In pursuant to the Prime Minister's 100 day programme, an international workshop on arsenic crisis in Bangladesh was organized on the 14-16 January, 2002. Begum Khaleda Zia, Prime Minister of Bangladesh, inaugurated the workshop at the Osmani Memorial Hall. Experts from home and abroad participated in the workshop. Begum Zia made commitment for all out supports for arsenic mitigation. And she advised to take up immediate actions where at least 40% tubewells are affected with arsenic at levels more than 0.05 mg/l.

The expert group on alternative water supply recommended the following emergency, short term and long-term options for mitigation of arsenic crisis.

Emergency Option:

- In acute arsenic problem areas an alternative safe water point appropriate in the area is to be provided in each village on an urgent basis following ongoing national screening programme.

Short-term Option:

- Deep tubewell (where suitable aquifer is available)
- Dug/Ring well (where technically feasible)
- Rain water harvester
- Treatment of surface water
- Treatment of arsenic contaminated water
Development and Cooperation (WB-SDC).

Bangladesh, the World Bank and Swiss Agency for (BAMWSP) with the joint effort of the Government of Bangladesh Arsenic Mitigation Water Supply Project (BAMWSP) has been initiated through the programme involving local level participation. Before implementation of new approach 11 participatory planning workshops were held for mobilizing the local government entities like members of Union Parishad, Ward Members, Upazila administration, Upazila Health Officials and officials of the Department of Public Health Engineering.

To cope with the situation, a comprehensive approach for arsenic free safe water supply has been initiated through Bangladesh Arsenic Mitigation Water Supply Project (BAMWSP) with the joint effort of the Government of Bangladesh, the World Bank and Swiss Agency for Development and Cooperation (WB-SDC).

Objectives

The project was launched in September, 1998 and aimed at contributing to:

- Improved understanding of the arsenic problem through screening of tubewells and identification of arsenic affected patients.
- Emergency mitigation.
- On-site mitigation through sub-project development and implementation by the Community Based Organization (CBO) involving local government institutions.
- Awareness building on arsenic health hazards and mitigation options.
- Capacity building at community, village and Municipality levels and among various stakeholders, Government and support organizations.
- Development of improved data management system.
- Inter-disciplinary and inter-organizational cooperation.
- Strengthening the capacities of communities in safe water supply management.

Supply of Arsenic free water in six Upazilas through CBOs

Community development activities were undertaken in unions, where more than 40% hand tubewells are found contaminated with arsenic above acceptable limit. Affected villagers formed Community Based Organizations (CBOs). The CBOs then chose the feasible alternative water sources from four non-chemical based options, approved by the government. These options are Dug-well, Rainwater Harvesting, Pond Sand Filter and Deep tubewell (for coastal belt). A total of 249 non-chemical based technological options were implemented in six upazilas as alternative sources of arsenic free water.

Meanwhile, 2066 CBOs have been formed for participating in arsenic free water management at their own. The Project, on the basis of information gathered through survey and according to demand of communities, has been implementing those technological options at a cost of Taka 83 lakh of which BAMWSP is providing 80 percent cost and the rest by the CBOs.

Arsenic Mitigation involving Local Government Entities in 35 Upazilas

After undertaking screening and mitigation measures in 6 upazilas another 35 upazilas have been brought under the programme involving local level participation. Before implementation of new approach 11 participatory planning workshops were held for mobilizing the local government entities like members of Union Parishad, Ward Members, Upazila administration, Upazila Health Officials and officials of the Department of Public Health Engineering.

Long-term Option:

- Proven safe and sustainable technologies implemented under short-term options
- Piped water supply

The options recommended above are site specific and depend on physical and hydrogeological conditions of the sites.

The workshop emphasized the role of central government, local government, NGOs, communities and private sector in mitigating arsenic problems.

The DPHE, in line with the above recommendations, is implementing arsenic mitigation options through different projects: The projects are (i) A study in Arsenic Affected Areas in Bangladesh, (ii) Study of Groundwater for Arsenic Contamination in Bangladesh, (iii) DPHE-DANIDA Arsenic Mitigation Pilot Project, (iv) Action Research on Community Based Arsenic Mitigation in 5 Upazilas, (v) Study on Groundwater Development of Deep Aquifers for Safe Drinking Water Supply to Arsenic Affected Areas in Western Bangladesh, (vi) Action Research on Community Based Arsenic Mitigation in 15 Upazilas, (vii) Action Research on Community Based Arsenic Mitigation in 25 Upazilas, (viii) Bangladesh Arsenic Mitigation Water Supply Project, (ix) Water Supply Project from the Pond in Saline Prone and Arsenic Affected Areas and (x) DPHE-DANIDA Arsenic Mitigation Project.

Awareness raising campaigns have been conducted. A total of over 800,000 water samples have been tested and about 27% of the samples representative of different regions were found contaminated with arsenic at levels more than Bangladesh Standard of 0.05 mg/l. In 61 districts, a total of 268 upazilas were affected with arsenic in varying degrees of contamination. About 10,000 patients have so far been identified and are under treatment. For supply of safe water, different technological options like household arsenic removal units, deep tubewells, Pond Sand Filters, dug/ring wells and rainwater harvesters have been installed. NGOs like BRAC, CDIB, DCH, EPRC, Grameen Bank, GUP, ISDCM and NGO Forum for Drinking Water Supply and Sanitation have been participating in arsenic mitigation.

Bangladesh Arsenic Mitigation Water Supply Project (BAMWSP) In quest of Safe Drinking Water

The appearance of arsenic in ground water has posed as a public health hazard having a very significant impact on people’s life, health, social and economic activities in Bangladesh. In fact, the arsenic contamination of groundwater has created additional burden in the rural water supply management demanding water treatment and water quality surveillance.

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To cope with the situation, a comprehensive approach for arsenic free safe water supply has been initiated through Bangladesh Arsenic Mitigation Water Supply Project (BAMWSP) with the joint effort of the Government of Bangladesh, the World Bank and Swiss Agency for Development and Cooperation (WB-SDC).
The approach includes conducting survey in nine wards of a union parishad by Field Survey Team, and forming a team in each ward comprising of four educated and energetic male and female youths under the guidance of the Ward committee and the Union Parishad. Arsenic mitigation committees of District, Upazila, Union and Ward levels have been formed by the government to facilitate this programme. This programme has been under implementation in 35 arsenic prone upazilas in six divisions of the country.

Emergency Mitigation activities

As per decision of Task Force and Local Government Division, the villages where the percentage of contaminated tubewells is 80% or above, have been brought under emergency mitigation programme to provide at least one alternative safe water source in each village immediately, with full cost to be borne by the government. As a part of this programme, 250 dug wells, 3 Pond Sand Filters and 75 deep tubewells are being installed in different villages of 24 Upazilas.

Training of Doctors on Arsenic patient Management

The health impact of arsenic in drinking water is still very unclear. This is mainly due to lack of reliable epidemiological data as well as scientific knowledge. To overcome the situation, BAMWSP is implementing training programme/workshop covering physician and health workers at Division, District and Upazila levels, a programme for Medical professionals at community level to enrich their knowledge about arsenic, its toxicity, its effects on human body, diagnosis, treatment and preventive measures. As a part of this Health Sector Strengthening Programme (HSSP) 206 workshops have already been organized at national, regional and upazila levels covering 11,000 health workers and 2,000 physicians.

Awareness campaign at the Community Level

Awareness building at community level is a widely recognized theme for ensuring peoples participation in development programme implementation. In order to raise awareness on arsenic at the community level, different communication services/activities have been organized/disseminated through print, electronic and traditional media group.

Different print materials like Poster, Leaflet, Advertisement, Brochure, Newsletter have been published covering different target groups with specific messages on tubewell screening, alternative source of arsenic free water, technical option, patient identification, health measure option, risk reduction and overall social mobilization.

In electronic media group there are TV filler, Telop, Feature film, Jingle, Documentary and Spot reporting programme, disseminating through television and radio.

Considering the non-availability of modern communication facilities at the grass root level, folk media comprising folk song, street publicity, drama and courtyard meeting have been organized at community level.

Conclusion

The government with assistance and cooperation of development partners and stakeholders is implementing a pragmatic programme to overcome the arsenic problem, where communities are playing important role. Moreover, with the participation of communities and local government entities, Bangladesh will be able to overcome the arsenic hazard, the most critical disaster in the history of the country and provide sustainable solution to the problem.

For Additional Information:

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Gross Imbalance in Water Supply and Sanitation Coverages

Bangladesh achieved overwhelming success in drinking water supply. About 97% people had access to safe water sources within 150m. The emergence of arsenic in groundwater rendered a negative impact on the success, and it has been estimated that about 27% of the tubewells are affected with arsenic in excess of Bangladesh Standard of 0.05 mg/l.

Though the sanitation coverage was always lagged behind, the Soc-Mob programme in the mid nineties enhanced the sanitation coverage to a level of about 40%. The watersalt and the homemade latrines were considered acceptable options of sanitation.

The sanitation coverage and safe water use for all domestic purposes have not been improved as desired.

The UNDP funded action research Community Based Water Supply and Sanitation Project (CWSSP) conducted a census surveys in 5 Unions of its project areas. The coverages under water supply and sanitation in those 5 Unions are tabulated below:

<table>
<thead>
<tr>
<th>Union Surveyed</th>
<th>Water Supply</th>
<th>Sanitation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% HH having water sources</td>
<td>% HH having no water source</td>
</tr>
<tr>
<td>Mallikbari, Bhaluka, Mymensingh</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Chinha, Dacone, Khulna</td>
<td>20</td>
<td>80</td>
</tr>
<tr>
<td>Gangachara, Gangachara, Rangpur</td>
<td>80</td>
<td>20</td>
</tr>
<tr>
<td>Shahjahanpur, Madhabpur, Habiganj</td>
<td>25</td>
<td>75</td>
</tr>
<tr>
<td>Shamshapur, Tezumuddin, Bhola</td>
<td>5</td>
<td>95</td>
</tr>
</tbody>
</table>
Along with public agency and NGOs, private sector having flexibility in operation played important role in service delivery.

It is observed that there exists an imbalance between the coverages under water supply and sanitation and inequity of services in different areas.

**Water Supply**

The coverage depends on the technological option, its availability and its price. In Mallikbari, the tubewells are mostly shallow—No. 6 hand pumps and Rower pumps. These are cheaper compared to other options of water supply. NGOs promoted the rower pumps while the government agency, DPHE and private sector promoted No. 6 hand pumps.

In Gangachara, the hand pumps are of suction mode No. 6 and the RFL (Rangpur Foundry Limited) type, and the wells are very shallow. The RFL produces pumps of different sizes with attractive prices. The prices for a tubewell ranges from Tk. 1200 to Tk. 4000. The facts above contributed for satisfactory coverage in Gangachara.

On the other hand in Shambhupur, the tubewells are deep ones costing Tk. 45000 each. Almost all tubewells there are the public ones. This renders the dismal scenario of coverage in Shambhupur.

**Sanitation**

The sanitation coverage in Chalna and Gangachara Unions is higher compared to other Unions. These are the HQ Unions and experienced higher promotional activities on WSS. Some 60% people, still do not have latrines there.

The data of Shambhupur indicates that people use latrine not because of health, but possibly for privacy, convenience and prestige. The proportion of sanitary latrine is low while that of insanitary latrine, mostly overhung, is very high.

The gross imbalance in the coverages under water supply and sanitation has little positive impact on the morbidity/mortality status.

Effective awareness raising, promotion of a wide range of alternative technologies and private sector development appear to be potential key factors to be addressed for improvement in the water supply and sanitation sector in the country.

For additional information:
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**District Level Briefing on Community Based Arsenic Mitigation Action Research in 15 Upazilas**

The Community Based Arsenic Mitigation Action Research in 15 Upazilas is progressing satisfactorily.

The screening of tubewells has been completed. The tubewell spouts have been painted green and red depending on the concentrations of arsenic in water below and above the Bangladesh Standard of 0.05 mg/l respectively.

Identification and management of the patients are being managed by the DGHS through the Upazila Health Complexes.

Briefing sessions for the District Level Arsenic Mitigation Committees on the extent of the problems and the status of interventions and their functional responsibilities for mitigation work were held in Jessore, Barisal, Narail and Chuadanga districts.

Safe water supply options will be installed as soon as the identification of appropriate technology concludes.

The project is being implemented by DPHE in close cooperation with the district and Upazila level administration with the active involvement of the local Union Parishads in the implementation process while the NGOs are acting as facilitators/promoters under the guidance of DPHE and DGHS in the respective fields.

The DGHS, through its network, is providing curative measures while the DPHE with its network is implementing preventive measures in a coordinated manner.

This effort is providing an excellent example of GO-NGO cooperation for effective and sustainable service delivery in the sector.

**World Water Day Seminar**

NGO Forum and WHO jointly organized a national seminar on the 21st March, 2002 (as the 22nd March was regular weekend) on Safe Water for All: Bangladesh Prospective, in observance of the World Water Day. Held at the BETS Centre, the inaugural session was addressed by Mr. Abdul Mannan Bhuiyan, Minister for LGRD & Cooperative as Chief Guest, Mr. Mahfuz Anam, Editor, The Daily Star, Mr. Nielsseverin Munk, Ambassador, the Royal Danish Embassy, Mr. AYBI Siddiqi, Secretary, Local Government Division, MLGRD&C and Mr. Goutam Chakrabarty, State Minister for Water Resources as Special Guests and Mr. SMA Muslim, Chief Engineer, DPHE as Guest of Honour. The Chief Guest stressed on planned and coordinated efforts to deliver safe water to the people.
In the technical session two keynote papers were presented. These were: (i) Recent trends in Water Resources Development for National to Global Perspective with Focus on WatSan by Prof. Ainun Nishat, Country Director, IUCN-Bangladesh, and (ii) Institutional Changes for Scaling up the Delivery of Safe WatSan in Bangladesh by Mr. KM Minnatullah, Sr. Water & Sanitation Specialist, The World Bank.

**Local Consultative Group (LCG) meeting**

A meeting of the LCG subgroup on Water Supply and Sanitation was held on February 04, 2002 at BRAC Centre. The meeting was chaired by Mr. Preben Gondolf, Counselor, Royal Danish Embassy, Dhaka. The gathering was also graced by Mr. AYBI Siddiqi, Secretary, Local Government Division.

The meeting discussed the Water Quality Testing Protocol prepared by the DFID.

Then a presentation was made on BRAC experience on willingness to pay for improved water supply and sanitation services.

Mr. AYBI Siddiqi appreciated the contributions made by all concerned in holding successfully the International Workshop on Arsenic Crisis in Bangladesh. He assured that all the recommendations of the experts from home and abroad will be duly considered and implemented in phases.

The Unit for Policy Implementation, LGD presented paper on Sector Coordination for Hygiene Promotion and Project Database on WSS and emphasized its importance.

The next meeting of the LCG was scheduled to be held on the 8th April, 2002 at BRAC Centre Inn, Mohakhali, Dhaka.

**National Workshop on Rainwater Harvesting**

In the backdrop of arsenic crisis, Rainwater Harvesting appears one of the alternative options for save water supply. The Unit for Policy Implementation (UPI) of Local Government Division in association with UNICEF and DPHE organized a national workshop on Rainwater Harvesting at the DPHE auditorium on the 31st March, 2002. Key professionals in the sector like Mr. SMA Muslim, CE, DPHE, Prof. M. Feroze Ahmed of BUET and other experts from local and international organizations participated in the workshop.

The workshop discussed (i) Range of technological options, (ii) Service delivery approach, (iii) Role of government, private sector, NGOs, community groups, users and researchers, and (iv) Subsidy issues.

The participants were positive about the promotion of the option, but felt the necessity of careful study for site selection before installation so that it sustains. The option will help mitigate arsenic crisis to a considerable extent.

Mr. Abdul Mannan Bhuiyan, Minister, Mr. Ziaul Haque Zia, State Minister, Mr. Advocate Abdul Quddus Talukder, Deputy Minister, Ministry of LGRD&C and Mr. AYBI Siddiqi, Secretary, Local Government Division graced the concluding session. They made commitments for supports to mitigate the arsenic crisis and advised all concerned for adoption of pragmatic approaches to this end.

**ADB Mission in Bangladesh**

A two member Fact Finding Mission from the Asian Development Bank (ADB), comprising Ms. Elaine Glennie, Financial Management Specialist and Mr. Arthur Macintosh, Principal Project Engineer, visited Bangladesh in relation to the 9 District Town Water Supply Project (9 DTP). During their two week stay in Bangladesh, they visited the 9 DTP office and other officials for sharing of views to formulate the Advisory Technical Assistance (TA) for the establishment of a regulatory body.
**Final Report on the Integrated Coastal Zone Management**

Programme Development Office for the Integrated Coastal Zone Management (PDO-ICZM) is active with preparatory works as building blocks for a future planning exercise. One of these activities was Analysis of Projects Contributing to the Integrated Coastal Zone Management (ICZM) process.

A total of 6 projects were selected from a long list of projects that were currently under implementation by several governmental agencies under different ministries and in various areas along the coastal zone.

DPHE with financial assistance from Government of Denmark is implementing Coastal Belt Rural Water Supply & Sanitation Project in 28 Upazilas of 8 coastal districts (Barisal/ Peripur/ Jhalokhathi/ Patuakhali/ Barguna/ Noakhali/ Feni/ Laxmipur) under the GOB-DANIDA Sector Programme Support to WSS Sector which is scheduled to be completed in 2004.

Dr. M Rafiqul Islam, Interim Team Leader, ICZM submitted final report on January 27, 2002. The final report of ICZM provides a broad overview of prevailing institutional arrangements, legal and administrative coverage and experiences of joint collaboration between agencies. The Chief Engineer, DPHE, Mr. SMA Muslim, one of the members of the Technical Committee, ICZMP contributed substantially to the exercise.

**For details:**

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**Agreement between GOD and GOB for Urban Water Supply & Sanitation (Phase-III) in the 5 Coastal Districts**

An agreement between the Government of the Kingdom of Denmark and the Government of the People's Republic of Bangladesh for Urban Water Supply and Sanitation Component (Phase-III) under Sector Programme Support to the Water Supply and Sanitation Sector was signed on January 10, 2002. Mr. Anisul Haq Chowdhury, Secretary, Economic Relations Division, Ministry of Finance and His Excellency, Mr Niels Severin Munk, Ambassador, the Royal Danish Embassy, Dhaka signed the agreement on behalf of their respective governments. The Government of the Kingdom of Denmark will be supporting on grant basis for implementation of Urban Water Supply & Sanitation in 5 districts at an amount of 85,000,000 DKK (Eighty Five Million Danish Kroner). The overall objective of the component is to improve the health conditions of the population.

In order to achieve the above objective the component aims to produce the following outputs:

(a) Piped water supply systems including service connections, public & community taps constructed in Noakhali, Feni, Raipur, Ramganj, Patuakhali, Kalapara, Amtali, Galachipa and Pathorghat Pourashavas. (b) Deep Hand Tubewells (DTWs) installed in fringe areas of Pourashavas, Upazilas and growth centers and areas not served by piped water supply (c) Damaged drainage systems rehabilitated and new drains constructed depending on the contributions made by the local government institutions (d) Community based solid waste collection system established (e) Environmental Sanitation including construction of household latrines in underserved pockets, community latrines for high density slum areas, and public toilets in busy market places.

**Launching of DFID supported Environmental Sanitation, Hygiene and safe Water Supply in Rural Areas Project**

The DFID supported Environmental Sanitation, Hygiene and safe Water Supply in Rural Areas Project will be implemented by the DPHE in collaboration with the UNICEF in the country. The goal of the project is to reduce morbidity, mortality and malnutrition especially among poor women and children through improvement of standard of hygiene practices.

The project will be implemented in 2 phases starting with developmental phase of 2 years from 2002 in 28 Upazilas of 7 districts namely Rangpur, Gaibandha, Jamalpur, Sirajganj, Chuadanga, Madaripur and Brahmanbaria.
Project launching workshops were held in the district and Upazila HQs where the District and Upazila WatSan Committee members participated. Deputy Commissioners and Upazila Nirbahi Officers of the project areas and Ms Shirin Hossain, Ms. Dipa Sen, Messers Kamrul Alam and Gabriel Rozario from UNICEF and Dr. Ali Azam and Mr. Md. Mustafizur Rahman from DPHE HQs participated in the workshops.

For Information:
Environmental Sanitation, Hygiene and Safe Water Supply in Rural Areas Project
DPHE Bhaban
Kakrair, Dhaka
Tel: 9349744

A two-day workshop on "Strategic Planning for Healthy Cities/Towns Programme" conducted by WHO/DPHE Healthy Cities Programme, was held during 27-28 March 2002. WHO/DPHE Healthy Cities Programme sponsored the workshop. The workshop was inaugurated by Mr. S.M.A Muslim, Chief Engineer, Department of Public Health Engineering.

As a follow up of the recommendations made in the internal and external evaluation for reorienting of the concept of Healthy City Programme and its implementation procedures. The workshop was organized for the officials and community leaders involved with Healthy Settings Programme to reintroduce the concept and implementation procedures of Healthy Settings like Healthy Cities, Healthy Districts, Healthy Villages, Healthy Schools, Healthy Markets etc. to the local government officials and community leaders.

The workshop was attended by 14 participants from five cities and towns (Chittagong, Cox's Bazar, Rajshahi, Sylhet and Habiganj). Professor Nazrul Islam of the Department of Geography and Environment, University of Dhaka and Chairman of CUS; Professor Prafulla Chandra Sarkar of the Department of Social Welfare, Rajshahi University, and Professor Yusuf Sharif Ahmed Khan of Institute of Marine Science, University of Chittagong were invited as the guest speakers and other external resource persons to facilitate the workshop. Mr. Han A. Heijnen, Mr. Taufiqul Arif, Mr. Tapan Kumar Nath have also presented on the various issues of Healthy Cities aspects. The participants conducted the SWOT analysis of the Healthy Cities/Towns Programmes in their own areas. In the afternoon they presented their group activities and framework for their own strategic planning for Healthy Cities and Towns. In the closing session Professor Nazrul Islam distributed the certificates among the participants as Chief Guest. The workshop focused on the implementation procedure of Healthy Settings with community participation and
partnership approach. Local resource mobilization by the communities and local authorities for building healthy cities was also emphasized.

**Annual Get-Together**

Along with Ex-Chief Engineer Mr. Abu Hussain, Joint Secretary, Local Government Division, Mr. Kamal Uddin, incumbent Chief Engineer Mr. SMA Muslim, the DPHE Officials organized a get-together at Kaliakoir, Gazipur on the 8th March, 2002.

Ex-Chief Engineer, DPHE, Mr. Abu Hussain recapitulates DPHE in 70’s

The officials and the families exchanged pleasantries and shared views on official and personal issues.

Attractive games and sports were organized for the children.

The participants enjoyed the day merrily and commented that one such a day in a year was useful for the improvement of the efficiency in discharging the responsibilities.

**Training on Solid Waste Management**

A two day training programme on Urban Solid Waste Management and Composting for the DPHE engineers was held on 19-20 January 2002 at the DPHE conference room. The programme was sponsored by DPHE-WHO and conducted by Waste Concern. The Chief Engineer of DPHE, Mr. SMA Muslim graced the inaugural session of the programme as the Chief Guest and he emphasized the importance of solid waste management for protection of environment and advised the participants to be attentive to the deliberations in the training course.

The Waste Concern resource persons, Mr. Maqsood Sinha and Mr. Iftekhar Enayetullah explained the environmental situation affected by the solid wastes with facts and figures.

Chief Engineer, DPHE, Mr. SMA Muslim inaugurates the training course.

**Upazila and Growth Centre Water Supply Project Started**

The Department of Public Health Engineering has taken up a project entitled Upazila and Growth Centre Water Supply and Sanitation Project. The project costing about Tk. 234.00 crores, entirely from GOB funding, is designed to supply piped water supply and sanitation facilities to 60 upazila level Pourashavas and growth centers. Mr. Md. Khoda Bux has assumed responsibilities of the position of the Project Director in the recent past.

**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.

Looking forward to receive the regular contribution of articles before end of the quarters.

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**Editor: Md. Mustafizur Rahman, Executive Engineer, Training Division, DPHE**

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