Develop felt need of WSS in the communities and generate demand with willingness to pay for the services;
(III) Develop appropriate technologies;
(IV) Develop capacity of private sector;
(V) Activate Union WatSan Committees;
(VI) Deliver hardware;
(VII) Develop capacity of communities for management of O&M; and
(VIII) Document lessons learnt and mainstream the same.

The project expected to be completed by June 2004.

The project organized a number of orientation/briefing sessions/workshops for Upazila level government officials, Union Parishad Chairmen and members, local leaders, NGO representatives, heads of academic institutions, religious leaders, Ansar VDP members, freedom fighters etc. The local representatives opined that the potential beneficiaries were ready to pay for the quality services.

A workshop was organized to discuss the lessons learnt from different projects in the sector implemented during the last 3 decades. A report was prepared and distributed for sharing the lessons.

Necessary arrangements have been made for delivery of hardware soon through community management.

For further information:
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National Seminar On Development Of Healthy Settings In Bangladesh

DPHE-WHO Programme: BAN PE001

Since 1990, under the active support of the South East Asia Regional Office (SEARO) of the World Health
In the closing session, Dr. Khandkar Mosharraf Hossain, Hon'ble Minister, Ministry of Health and Family Welfare attended as Chief Guest, Dr. Abdul Sattar Yoosuf, Director, Sustainable Development and Healthy Environment. WHO-SEARO, New Delhi, India was present as the Special Guest and Dr. A.B.M. Ahsanullah, Director General, Directorate General of Health Services as the Guest of Honour.

The seminar ended with strong expectation and commitment to expand the program in a few more cities/towns.

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Community Based Arsenic Removal Treatment Plant in Bera Upazila

Some 22 "Continuous Arsenic Removal Plant" (HARBAUER GMBH, Germany/SIDCO) were put into Arsenic Mitigation Research Programme in 5 upazilas sponsored by the UNICEF. Mr. Colin Davies, Chief, WES Section, UNICEF and Mr. Mustafizur Rahman, Executive Engineer, Training Division, DPHE with some of their colleagues visited a few plants.

The configuration of the CARP is compact and easy to install. It can be connected to an existing tubewell contaminated with arsenic. Water may be lifted manually or by fitting electrically operated pumps. Pumped water is sprayed through a shower for removal of iron from the water. Iron free water flows downwards through the As(R) adsorbing bed, which brings down arsenic concentration in water to a level below the acceptable limit (<0.05 mg/l). Filtered water is stored in a reserve tank. Water is collected through taps fixed with the reserve tank. The capacity of the plant is 240 litres/hour.

The plant is operated and maintained through a committee by the user group to create essence of ownership and sustainability. The plant can serve drinking and cooking requirements of about 80 families. It is estimated that the production cost is about Tk 5.0 per m³ or Tk 0.50 per kalsi.
Achievement:

- TW screening –7,50,000 nos (60% contaminated)
- Patient Identification – 6090 nos (national figure about 12000 nos.)
- Alternative Options installed
  - Deep Tubewell -2189 Nos.
  - Pond Sand Filter, PSF -2287 Nos.
  - Rain Water Harvester -266 Units.
  - Dug Well/ Ring Well -1940 Nos.
  - Community Based Arsenic Removal Plant -25 Units.
  - Mini Piped Water Supply -1 Unit
  - Household Based Arsenic Treatment Unit Of Different Types -13,357 Nos.
  - Arsenic Treatment Plant In Urban Areas -3 Nos.

It is observed that the "adsorbent" requires replacement after about a year of operation (depending on the number of users and the concentration of arsenic in water). Presently, the unit is imported and is quite costly (about Tk. 2 lakh.) When a good number of such plants would be installed in Bangladesh local manufacturers may come forward to produce "adsorbent filter media As(R)" locally at a much cheaper cost (about half of the present imported cost price of Tk. 8000). These plants would be more cost effective and the people will get rid of arsenic contaminated water.

Arsenic Mitigation by different agencies in 268 Upazilas

Different agencies, government and non government, are participating in the mitigation of arsenic crisis with software and hardware supports.

DPHE:
- Bangladesh Arsenic Mitigation Water Supply Project (BAMWSP) (World Bank Aided) 188 Upazilas.
- UNICEF Aided- 45 Upazilas.
- DANIDA Aided 8 Upazilas.
- NGO WATSAN PARTNERSHIP-SDC Funded 13 Upazilas.
- WORLD VISION INTERNATIONAL –14 Upazilas.

In addition to above, several other NGOs, have been delivering commendable services to the people of arsenic affected areas.

DPHE has taken a programme to screen the tubewells @5 samples per village in the remaining 199 upazilas, a total of about 2 lakh tubewells will be tested.

JICA is supporting DPHE for hydrogeological investigation in 3 districts.

Local Area Network (LAN) & IT activities of Computer Division

In the year 2001, DPHE Computer Division has been setup with local area network with the vision of setting up a large networking in DPHE building with the financial support from WHO-DPHE PHE-001.

They have been developing software, collecting and updating information with out any interruption since 1997.

The division is now becoming the data warehouse, especially for Rural and Urban water supply information. Diversified information on personnel, water quality, books and references, and library system are being collected from the field level and district offices.

State Minister Mr. Ziaul Hoque Zia inaugurates Arsenic free handpump tubewell at Lakhipur dist.
Training/Workshop

Basic training course

Two 6-day basic training sessions on project, administration and financial rules, service rules, office management, duties and responsibilities, arsenic contamination and mitigation, rural and urban water supply technological opinions, communication, monitoring and evaluation were conducted at the DPHE Training Division in November 2001 for 27 Assistant Engineers, 25 Community Organizers and 1 Communication Officer of Bangladesh Arsenic Mitigation Water Supply Project (BAMWSP). Resource persons from DPHE and other relevant organizations participated in the sessions. The trainees visited the arsenic treatment plants in Manikganj and took keen interest.

At the concluding session of the course sponsored by the BAMWSP, Mr. SMA Muslim, CE DPHE and Mr. Abdul Quader Chowdhury, PD, BAMWSP distributed the certificates to the successful trainees.

Workshop on the Draft Project Proforma (PP) of Environmental Sanitation, Hygiene and Water Supply in Urban Slums and Fringes Project

A workshop on the revised Project Proforma (PP) of the Environmental Sanitation, Hygiene and Water Supply in Urban Slums and Fringes was conducted on 19 November 2001 at BRAC Centre Inn, Mohakhali, Dhaka. About 100 participants from MLGRD&C, Planning Commission, DPHE, City Corporations, Pourashavas and UNICEF were present in the workshop.

The purposes of the workshop were to share the lessons learned from the projects implemented and to arrive at a consensus among the key stakeholders on the management aspects of the future projects.

In the workshop, following items of the revised Project Proforma (PP) were discussed:

- Project Management and Coordination
- Technological options
- Pipe water
- Pilot schemes on solid waste management
- Financial management
- Research, development and innovation

The participants actively took part in the group discussions and several important feedbacks were given by the participants. The participants were in agreement with the implementation and fund channeling mechanism of the project for the next phase (2001-2005). Mr. Abdullah, Deputy Chief of Local Government Division, Ministry of LGRD&C concluded the workshop.

List of ongoing projects

2. 9 District Towns Water Supply Project (GOB-ADB)
3. 23 Towns Water Supply Project (1994-December,2001)
10. Water Supply & Sanitation in Gopalgong, Tungipara Pourashava & Thanas (GOB) (Jan’ 1997-June 2001)
DPHE’s Mandate

1. To provide advisory services to government in framing policy & action plan for water supply and sanitation in the country.
2. To facilitate/provide safe water supply, environmental sanitation facilities & to improve personal hygiene practices of both urban & rural communities.
3. To provide operational training to pourashava/city corporation & technical support to local government institutions.
4. To facilitate local government institutions (Pourashava, Union Parishad etc.) in the O &M of water supply & sanitation systems.
5. To respond to natural disasters in order to ensure safe water supply & sanitation facilities.
6. To ensure management of water supply & sanitation system surveillance.

Organogram of DPHE (Revenue)

Policy Highlights for Water Supply & Sanitation

- DPHE To Act As Lead Agency.
- Promote Cost Sharing.
- Cover Unserved And Underserved Areas.
- Promote O&M By Communities.
- Promote Installation Of Sanitary Latrine For All Households.
- Establish Self-Sustainable Water & Sanitation System.
- Ensure Safe Disposal Of Solid Waste.
- Strengthen Capacity Of Local Bodies, DPHE & Other Stakeholders.
- Involve And Encourage Private Sector.
- Involve Local Government Institutions, NGOs And CBOs.
- Encourage Women’s Participation In Sector Activities.

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