

## 2. 主要面談者リスト

### 【バングラデシュ側】

- Ministry of Finance
  - Mr. Kamul Hasan Deputy Secretary, Economic Relation Division
  - Mr. Mosaddeque Hossain Khan Asistant Chief, Economic Relation Division
  - 表 伸一郎 経済協力調整アドバイザー
- Planning Commission
  - Mr. Engr. Sk. Mainuddin Ahmed Joint Chief, Physical Infrastructure Division
  - 中村 欣功 経済開発計画アドバイザー
- Ministry of Local Government Rural Development and Co-operatives
  - Mr. Syed Anwaru Islam Joint Secretary
- Department of Public Health Engineering
  - Mr. Alhaj Md. Quadir-uz-Zaman Chief Engineer
  - Mr. Kazi Nasirudir Ahmad Additional Chief Engineer
  - Mr. Md. Zainal Abedin S.E. GWC
  - Mr. Amanullaha al Mahmood Executive Engineer (Planning)
  - Mr. S.M. Ihtishamul Haque Executive Engineer, R & D
  - Mr. Md. Zahurul Haque Superintendent Engineer (Planning)
  - Mr. Md. Jamanur Rahman Assistant Engineer (Staff Officer)
- DPHE Jessor Office
  - Mr. Delwar Hossain Executive Engineer
  - Mr. Biswa Nath Paul Sub-Division Engineer, DPHE Jessor
  - Mr. Md. Firoz Uddis Projectionist, DPHE Jessor
  - Mr. Tushar Kanti Adhikary Sub-Assistant Engineer, DPHE Sharsha Tana
  - Mr. Ratneswar Bisma Sub- Assistant Engineer, DPHE Abhaynagar Tana
  - Mr. A. M. M. Hamim Sub- Assistant Engineer, DPHE Chaugachha Tana
  - Mr. Md. Joynal Abedin Sub- Assistant Engineer, DPHE Keshabpur Tana
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  - Mr. Md. Shafiur Rahman Sub- Assistant Engineer, DPHE Bagherpara Tana
  - Mr. Md. Mizanur Rahman Sub- Assistant Engineer, DPHE Jessor Sadar Tana
  - Mr. Nirajan Biswas Sub- Assistant Engineer, DPHE Manirampur Tana
- DPHE Jhenaidah Office
  - Mr. Basanta Kumar Jowarder Executive Engineer
  - Mr. B. A. Quddus Sub- Assistant Engineer, DPHE Jhenaidah Sadar Tana
  - Mr. K. A. Al-Mahmud Sub- Assistant Engineer, DPHE Harinakunda Tana
  - Mr. Md. Jalal Uddin Sub- Assistant Engineer, DPHE Sailkupa Tana
  - Mr. Md. Abdul Mannan Sub- Assistant Engineer, DPHE Kaugonj Tana
  - Mr. Md. Moshasscf Hossain Chairman, Jhenaidah Pourashava

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|---|--|
| Mr. Md. Ayub Ali Biswas   | Assistant Engineer, Jhenaidah Pourashava           |
| Mr. Md. Saiful Islam  | Commissioner, Jhenaidah Pourashava                 |
| Mr. Mohabuber Rahman  | Commissioner, Jhenaidah Pourashava                 |
| ● DPHE Chuadanga Office   |  |
| Mr. Afzal Hossain   | Executive Engineer                                 |
| Mr. Sk. Md. Firoz Ali   | Sub- Assistant Engineer, DPHE Jibannagar Tana      |
| Mr. Md. Sarwar Hossain  | Sub- Assistant Engineer, DPHE Damurhuda Tana       |
| Mr. Md. Nurul Islam   | Sub- Assistant Engineer, DPHE Chuadanga Tana       |
| Mr. A. H. M. Shahidur Rashid  | Superintendent, Chuadanga Pourashava               |
| Mr. Md. Aabdul Alim   | Assistant Engineer, Chuadanga Pourashava           |
| ● DPHE Khulna Zonal Laboratory  |  |
| Mr. Md. Abdus Sattar Miah   | Senior Chemist                                     |
| ● DPHE Manikganj Office   |  |
| Mr. Md. Nazmul Hoque  | Executive Engineer                                 |
| ● Ministry of Water Resources   |  |
| Mr. Md. Wajir Rahman  | Deputy Director, Ground Water Division-1, BWDB     |
| ● Atomic Energy Centre  |  |
| Dr. Md. Solaiman Ali Tarafolar  | Chief Scientific Officer, Head, Chemistry Division |
| ● Dhaka University  |  |
| Dr. Md. Sazzad Hossain  | Professor, Department of Geology                   |
| ● EPC: Engineering and Planning Consultants Limited                   |  |
| Mr. Muhammad Mustafa  | Professional Engineer                              |
| ● BETS: Bangladesh Engineering & Technological Services               |  |
| Dr. A. Shabur   | Director   |
| ● EGIS: Environment and GIS Support Project for Water Sector Planning |  |
| Mr. Ahmadul Hasan   | Technical Adviser                                  |
| ● Shams Group (Soiltech International Limited)                        |  |
| Mr. Mohd Shams-uz Zoha  | Director   |

【関連機関】

- |                    |   |
|--------------------|---|
| ● 世界銀行             |   |
| Dr. Babar N. Kabir | Country Sector Leader, UNDP-World Bank Water & Sanitation Program- South Asia |

【日本関係】

- |                   |        |
|-------------------|--------|
| ● 大使館             |        |
| 浦部 和好             | 特命全権大使 |
| 石田 樹 (たてき)        | 一等書記官  |
| ● JICA バングラデシュ事務所 |        |
| 岡崎 有ニ             | 所長     |
| 木邨 洗一             | 次長     |
| 中野 則之             | 所員     |

QUESTIONNAIRE  
FOR  
THE STUDY ON GROUNDWATER DEVELOPMENT FOR NORTHWESTERN  
ARSENIC AFFECTED AREAS  
IN  
THE PEOPLE'S REPUBLIC OF BANGLADESH

December 1999

JAPAN INTERNATIONAL COOPERATION AGENCY  
(JICA)

Note:

- In case the data / information is available, please mark ○ in the column "Yes" and provide with us the said data / information
- In case the data / information is not available, please mark X in the column "No"

1. General Information (1/3)

No	Item	Description	Yes	No	Please indicate where materials are available	回答及び資料入手状況
1.1	<b>National policy and regulations regarding anti-arsenic contamination</b>					
(1)	Up-dated national policy on the safe water supply in Bangladesh				DPHE head office	回答なし。世銀から情報収集。
(2)	The national steering committee on the anti-arsenic contamination	a. The present member list of the national steering committee b. The recent activity of the committee			DPHE head office	回答なし。世銀から情報収集。
(3)	The environmental laws and regulations concerned with the arsenic contamination and groundwater development				DPHE head office	回答なし。
1.2	<b>The DPHE's activities regarding anti-arsenic contamination</b>					
(1)	Any organizational strengthening plan on the countermeasure against arsenic contamination				DPHE head office	回答なし。DPHE の組織強化の具体的な計画は現在のところなし。
(2)	Database system on arsenic contamination in the DPHE office	a. Coverage of database b. Detailed system (kind of data, number of data, software of database, etc.)			DPHE head office	回答なし。DPHE 事務所にはまだ設置されていない。
(3)	Laboratory facilities related to the testing of the arsenic contamination	a. Inventory of major laboratory equipment to test the water quality b. The capacity enhancement plan on the existing laboratories, if any			DPHE head office, DPHE Kkulna Zonal Labaratoty DPHE head office	回答なし。クルナ事務所の水質分析室を訪問調査。 回答なし。

1. General Information (2/3)

No	Item	Description	Yes	No	Please indicate where materials are available	回答及び資料入手状況		
1.3	<b>Arsenic contamination on irrigation water</b>	c. The relation between the above plan and the establishment of the central laboratory in Dhaka for which Bangladesh Government is asking for the Japanese grant aid						
	(1) The national policy regarding the agriculture irrigation development						BWDB (Bangladesh Water Development Board) and BADC (Bangladesh Agriculture Development Cooperation)	回答なし。
	(2) The agriculture sector's countermeasures against the arsenic contamination on irrigation water							
	(3) The monitoring system on irrigation water quality							
	(4) Database system on arsenic contamination in the BWDB office						a. Coverage of database b. Detailed system (kind of data, number of data, software of database, etc.)	EGIS (Environment and GIS Support Project for Water Sector Planning)
(5) Any coordination and/or reconciliation system between the agriculture sector's approach to the alleviation of arsenic contamination and the other organizations countermeasures		BWDB (Bangladesh Water Development Board) and BADC (Bangladesh Agriculture Development Cooperation)	回答なし。					
1.4	<b>Information regarding the arsenic contamination</b>							
(1)	Location maps on arsenic-contaminated wells				HPHE head office and DPHE district office	DFID のレポートに一部記載あり。DPHE にはなし。		

1. General Information (3/3)

No	Item	Description	Yes	No	Please indicate where materials are available	回答及び資料入手状況
(2)	Arsenic affected areas on the national map and the study areas' map				HPHE head office and DPHE district office	調査対象地域のヒ素汚染分布図は現在のところなし。
(3)	Records of arsenic contamination varying with time				HPHE head office and DPHE district office	継続的な水質分析はまだ実施されていない。
(4)	Forecast of arsenic contamination				HPHE head office and DPHE district office	定量的に予測した資料・レポートはなし。
(5)	Records of water quality regarding the chemical components other than arsenic				HPHE head office and DPHE district office	DPHE 地方事務所に、数は少ないが分析した事例があり、データを入手。

## 2. Inventory of Tube Wells and Production Wells in the Study Area

No	Item	Description	Yes	No	Please indicate where materials are available	回答及び資料入手状況
<b>2.1</b>	<b>Inventory of tube wells</b>					
(1)	Inventory of tube wells for drinking water in the study area (Jessor, Jhenaidha and Chuadanga)	a. Location b. Depth of each tube wells c. Present water quality d. Number of users of each tube wells			DPHE district office and Thana office	各タナ事務所に手書きの井戸台帳があることを確認。3県でDPHEの井戸が約45,000本。
(2)	Inventory of tube wells for irrigation in the study area (Jessor, Jhenaidha and Chuadanga)	a. Location b. Depth of each tube wells c. Present water quality d. The quantity pumped up by each tube well e. Area of the farm irrigated by each tube well			BADC	各県のBDACを訪問調査。井戸本数、可動状況のデータを入手。
<b>2.2</b>	<b>Inventory of production wells and water supply system</b>					
(1)	Inventory of production wells operated by DPHE or Co-operatives in the study area for drinking water	a. Location b. Number of users c. Present water quality d. Present water supply capacity e. General description of production wells, pumps, storage tanks and pipeline networks			DPHE district office and Pourashava (町)	各 Pourashava を訪問調査。Data Book 1998 (Urban Water Supply System)の3町の水道主要指標データを入手。
(2)	Water quality of production wells of Chuadanga water supply system constructed by Japanese aid	a. The records of the tests from 1996 up to now b. Present water supply capacity			DPHE district office, Chuadanga	その後の生産井戸の水質分析は未実施。現在の給水供給量は1,200 m <sup>3</sup> /d。事前調査団の訪問調査期間中に水質分析を実施。7本のうち2本の井戸で基準値を超えている。現在の給水供給量は2,133 m <sup>3</sup> /d。
(3)	Water quality of production wells of Jhenaidha water supply system constructed by Japanese aid	a. The records of the tests from 1996 up to now b. Present water supply capacity				

### 3. Water Demand and Other Relevant Information of the Study Area

No	Item	Description	Yes	No	Please indicate where materials are available	回答及び資料入手状況
<b>3.1</b>	<b>Water demand</b>					
(1)	Present and future demand of water use for the relevant sectors (drinking, agriculture, industry, etc.) of the study area				DPHE, BADC and Pourashava (町)	回答なし。現在、3町の都市水道の給水原単位実績は、Jessor 町が 86 l/pc/d、Jhenaidha 町が 50 l/pc/d、チュアダンガ町が 62 l/pc/d。
<b>3.2</b>	<b>Maps of the study area</b>					
(1)	The topographical map with contour line of the study area (scale 1/1,000-1/2,000 and 1/5,000-1/10,000)				GIS Unit, Local Government Engineering Department	3県の各タナのベースマップ (縮尺 1/50,000) を入手。
(2)	The aerial photo				EGIS	有料で入手可能。
(3)	Hydrogeological maps				EGIS	EGIS 作成の地質図を入手。
(4)	Landform classification maps				EGIS	なし (未作成)。
(5)	Groundwater availability maps				EGIS	なし (未作成)。
(6)	Landsat image				EGIS	有料で入手可能。
<b>3.3</b>	<b>City planning</b>					
(1)	The city planning of the study area	a. Land use plan b. The development plan for housing and industrial estates c. Planned population			Pourashava	回答なし

4. Other Donors' Activities (1/2)

No	Item	Description	Yes	No	Please indicate where materials are available	回答及び資料入手状況
4.1	<b>British-DFID</b>					
(1)	Any progress after the end of Phase 1 of the study				DPHE head office	Phase 2 の作業が進行中。
(2)	Arsenic contamination data storage system (based on GIS)				DPHE head office	EGIS で作成。EGIS にて情報収集。
(3)	Inventory of laboratory equipment which have been supplied to the DPHE laboratories				DPHE head office	回答なし。
4.2	<b>NEDA</b>					
(1)	The 300 m <sup>3</sup> /h arsenic removal plant constructed in Meherpur	a. Layout map and treatment flow diagram b. Construction cost c. Present conditions of the plant d. Any legal restriction on the sludge comes out from the plant			DPHE head office	回答なし。
(2)	GIS database system on arsenic contamination	a. Coverage of database b. Detailed system (kind of data, number of data, software of database, etc.)			DPHE head office	EGIS にて情報収集
(3)	Any other programs for supplying arsenic-free-water				DPHE head office	[18 District Towns Water Supply Sanitation and Drainage Project] で、鉄及びヒ素除去装置の設置を行っている。
4.3	<b>DANIDA</b>					
(1)	DANIDA/DPHE Project for drilling deep wells in the southern district of Bangladesh	a. The present status of the project b. Project schedule and major outputs c. Target year and target coverage d. Groundwater quality and quantity			DPHE head office	DANIDA にて情報収集。南部 5 県を対象に Phase II を 1997 年 7 月から開始。都市部では 200~300 m の生産井戸 36 本の掘削を計画。

4. Other Donors' Activities (2/2)

No	Item	Description	Yes	No	Please indicate where materials are available	回答及び資料入手状況
4.4	<b>USAID</b>	<p>e. Any water treatment facilities installed</p> <p>f. Method of drilling and structures of the wells</p> <p>g. List of laboratory equipment to test water quality supplied to the DPHE laboratories in the project</p> <p>h. Any groundwater monitoring programs and management programs</p> <p>i. Operation and maintenance methodology and its cost</p>				農村部では、ハンドポンプ深井戸 12,500 本の掘削を計画。今後のヒ素汚染や塩水浸入を予測するために、シュミレーション解析を行うことも検討中。
(1)	Data regarding arsenic removal filter	<p>a. Arsenic removal filter specifications</p> <p>b. Price per unit regarding the filter</p> <p>c. The areas where the filter are installed.</p>			DPHE head office	回答なし。
4.5	<b>UNICEF</b>					
(1)	Inventory for the deep wells installed as the emergency measures	<p>a. The number and location</p> <p>b. The depth and structure</p> <p>c. The water quality</p> <p>d. Construction cost per unit</p>			DPHE head office	現在全国の 4 タナで、スクリーニング調査から代替え水源確保までを含めた総合調査を BRAC と共同で開始。その内の 1 つが、ジョソール県のジガルガッチャタナ。
(2)	Present status of UNICEF/BRAC testing program					1999 年 12 月からは、ヒ素汚染問題についての啓蒙を図るため、テレビ、ラジオ、新聞等の主要メディアを通じたキャンペーン活動を大々的に開始。
(3)	Contents and results of the integrated survey in Jhikargacha thana, Jessor district					
(4)	Development of Field Test Kit and Arsenator					

資料リスト (■収集資料/□専門家作成資料)

主管部長	文書管理課長	主管課長	情報管理課長	技術情報課長	図書館受入日

4. 収集資料リスト

		プロジェクトID		調査団番号	A-99		
地域	南西アジア	調査団名又は専門家氏名	バングラデシュ国北西部地下水開発事務所調査	調査の種類又は指導科目	開発調査(事前調査)	担当係課	社調2課
国名	バングラデシュ国	配属機関名		現地調査期間又は派遣期間	11年12月7日～11年12月28日	担当者氏名	井上 顯司

番号	資料の名称	形態(図書、ビデオ、地図、写真等)	収集資料	専門家作成資料	JICA作成資料	備考	発行機関	取扱区分	図書館記入欄
A	報告書・技術資料								
A-1	Bangladesh Arsenic Mitigation Water Supply Project (Cr.3124-BD), IDA Supervision Mission (October 12 to 27, 1999), Final Aide-Memoire December 8, 1999	図書	*				A joint IDA/Swiss Agency for Development and Cooperation (SDC) mission	JR-CR( )・SC	
A-2	Water Resources Planning Organization (WARPO), National Water Management Plan, Inception Report - December 1998	図書	*				Sir William Halcrow & Partners Ltd, Mott MacDonald Ltd.	JR-CR( )・SC	
A-3	Report on Arsenic Mitigation Activities Carried out by NGO Forum - November 1999	図書	*				NGO FORUM for Drinking Water Supply & Sanitation	JR-CR( )・SC	
A-4	Thana wise Hand Tubewell Status upto June '98 November '98	図書	*				P & C Division, DPHE	JR-CR( )・SC	
A-5	List of Exploratory Drilling done under TAPP for Study in Arsenic Affected Areas in Bangladesh (UNICEF assisted)	図書	*				R & D Division, DPHE	JR-CR( )・SC	
A-6	Data Book 1998 (61 Districts) (Urban Water Supply System) - October 1998 Division: Khulna, Pourashava: Jessore, Jhenaidah, Chuadanga	図書	*				DPHE	JR-CR( )・SC	
A-7	Groundwater Studies for Arsenic Contamination in Bangladesh, Phase I: Rapid Investigation Phase, Final Report, Main Report - January 1999	図書	*				Department for International Development (UK) / British Geological Survey, Mott MacDonald Ltd (UK)	JR-CR( )・SC	
A-8	Information of Arsenic Test under Jhenaidah District as of 30-11-99	図書	*				Executive Engineer, DPHE, Jhenaidah Division	JR-CR( )・SC	
A-9	DPHE, Zonal Laboratory, Khulna, Water Test Report, Pourashava: Jhenaidah - Date of analysis: 19-12-99	図書	*				Senior Chemist, DPHE, Zonal Laboratory, Khulna	JR-CR( )・SC	
A-10	List of Arsenic contaminated wells in Jenidha District, known as yet over 0.05 mg/L. tested by DPHE Khulna Laboratory - 23-12-9	図書	*				Executive Engineer, PHE., Jhenaidah Division, Jhenidah	JR-CR( )・SC	

番号	資料の名称	形態(図書、ビデオ、地図、写真等)	収集資料	専門家作成資料	JICA作成資料	テキスト	発行機関	取扱区分	図書館記入欄
A-11	Records of Water quality regarding the Chemical components other than Arsenic of Jhenidah, Production T/Well Jhenidah Pourashava - 23-12-99	図書	*				Executive Engineer, PHE., Jhenidah Division, Jhenidah	JR・CR( )・SC	
A-12	School Sanitation Project (3 <sup>rd</sup> Phase) (1999), Thana: Jhenidah Sadar	図書	*				Sub-Assisted Engineer PHE, Jhenidah Sadar, Jhenidah	JR・CR( )・SC	
A-13	Launching of National Communication Campaign on Arsenic Mitigation, DPHE and UNICEF, Dhaka, Monday, 20 December 1999	新聞	*				The Bangladesh Observer, Special Supplement	JR・CR( )・SC	
A-14	On Arsenic Content of Rice Seedlings and Paddy Soils in Samta Village - 24 Nov. 1999	図書		*			水落 JICA 専門家	JR・CR( )・SC	
A-15	Bangladesh People's Republic - Individual Specialist Dispatch Project (short-term) "Arsenic pollution status survey and countermeasure proposal related technical guidance" National Report Meeting Material Dec 11 1999	図書		*			JICA 短期専門家 (柴崎直明、木村繁夫、押川尚子)	JR・CR( )・SC	
A-16	広がる Bangladesh の地下水砒素汚染	図書	*				シャプラニール=市民による海外協力の会、ダッカ駐在員 國行敬子	JR・CR( )・SC	
A-17	アジア砒素ネットワーク及び JICA 短期専門家収集資料集	図書		*			アジア砒素ネットワーク、JICA 短期専門家	JR・CR( )・SC	
A-18	Arsenic Removal at Household Level, DPHE-Danida Urban Water & Sanitation Project	図書	*				DPHE-Danida Urban Water & Sanitation Project	JR・CR( )・SC	
A-19	Arsenic detection method in water not reliable?, Dhaka, Tuesday, 14 December 1999.	新聞	*				The Bangladesh Observer	JR・CR( )・SC	
A-20	UNICEF to extend financial support for arsenic mitigation	新聞	*				The Bangladesh Observer	JR・CR( )・SC	
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番号	資料の名称	形態(図書、ビデオ、地図、写真等)	収集資料	専門家作成資料	JICA作成資料	テキスト	発行機関	取扱区分	図書館記入欄
B	社会・経済、統計資料、法令・基準関係								
B-1	The Fifth Five year Plan 1997 - 2002	図書	*				Planning Commission, Ministry of Planning	JR・CR( )・SC	
B-2	1997 Yearbook of Agricultural Statistics of Bangladesh	図書	*				Bangladesh Bureau of Statistics, Statistic Division, Ministry of Planning	JR・CR( )・SC	
B-3	Bangladesh Population Census 1991, Volume 3, Urban Area Report - November 1997	図書	*				Bangladesh Bureau of Statistics, Statistic Division, Ministry of Planning	JR・CR( )・SC	
B-4	Monthly Statistical Bulletin Bangladesh, July 1999	図書	*				Bangladesh Bureau of Statistics, Statistic Division, Ministry of Planning	JR・CR( )・SC	
B-5	Environmental Quality Standards (EQS) for Bangladesh, July 1991	図書	*				Department of Environment	JR・CR( )・SC	
								JR・CR( )・SC	
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## 5. ローカル・コンサルタントリスト

現地再委託業務（エンジニアリングサービス、水質分析、井戸掘削／土質調査）に関し、当該業務に経験豊富なローカルコンサルタント、研究機関について調査した結果は以下のとおり。

### (1) エンジニアリングサービス

#### ① Bangladesh Engineering & Technological Services (BETS)

住所：House #44, Road #3, Dhanmondi R/A, Dhaka-1209, Bangladesh

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面談者：Dr. A. Shabur, Director

特徴：最大手の総合コンサルタント。社員数 422 名、内技術者 195 名。現在、セミナールーム、大会議場を含む自社ビルを建設中。UNICEF の井戸調査の業務経験を始め、各援助ドナーのローカルコンサルタントとして、水道事業ならびに地下水開発事業のエンジニアリング業務を数多く行っている。

#### ② Engineering & Planning Consultants Ltd. (EPC)

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電話：880-2-9564234/9564217 Fax：880-2-9564218

E-mail ID：[epc@bdmail.net](mailto:epc@bdmail.net)

面談者：Mr. Muhammad Mustafa, P.E., Professional Engineer

特徴：大手第二位の総合コンサルタント。社員数 236 名、内技術者 109 名。水道事業ならびに洪水対策事業のエンジニアリング業務を得意とし、DPHE の業務を始め、各援助ドナーのローカルコンサルタントとしても数多くの業務を行っている。

#### ③ Environment and GIS Support Project for Water Sector Planning (EGIS)

住所：House 49, Road 27 Banani, Dhaka-1213, Bangladesh

電話：880-2-881570-2 Fax：880-2-883128

E-mail ID：[ahassan@cegisbd.com](mailto:ahassan@cegisbd.com)

面談者：Mr. Ahmadul Hassan, Technical Adviser

特徴：水資源省傘下の GIS 及びデータベース構築の専門会社（特殊法人）で、オランダ政府の援助（基金）により 1990 年に設立され活動を開始した。現在は、運営資金確保のため、商業ベースでのコンピュータデータ処理業務を行っており、バングラデシュ国内の自然環境、水資源に係るデジタルデータも数多く保有している。

### (2) 水質分析

#### ① Atomic Energy Center, Chemistry Division

住所：4, Kazi Nazrul Islam Avenue, Ramna, Dhaka-1000, Bangladesh

電話：880-2-509482 Fax：880-2-863051

E-mail ID：[tarafdar@bdcom.com](mailto:tarafdar@bdcom.com)

面談者：Dr. Md. Solaiman Ali Tarafdar, Chief Scientific Officer

特徴：国の研究機関であり、廉価にて水質分析を行っている。現在、分析可能な水質項目は以下のとおり。

カドミウム、全クロム、銅、シアン、フッ素、鉄、鉛、マンガン、水銀、  
ニッケル、亜鉛、カルシウム、マグネシウム

② Environmental Quality Laboratory

住所：House No. 55, Road No. 4A, Dhanmondi R/A, Dhaka-1209, Bangladesh

電話：9661208 Fax: 880-2-863056

E-mail: [advtech@bd-online.com](mailto:advtech@bd-online.com)

面談者：Dr. Emran Kabir Chowdhury

特徴：水、排水、土壌などに含まれる各種元素(ヒ素を含む有害元素ほか 50 項目)の分析が可能であり、国の各種機関や民間会社依頼の分析業務を数多く行っている。

(3) 井戸掘削及び土質調査

(ア) 深度別地下水観測孔の掘削

① Siam Tone Co., Ltd.

住所：5/15 Moo 6 Bangna-Trad Road, Bangcha-long, Bangplee, Samutprakarn  
10540, Thailand

電話：662-312-5281-300 Ext. (300-333) Fax : 662-312-5304

E-mail ID : [Yamadam@ksc.th.com](mailto:Yamadam@ksc.th.com)

面談者：Mr. Mitsuo Yamada

特徴：1989年に(株)利根と Mitsiam International Ltd., Siam Industrial Corp., Ltd. Mitsui & Corp., Ltd.の合併会社として発足した。本社および工場はタイ国にある。土木工事の基礎工事、井戸掘削、調査・設計を広く手がけている。JICAプロジェクトの実績も多い。調査ボーリング、井戸掘削、シール技術については信頼性が高い。

(イ) 観測用(生産型)深井戸掘削

① Bangladesh Engineering & Technological Services (BETS)

(1) エンジニアリングサービスの①と同じ。

② Soiltech International Limited

住所：98. Road 9A. Dhanmondi R/A, Dhaka-1209, Bangladesh

電話：880-811-1994, 811-3202 Fax : 880-2-8111650

E-mail ID : [shams@dhaka.agni.com](mailto:shams@dhaka.agni.com)

面談者：Mr. Mohd Shams-uz Zoha.

特徴：バングラデシュ国を代表する Shams Group 企業 10 社のひとつ。25 年前に Swiss Boring Company としてスタート。エンジニア 112 名、土木工事および井戸掘削を得意とする。チッタゴンで 300m の井戸を掘削した実績があるが、300m を掘削出来るマシンは 1 台だけの保有。

③ **Engineering & Planning Consultants Ltd. (EPC)**

(1) エンジニアリングサービスの②と同じ。

④ **Siam Tone Co., Ltd.**

(3) 井戸掘削及び土質調査、(7) 深度別地下水観測孔の掘削の①と同じ。

(ウ) 改良型深井戸掘削

① **Soiltech International Limited**

(3) 井戸掘削及び土質調査、(4) 観測用（生産型）深井戸掘削の②と同じ。

② **Engineering & Planning Consultants Ltd. (EPC)**

(1) エンジニアリングサービスの②と同じ。

## 6. 物価調査表

ダッカ市での物価調査結果は以下のとおり。

JICA Preparatory Study Mission for the Study on Groundwater Development for  
Arsenic Affected Areas in Western Part of People's Republic of Bangladesh

### MARKET PRICE LIST

(Unit : TK)

Item	Unit	Price	Remark
<b>1. OFFICE EQUIPMENT</b>			
1) electric fan	unit	2,550	
2) air conditioner	unit	67,000	Including installation fee
3) mobile telephone	unit	29,000	For international
4) - ditto -	unit	13,000	For nationwide
5) copy machine	unit	100,000	For A3 size
6) price of making a copy in a shop	paper	2	Black and white in A4 size
7) - ditto -	paper	4	Black and white in A3 size
8) - ditto -	paper	20	Color in A4 size
9) copy paper (A4 size)	pack	180	500 sheets in a pack
10) - ditto - (A3 size)	pack	300	- ditto -
<b>2. REMUNERATION</b>			
11) secretary	month	25,000	
12) typist (English)	month	10,000	
13) driver	month	14,000	
14) interpreter	day	700	
15) translate (Local - English)	paper	100	
<b>3. VEHICLE AND FUEL</b>			
16) rent a car (sedan)	month	30,000~40,000	
17) rent a car (4WD)	month	50,000	
18) purchasing a car (4WD)	car	1,800,000	Tax exemption
19) - ditto -	car	3,800,000	With tax
20) gasoline	liter	23	
<b>4. SEMINAR</b>			
21) conference room for seminar	day	140,000	Sonargaon Hotel 100 prs. with lunch break