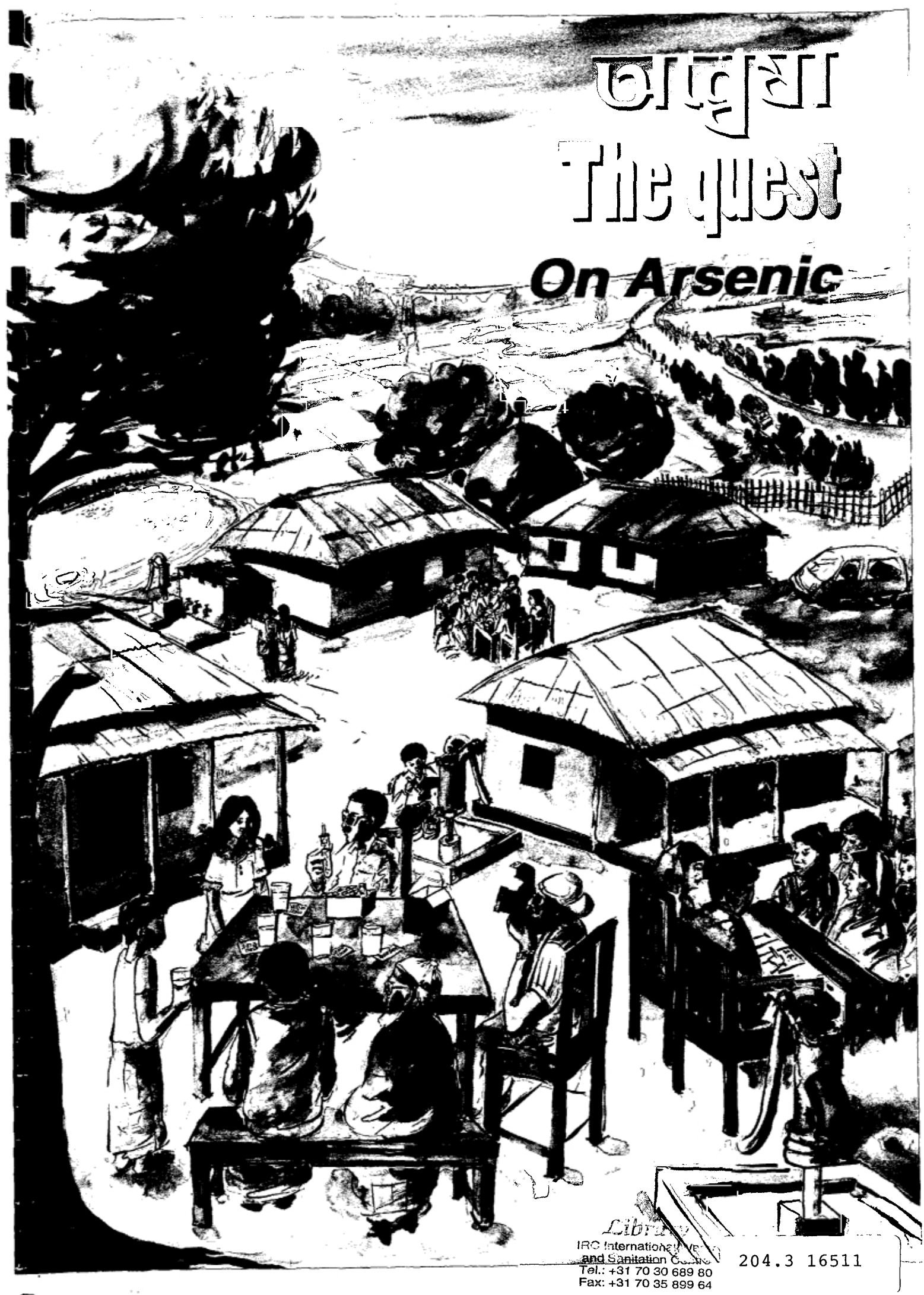


"Annesha"

Formative report conducted to formulate an Arsenic Communication Strategy

for

The Department Of Public Health Engineering

with

Unicef assistance

Asiatic Social

February 16, 1999

EXECUTIVE SUMMARY

In December 1998, Asiatic Marketing Communications Limited was awarded a contract to develop a communication strategy in supporting the Unicef assisted arsenic mitigation program of the Department of Public Health Engineering, Government of the People's Republic of Bangladesh.

As precursor to the strategy development, Asiatic MCL undertook extensive field trips to gain first hand experience of knowledge, attitude and practices related to arsenic as well as to study the various aspects of the arsenic problem and potential solutions.

Two teams visited 5 districts (Jessore, Satkhira, Manikganj, Nawabganj & Madaripur) in January, 1999, covering a total sample of 700 respondents (approx.). Group discussions and interviews were held with different target groups like health workers, sub-assistant engineers, local leaders and members of the affected communities including arsenicosis patients.

Key findings emerged from the field:

- While there are wide variations in what people know about arsenic contamination and its consequences for health, across groups, awareness levels are very low
- The level of awareness is relatively higher in those areas where some arsenic mitigation activities have been conducted
- The difference between pathogen free and arsenic free water was not clearly understood
- There exist some misconceptions about arsenic contamination and its outcomes e.g. confusion between arsenic and iron
- There is a general resistance to change water consumption and water management behavior
- People expressed an unwillingness to share tube well water
- The predisposition to behavior change is relatively higher in those areas where there are cases of Arsenicosis
- Tube well testing is conducted mainly by DPHE mechanics who have not received any direct or formal training in the procedure
- People are more predisposed to switch to a safe source of water if :
    - it is familiar
    - does not contradict their existing beliefs
    - is economically viable and
    - available at the individual household level
- No standardized procedure was followed to paint tube wells that are found to be contaminated

Many such findings and their analysis helped the research team to arrive at various implications for communication. The implications give specific pointers for the form, content and channels of communication for the arsenic mitigation campaign. At the same time there are some important general issues that need to be reiterated, as these will fundamentally influence the final communication strategy. The **key implications** for communication strategy are:

a) Need to standardize information at all levels

It was found from the field that there is an information vacuum not only in case of the affected population but also with govt. functionaries, administrators and local leaders. This has in some cases even led to sporadic non-uniform decisions, which may cause more suffering to the people. Thus there is a strong need to provide standardized information at all levels so that all affected and relevant audience are in a position to make informed decisions/choices.

b) Need to redefine the concept of safe water

Though several options for drinking water such as deep-tubewells, PSF etc were mentioned by the audience *concept of **'Nirapad Pani'** across the board was tube well water.* Since water of each and every tube-well is not 'safe' any more in the context of arsenic contamination, the communication strategy needs to give a proper interpretation of the **concept of safe water which is pathogen free as well as arsenic safe.**

c) Penetrating complacency vs creating panic

Respondents in the areas visited were not anxious to change their water consumption practices or seek viable solutions *even when they were aware* that they were drinking arsenic contaminated water which was detrimental to their health. In areas where there were frank cases of Arsenicosis there was some concern...but even here there seemed to be a tendency for denial or a false sense of invulnerability. All service providers seemed to believe that if people were to be spurred to change their behavior **stronger visual and conceptual stimuli** and **more emphatic messaging** would be required. Our initial concern was that such an approach would create widespread panic, generate unfulfillable demand for testing and consequent frustration. In order to address both the realities in the field and our legitimate concern it would perhaps be appropriate to adopt a **two level approach**

- a relatively **soft** awareness raising approach in the **mass media**...one which informs without creating panic;
- a relatively more **persuasive** approach in program areas (where testing activities are in progress); this approach will aim to not only raise behavior but encourage people to seek and adopt acceptable safe water alternatives.

d) Sensitivity to gender

Universally, women and girls were responsible for the collection of water for all domestic purposes (drinking, cooking and storage). Suggesting that drinking water be collected from a source other than the tube well in the immediate vicinity of the dwelling has a fundamental implication for women's work burden. They may have to walk some distance, carry back a load of up to 10 kg or more, spend time fetching and managing the water and so on. Overworked women for whom the "para" tube well provides some relief in a grueling schedule of domestic and farming activities should not be burdened with extra chores. Moreover, in most cases women's mobility is restricted; they may not be permitted to go more than a certain distance from their homes or they may not be allowed to go into certain areas (where safe water is available). For these reasons care will need to be taken while suggesting safe water alternatives. **Gender progressive solutions** such as the participation of men and boys or community water collection, sharing and management approaches will need to be encouraged.

The opportunities to reach information to women and to change their and their families' behavior, are constrained by women's restricted mobility, their negligible interaction with service providers (other than health workers), their exclusion from social forums such as Jatras and haats, their lower levels of literacy, and the gender disparate decision making structures in the household. Existing opportunities to communicate directly with women (e.g. through health workers and health centers) will have to be used to the fullest extent. Additionally, new and acceptable agents of inter-personal communication, such as high school students will have to be enrolled to reach women. Finally, all arsenic mitigation communication, especially that directed at the community in general or at men, will need to recognize clearly women's critical role in water related activities and the need for them to participate in all decisions pertaining to safe water options.

Whereas we did not come across any example of gender discrimination towards women suffering from Arsenicosis, there are ample anecdotal reports to confirm that the disfiguring and incapacitating effects of the condition lead to women being doubly victimized – both because of their disease and because of their gender. All communication on the social implications of Arsenicosis will necessarily have to address the gender dimension.

e) Recommendation of safe water options and promoting water sharing and management

From the findings it is adequately clear that there is a deep resistance to water sharing. At the same time people seem to be predisposed to accepting those options with which they are already familiar, those which do not entail extra costs, those that do not contradict their existing beliefs and those that can be available at the household level.

Therefore the strategy will have to focus on initiating the process of attitude change towards sharing and management of safe water resources.

f) Status of the arsenic mitigation program in the field

The communication campaign will have to be planned and implemented in tandem with program activities to ensure the desired mutual reinforcement effect. In addition to being based on findings from the field, communication contents will need to be shaped by standardized program information, e.g. which safe water options are to be promoted, who should be contacted for tube well testing and when, how should water samples be collected and so on. Further, the communication campaign will have to work to publicize and promote the arsenic mitigation program and activities.

INDEX

Part 1

Approach to Formative Research

Part I

Approach to Formative Research

1. Introduction

The problem of arsenic contamination in groundwater of Bangladesh has major implications on national health. It is for this reason that the Government of Bangladesh along with UNICEF has undertaken an arsenic mitigation program.

In December 1998, Asiatic MCL was hired for the purpose of developing an arsenic communication strategy. A scratch strategy paper was developed by Asiatic, due to lack of any detailed information about the KAP of the affected population it was felt necessary that Asiatic should undertake its own research with the specific objective of gathering information for developing communication for the DPHE arsenic mitigation program.

Desk research was conducted at the outdoors to understand the various arsenic mitigation programs of different organizations and also to study existing communication material available on the subject. The desk research also gave a better understanding of what to expect from the field. (Findings are outlined in the Annexures)

A detailed field research plan was prepared and approved by the client. Based on this plan five field trips were undertaken. The research team comprised the Asiatic arsenic team, MRC Mode (Asiatic's research partner) operations research members and representatives from UNICEF Dhaka and its field offices.

The key findings of this research and the post analysis of implications for communication strategy have been enumerated in this document.

The document is organized in two parts. Part I consists "Need and Objectives of Research" and the "Methodology Adopted for Conducting and Analyzing the Research." Part II of the document contains the "Key Findings" from the field. The findings have been divided under relevant thematic heads. At the end of each section implication for communication have been listed. Key findings and implications were identified through a process of discussion and consensus by all research team members. Raw data from the research exercise are available with the agency.

It is expected that this document will contribute to a growing body of research on the arsenic problem from the affected people's point of view and will strongly contribute to communication strategy development.

2. Need for Research

- There was a need to understand target audience's attitudes and behavior related to various aspects of arsenic
- There are few KAP studies currently available on various aspects related to arsenic
- There was no a need to explore opportunities and channels of communications
- It was necessary to understand the gaps between knowledge and practice
- It was necessary to understand Target Groups (TG's) response to Govt. and NGO programs on arsenic
- There was a need to assess Target Groups (TG's) response to past and proposed communication

The agency did not pursue a quantitative baseline study but opted for qualitative approaches to collect data / info which would enrich communication/ creative strategies.

3. Objectives

To assess some or all of the following in selected group and individuals:

- Knowledge, attitude and behavior with respect to water collection, use and management
- Knowledge and attitude with respect to arsenic contamination
- Response to alternate sources of water
- Response to past and proposed communication activities
- Media habits and opportunities
- Role of service providers/communicators in promoting and monitoring safe water consumption and case management of arsenicosis
- Resistance to changing water consumption behavior
- Gender based differences in
    a) decision making and water related activities
    b) access to media channels
    c) relation to arsenicosis

  and the implication of these for the communication/creative strategies
- Social and clinical understanding and response to arsenicosis
- Views on what should be done and by whom for arsenic mitigation
- Understanding communication implication of findings based on above objectives

4. Research Methodology

4.1 Target Audience

The following target groups were identified for research:

- **Exposed Populations:** Men, Women, Children, High School Students
- **Service Providers (and potential communicators):** Health Workers/Assistants, Family Welfare Assistants, Sub-assistant Engineers, Agriculture Extension Workers, NGOs (managers, grass root workers), VDPs, medical practitioners
- **Affected Populations:** Patients and their families, Neighbors, other community members
- **Community Leaders:** Union Parishad Chairmen, women members of Union Parishad, Deputy Commissioners

4.2 Areas Visited

The following areas were covered to study the arsenic problem:

1. JESSORE District with cases of Arsenicosis.
Thana Jhikagacha and Sharsha

Sample

-Persons suffering from Arsenicosis
-Members of their families
-Neighbors
-Health worker/s
-SAE/s
-Medical Doctor / RMP
-NGO

Objectives

1. To assess social and clinical understanding and response to arsenicosis
2. To assess TGs views on what should be done and by whom
3. Role of service providers and opinion leaders in case management of Arsenicosis

Dateline **10.01.99-12.01.99**

2. SATKHIRA District where alternate sources of arsenic safe water e.g. PSF, RWH, Deep tubewells are available.

Thana Satkhira Sadar and Kolaroa

Sample

-Families
-SAEs
-NGOs
-Local Leaders
-High School Students

Objectives

1. To assess water usage and management practices.
2. Knowledge of and attitude towards alternative sources of safe water.
3. Knowledge and attitude to arsenic contamination / arsenicosis.

To develop ideas for proposed communication on alternative sources of

Dateline **11.01.99-13.01.99**

3. MANIKGANJ and MADARIPUR District with high arsenic contamination covered by UNDP,ICDDR,B and proposed for the DPHE/UNICEF programe.

Thana Singair, Shibalya and Shibchar

Sample

-Families
-Local leaders
-SAEs / Health worker
-VDP
-NGOs [eg BRAC]
-High School Student

Objectives

1. To assess knowledge, attitudes and behavior vis a vis water usage and management.
2. To assess knowledge and attitudes towards arsenic contamination
3. To assess responses to alternate sources of safe water
4. To assess responses to past and proposed communication activities
5. To assess media habits / opportunities
6. To assess role of service providers / communications in promoting safe water consumption
7. To assess resistance to changing water consumption behavior

Dateline **04.01.99-06.01.99 (Manikganj) and 17.01.99-19.01.99(Madaripur)**

NAWABGANJ District with few alternate arsenic safe water sources
Thana Shibganj and Nawabganj Sadar

Sample

-Families
-Local leaders
-SAEs / Mechanics
-NGOs
-High School Students
-Agriculture Extension Staff

Objectives

1. To assess knowledge, attitude and behavior with respect to water usage and management.
2. To assess responses to alternate means of making water safe/collecting safe water
3. To assess/identify role of service providers/ communicators in monitoring safe unsafe water consumption
4. To assess responses to past and proposed communication activities

Dateline **22.01.99-25.01.99**

4.3 Sample Size

A total of 700 respondents (approx.) were interviewed in the above five districts and among them near about 40% were female respondents. An equal ratio of male and female respondents was maintained in all groups except in cases where this was not possible e.g. SAE/Mechanic groups. Team members were divided into two subgroups to cover al l five areas.

4.4 Techniques for Research

Standard qualitative research methods were employed for the research activities.

GROUP DISCUSSIONS

- Target groups were identified on the basis of their role as beneficiaries and disseminators of the communication campaign.
- Field operation officers from MRC-Mode (research partner of Asiatic MCL) were sent out to the identified locations and were given the responsibility of organizing the groups.
- All groups were conducted by members of the Asiatic arsenic campaign team.
- Male and female groups were conducted separately keeping in view the patriarchal nature of Bangladeshi society and the special role of women in water management.

- Wherever possible homogeneity (in terms of age, income level, and social status) was maintained in selection of group members.
- While detailed guides were prepared and followed during the group discussions, the moderators applied discretion to digress. (These group guides were provided to all team members in a research folder)
- Most of the discussions were recorded on audio tapes.

TRANSECT WALKS

- General observations were made during intervals between FGDs through transectional walks in the villages/areas visited and team members were asked to record their observations from the field in a specified format. (Attached in the annexure)

IN-DEPTH INTERVIEWS

- In cases where it was not possible to organize groups e.g. local leaders, registered medical practitioners, NGOs etc., in-depth interviews were held.

STIMULI RESPONSE

- Most groups were exposed to communication material samples prepared by Asiatic and their responses were gauged.
- At the end of their group discussions students were provided information on arsenic. Then the groups were split up and they were asked to come up with solutions to the arsenic communication problem.

4.5 Tools for Research

All members of the research team were given a 'Field Visit Kit' which contained the following:

- ***Detailed Discussion Guides*** in the form of open-end questionnaires were prepared for various groups to be conducted. Separate guides were prepared for the following target groups- SAEs/mechanics, health workers, affected communities/families. (Copies of the guides are given in annexure)
- ***Laminated copies of creatives prepared by Asiatic*** were taken as a stimuli to understand all respondents reaction to language, visuals and concepts.
- ***An observation Guide*** was prepared which had a list of key observation points. A lot of information can be gathered through observation of surroundings and situations.

4.6 Data recording/interpretation and analysis

RECORDING

- In all group discussions there was one moderator and one or two data recorders who had the responsibility of writing down all conversations.
- In addition to manual data recording, tape recorders were also used to record group discussions and in-depth interview.

- Still cameras were used for recording most of the activities and observations on the field. Both negatives and transparency films were used.

INTERPRETATION & ANALYSIS

1. Data recorders in each group prepared a report on the groups recorded by them.
2. This data was organized on the basis of Knowledge, Attitude, Behavior, Mobility, Media Habits & Opportunities of each Target Group.
3. Each report was discussed in a group situation with the rest of the team.
4. Key findings and conclusions were drawn and organized from these discussions.
5. Implications were drawn on the basis of these key findings.

4.7 Workshop for research team

A one-day workshop was held to orient the visiting teams to the concept of arsenic and the DPHE program and the need and method of research. The following topics/issues were covered in the workshop:

- Introduction to the arsenic problem
- The communication challenge and need for research
- Gender and arsenic mitigation
- Using the test kit
- Collecting data: techniques and tools
- Research plan
- Report writing

Part II

KEY FINDINGS FROM THE FIELD and IMPLICATIONS for the COMMUNICATION STRATEGY

Data gathered through interviews, group discussions and observations were compiled and analyzed. Key findings, those that will help shape the form and content of communication materials for different groups, have been organized according to the following heads.

- **Awareness of arsenic contamination and its outcomes**
- **Current water consumption and management practices**
- **Willingness to adopt modified water consumption and management practices**
- **The arsenic mitigation programme**
- **Responses to alternative sources of safe (arsenic free) water**
- **Arsenicosis: knowledge, attitude and behaviour of and towards patients**
- **Health seeking behaviour**
- **Potential communicators and change agents**
- **Potential media**
- **Responses to tube well testing**
- **Responses to creative stimuli**

At the end of each section, a list of implications for the communication strategy has been provided.

A. AWARENESS OF ARSENIC CONTAMINATION AND ITS OUTCOMES

1. While there are wide variations in what people know about arsenic contamination and its consequences for health, across groups, awareness levels are very low

In general, awareness and knowledge about arsenic contamination of ground water and its consequences for human health were low. This was true for all the groups with whom we met. **Government** and **non-government officials'** knowledge about the subject was patchy and non-standard. Many were uninformed about the extent of the arsenic problem, its causes and consequences and mitigation possibilities. This applied to district administrators (deputy commissioners, DPHE executive engineers), thana officials (SAEs, THFPOs, TNOs) and union politicians (chairmen and ward members). In one instance, the DC (Satkhira) had arbitrarily issued an order to seal *all tube wells* without testing.

Similarly, among **families** in the villages of all the areas we visited knowledge about arsenic was sporadic, non-existent or inaccurate. It was observed that younger respondents were more aware about the arsenic problem e.g. high school students in Manikganj knew more about it than their parents presumably because of their age, receptivity and education.

2. The level of awareness is relatively higher in those areas where some arsenic mitigation activities have been conducted

In general, knowledge levels about the arsenic issue were higher in those areas where mitigation activities were being conducted e.g. in Singair thana, Manikganj where ICDDR,B had such a programme. This was also true for areas where some members of the community had developed visible symptoms of arsenicosis. For example in Shamta village in Jessore Asia Arsenic Network had conducted interventions and people knew that there was no cure for the condition, that it was not contagious and that it was necessary to switch to a safe water source and so on.

In those areas where arsenic mitigation activities were being conducted direct sources of information included government and non-government service providers (whose knowledge was at best limited; see above). In other areas, for most groups who were aware, the principal source of information about arsenic contamination was the mass media. Knowledge levels in communities neighbouring affected communities were low like elsewhere, suggesting a limited "spill over" affect of localized arsenic programs.

3. *The difference between pathogen free and arsenic free water was not clearly understood*

Almost all respondents described tubewell water as "Nirapad Pani" while other safe water options were also suggested by different groups specifically in Satkhira, Jessore and Manikanj where there are alternate source of water or arsenic mitigation programs. The other options mentioned were as follows:

- pond-sand filter (Satkhira & Manikganj)
- rain water harvesting (Jessore & Satkhira)
- addition of alum (all over)
- sinking deep tube wells (Jessore and Nawabganj)
- kolshi/chari (Manikganj)
- boiling (all over)

There was no clear understanding on which option is pathogen free and which is arsenic contamination free.

4. *There exist some misconceptions about arsenic contamination and its outcomes; most importantly across the board arsenic was confused with iron*

Arsenic contamination was confused with iron in the water almost everywhere. In all the places the answer of the question of what arsenic is-was iron. The result was that people believed that (a) arsenic is found only in water with iron, (b) if iron can be removed arsenic also goes, and (c) any water with iron has to have arsenic. Some people in Nawabganj thought that arsenic contamination was caused because of a fault in the tube well which could be mended. A few service providers and school students even thought that arsenic was a micro-organism. Some suggested that the addition of a suitable "medicine" or boiling would remove arsenic from water. People believed that if some tube wells in a delimited area tested safe, then all the tube wells in that area could automatically be considered safe.

Implications

Arsenic is a palpable and immediate problem for the people at risk. But it is not seen by the masses as such. The slow pace of its effect is a cushion to people's complacency. Communication on arsenic should juxtapose the complacency with sharp reminder and solution oriented messages. Thus:

1. **Easy alternate source of water should be recommended.**

---

2. **Low cost corrective actions should parallely be suggested.**

3. **Common misconceptions (such as arsenic = iron) should redressed even if they have a positive co-relation for correcting arsenic levels in water.**

4. **Government and non-government officials need to be brought onto a standardized platform of knowledge and understanding of the arsenic issue so that they can provide an enabling and supportive environment for arsenic mitigation activities.**

5. **Need to redefine the concept of safe water in the communication.**

B. CURRENT WATER CONSUMPTION AND MANAGEMENT PRACTICES

1. Water from tube wells is used almost universally for drinking and some other domestic purposes

Everywhere women and girls were responsible for collecting water for cooking the family meals. Most households visited had a tube well within their immediate vicinity. For this reason drinking water was not stored. It was consumed directly from the tube well. (This behavior needs to be verified through a detailed research, especially in areas where the ratio of tubewells to people is high)

2. If a pond is located at a convenient distance, water from this source is used for all domestic purposes except drinking

Water for cooking in some cases was collected from conveniently located ponds. Pond water was used for bathing, washing clothes and utensils and washing cattle. Almost all respondents rejected the pond as a source of drinking water, even in cases where it had been treated through a PSF (e.g. in Satkhira & Manikganj) saying that it was unclean and therefore disease causing.

3. Women and girls' mobility is generally restricted to within the "para"

It was observed that if safe drinking water has to be accessed from a source outside the family compound or "para" women and girls may or may not be permitted to do so. In any case almost everywhere (except Jessore where arsenicosis cases had made communities somewhat more cautious) women themselves expressed a reluctance to make an extra effort to collect safe water if their tube wells tested contaminated. (ref. C. 1., page no. 5)

Implications

1. **Gender sensitivity will need to be exercised when suggesting alternative sources for the collection of safe water as these may result in increasing women's work burden.**

2. **A family's choice of alternative sources of safe water will be limited by restrictions on women's mobility; we will have to cognizant of this while defining the communication content.**

3. **Men particularlyll need to be encouraged to participate in drinking water collection and storage.**

4. **The negative attitude to using pond water for drinking purposes will need to be addressed through providing viable solutions.**

C. WILLINGNESS TO ADOPT MODIFIED WATER CONSUMPTION AND MANAGEMENT PRACTICES

1. There is a general resistance to change water consumption and water management behaviour

In general people expressed an unwillingness to change their water consumption habits *even when they were aware* that the tubewell water they were consuming was/could be contaminated and could have consequences detrimental to their health. We observed that in areas of Jessore and Manikganj, water from tube wells that had been tested and confirmed as arsenic contaminated was still being used for consumption. This was true for families and service providers including HWs, DPHE mechanics, and Ward Members of the Union Parishad as well as for high school students. Older people were more skeptical about arsenic related information.

common reasons for complacency and not wanting to change behaviour (observed by us and cited by respondents) were as follows:

- Unshakable faith created over the last 20 years in the purity of tubewell water and consequent lack of faith in other water sources e.g. pond water;
- Lack of visible evidence, e.g. arsenic contaminated water "looks clean", drinking such water doesn't cause any immediate health problems, etc.
- Security in group behaviour, i.e. "everyone in the village/family drinks the same water"
- Unavailability of safe water options in the immediate vicinity,
- Unwillingness to make an extra effort to collect safe water e.g. walk an extra distance,
- "Unpalatable" taste of water from other sources

- Invulnerability and fatalism... "it will not happen to me" or "it is not in my hands"

2. *People expressed unwillingness to share tube well water*

In general tube well owners' were unwilling to share water. In Jessore and Satkhira, they feared that their tube well would be damaged if it was used by too many people. For some others it was a prestige/security issue – they were unwilling to let their women go to others' homes to ask for water for example SAE in Jessore said that he had a green tubewell across the road from his house but he could not let the women go there.

3. *People are more predisposed to switch to a safe source of water if*
-it is familiar
-does not contradict their existing beliefs
-it is economically viable
-it is available at the individual household level
-they know of cases of arsenic

Based on these criteria the **kolshi/chari and alum** addition methods of purifying water were acceptable especially in Manikganj Sadar. **Deep tubewells** were found to be too expensive. **PSF** was not only found expensive, the input water looked too dirty to be trusted for drinking. Furthermore community members in Satkhira remarked that the installation and maintenance of the PSF was subject to community politics. In several areas people depended on **Rainwater harvesting** for drinking water. This practice could possibly be extended to neighboring areas.

The predisposition to behaviour change was relatively higher in those areas where there were arsenicosis patients and where information was available about the causes of the disease as well as alternate water sources (e.g. Jessore & Manikganj). In general while there was an underlying concern, perhaps even fear, regarding arsenic in water there were no visible signs of panic. This was true even for those areas where there were frank cases of arsenicosis.

4. *Affected communities do not see themselves as playing any role in arsenic mitigation*

One general observation was that communities did not see themselves as playing any role in arsenic mitigation. This feeling was particularly strong in Nawabganj where communities had had little exposure to arsenic mitigation activities. They

expected the government and NGOs to solve the problem. This inertia seemed to have been born out of a dependency relationship with service providers combined with a lack of information. Even among those who had some information there was no sense of urgency.

Implications

1. **The mindset of complacency will have to be addressed while communicating the risks of consuming arsenic contaminated water. At the same time an effort will have to be made to avoid causing panic.**

2. **Sensitivity will need to be exercised in addressing people's resistance to changing water consumption behaviour in the context of arsenic mitigation.**

3. **Service providers will need to be equipped with adequate information to enable communities to select and utilize appropriate and acceptable safe water option.**

4. **Water sharing and community water management practices will need to be recommended and promoted vigorously so that a process of attitude change towards water as a resource starts.**

5. **Communities need to be convinced that they have a central role to play in arsenic mitigation and safeguarding their health.**

D. THE ARSENIC MITIGATION PROGRAMME

1. Tube well testing is conducted mainly by DPHE mechanics who have not received any direct or formal training in the procedure

Most tube well testing was done DPHE mechanics who have learned the testing procedures from SAEs. SAEs had received direct training from DPHE's Executive Engineers. Despite their second hand and informal training mechanics' knowledge regarding sample collection was accurate. However, they were not equipped to address questions posed by the community or well trained on effective means of inter-personal communication techniques.

2. The testing of tube wells is not conducted systematically

On the whole it was observed that tube wells had been tested in a random and sporadic fashion. No systematic route plan was followed and also it was reported by DPHE staffs in Manikganj and Jessore that frequently tube well owners brought samples of water for testing to the local DPHE office. (To obtain accurate and valid results, sample collection should be done according to a standardized procedure. Also a water sample that has been left to stand beyond a certain limited time period can produce misleading test results. Thus when a sample is brought to a central point, rather than being collected and tested on site by a trained person, it is possible that the wrong conclusions will be drawn.)

3. *Once tested, information of the test results and precautions is not necessarily disseminated to the user population*

It was observed that test results were not systematically communicated to the communities using tubewells contaminated with arsenic. Sometimes communities were simply told that the water from a contaminated tube well was "not good" e.g. in Manikganj. In other locations as in Khorddo Batra village of Satkhira tubewells had been tested and marked green/red but villagers were not been present during the test, or had not been informed why the test was conducted or the results. Similarly, information on alternative sources of safe water for consumption was not provided.

4. *No standardized procedure was followed to paint tubewells that are found to be contaminated; red & green tubewells are being sold in the marts*

As per the arsenic mitigation programme, tubewells tested to have arsenic contamination above the permissible level are to be marked i.e. the spout is to be painted red. The spouts of safe tube wells are to be painted green. In most areas it was found that the contaminated tube wells had *not* been painted. Some had been marked with a cross. Some others had received a dab of paint; interestingly, those with larger dabs of paint were construed to be more contaminated (in Satkhira). Some of the reasons for not painting were no funds for paint and no directive to that effect.

It should be noted that brightly painted tube wells are being marketed in the country. We saw these on sale in a hardware store in Madaripur. The colours included red and green. At present there is no way of distinguishing between pre-painted tube wells and those that have been tested and subsequently been painted red or green on the spout. The possibilities of confusion are immense.

5. DPHE workers face a variety of problems in conducting tube well testing

Some of the common problems reported were:

- Inadequate manpower
- Inadequate resources for painting
- Lack of training for testers
- Lack of standardized information provided by head quarters
- Acute shortage of testing kits (one per Thana)
- Dissatisfaction with testing kits
- Lack of transport for travelling between testing sites and work place
- Lack of adequate and appropriate knowledge to be able to respond to questions asked by the community
- Lack of other options of safe drinking water to be suggested to the people of the affected areas

---

Implications

1. **Tube well mechanics and others doing testing need to be equipped with appropriate knowledge and communication aids to enable them to discuss the arsenic issue with communities.**

2. **Mechanics need to be motivated to communicate test results and provide adequate supportive information.**

3. **Service providers and communities will need to be enabled to distinguish between pre-painted tube wells and those that have been specially painted on the spout to indicate their safety status.**

E. ARSENICOSIS: KNOWLEDGE, ATTITUDE AND BEHAVIOUR OF AND TOWARDS PATIENTS

1. Knowledge of arsenic was higher in areas where there were arsenicosis patients; no discrimination towards them was observed

In areas such as those in Jessore, where there are cases of arsenicosis, the belief was that the condition is caused by the consumption of unsafe tube well water. In such areas it was found that people were more likely to shift to safe tube wells

(those with green spouts). However, this shift is not universally observed in these areas. People did not have a clear idea of whether the disease was contagious. Though in one instance one respondent (a shopkeeper in Jessore) remarked that prolonged exposure could result in contracting the disease. In some cases newspaper reports of marital problems and rejection were interpreted to mean that arsenicosis was contagious.

No active instance of social ostracization was observed. In one case in Nawabganj, the husband of an arsenicosis patient had married a second time. However, both his wives lived with him. Interestingly, the husband and the in-laws had visible skin symptoms of the disease. No instances of disruption in normal routines and occupations were observed either.

According to a worker of Mohila Mangal Sangathan in Rajshahi, affected families were selling their properties and relocating because they are suffering from arsenicosis.

In areas where there were cases of arsenicosis, ordinary dermatological conditions in unaffected persons were also assumed to be symptoms of the same disease. Both community members as well as DPHE staff tended to confuse ordinary skin conditions with arsenicosis symptoms.

High school students in some areas could enumerate some of the symptoms of arsenicosis. However, many thought that the disease was contagious. Girls in particular felt that no one would marry a woman with arsenicosis because the disease caused disfiguring or in their words "makes them ugly".

Most service providers were aware of the dermatological symptoms of arsenicosis. The main source of their information was the press. In areas where there were cases of arsenicosis e.g. Jessore, SAEs and mechanics had first hand experience of seeing patients. In Nawabganj, the department had given workers information on arsenicosis. Some workers thought that the disease was contagious. Some felt that they would not bring into the family an arsenic affected woman as a daughter-in-law.

It was observed that most of the visible symptoms of Arsenicosis (identified by the research team with the help of a qualified doctor) would be difficult to picturize and identify on mass media and printed materials.

Implications

1 **Accurate facts about arsenicosis (including importantly the fact that it is not contagious) need to be communicated.**

2 **Sensitivity and caring towards patients of arsenicosis will have to be promoted across the board.**

3 **It must be communicated that only a qualified medical practitioner is in a position to confirm that certain visible dermatological symptoms are in fact arsenicosis.**

F. HEALTH SEEKING BEHAVIOUR

1. Families generally seek the assistance of quacks for minor ailments

Polli chikitsak or RMPs were reported as the usual first point of contact for minor ailments. For more serious conditions neighbouring health centers were visited. The RMPs' knowledge of arsenicosis was found to be extremely low even in areas where symptoms began to appear years ago. These "doctors" are not affiliated to any organized body. They can only be accessed as a group at their training centers at the time that they undergo a three month and one time training course.

Patients with arsenicosis typically visited the Union Health Center from where they were referred to Dhaka for treatment. No fixed displays on arsenic poisoning or its effects were seen at any health complex. However, these sites lend themselves to good display spaces. Patients living near the western border of the country sometimes traveled to India to obtain medical assistance.

Implication

1 **Information regarding arsenicosis should be available for health professionals at all the sites where individuals and families go to receive medical treatment.**

G. POTENTIAL COMMUNICATORS AND CHANGE AGENTS

1. There are several potential influencers who can conduct arsenic mitigation communication

High school students were particularly receptive to information on arsenic contamination and the need for arsenic mitigation activities. In group discussions in Manikganj and Satkhira we observed that students had good analytical skills. They expressed a willingness and enthusiasm to participate in such activities. Some students felt that they would be able to influence the water consumption behaviour of their families. Both male and female students were mobile e.g. they walked an average of 1 km to reach their school or tutor. Boys ventured further i.e. to bazaars and "haats" to shop for groceries and other necessities. Girls said that they could discuss arsenic related issues in their respective "paras". Boys said they could do the same and even go to neighbouring villages.

Arsenic education might be given in the classroom and could be incorporated in General Science for Arts students and in Shamajik Bigyan for Science students. No supplementary materials were observed in schools (except for a flip chart on the environment used in the general science class). The mechanics of introducing supplementary materials into schools, especially in the absence of a systematic programme on the ground could prove to be problematic.

DPHE workers. If given appropriate training and teaching/communication aids, mechanics and SAEs felt that they could become effective communicators for arsenic mitigation. Mechanics are used to organizing *uthan-baithok* (discussion) sessions at the time of tube well installation. This form of forum could be used for arsenic related communication. Most communities knew the mechanics.

Agricultural extension workers or Block Supervisors under the Ministry of Agriculture are in frequent touch with farmer communities. On average 1000 farmer families in about 8 villages are covered by a single BS. In villages BSs form *Krishak Sangathans* and impart information and training in agriculture. They themselves receive periodic training at the Thana level. Given their rapport with the communities they service, the nature of their activities and the frequency of their contact BSs could be enrolled as an effective communicator group in arsenic mitigation activities.

The BSs we spoke to in Nawabganj seemed confident that they could be effective communicators for arsenic mitigation. Some said that they were willing to even conduct testing if given the appropriate training.

Health workers Most respondents reported that their contact with health workers was, relatively infrequent. There was some scepticism in Manikganj, especially among men, in their attitude to health workers. Health workers generally interacted only with women during household visits and at EPI clinics held periodically. In fact for women health workers were the only officials they interacted with directly. Health workers knowledge of arsenic was somewhat patchy. Some reported that they had seen a leaflet on the subject others had some knowledge of the red-green protocol. Health workers were not receptive to the idea of carrying elaborate communication materials on their field visits.

NGOs Several NGOs are already involved to a greater or lesser extent in arsenic mitigation activities and communication. For example, **Proshika**, which works closely with NIPSOM, conducts testing on all tube wells in their programme areas. They also conduct IEC activities through community forums. The **Asia Arsenic Network, Water Aid, Oxfam** and **Mahila Mangal Sangstha** conduct testing and education activities. Other agencies such as **BRAC**, which also conduct tube well testing, have tremendous outreach through their wide spread programme networks.

Given their skills and reach extension workers from NGOs could form a important players in the massive communication effort that needs to be mounted for arsenic mitigation.

Village Defence Parties work as voluntary bodies at the village level to maintain law and order and among other things they organize cultural programmes on social issues. The membership of a typical VDP is heterogeneous ages ranging from 24 to 60. After meeting VDPs in Manikganj, Madaripur and Nawabganj, we were not convinced that they would be effective communicators for arsenic mitigation because neither do they have any significant profile in the society nor are they active as a force in all areas.

Water-sanitation committees we were informed should be present in every village. However, we did not have the opportunity to observe any active committees. Since their activities relate to water and healthy water related practices, WSCs could be energized to play an active role in arsenic related communication, especially in those areas where they have been revitalized under the Government's Water and Sanitation Programme. However this would require a concerted programmatic intervention at capacity and institution building.

District, Thana and NGO Officials must all be brought on the same platform of standardized knowledge and understanding in order to provide an enabling and supportive environment for programmatic activities.

Implications

1 **Service providers such as DPHE workers, health workers, block supervisors and NGO frontline workers can be used as effective primary channels of inter-personal communication However it needs to be recognized official programmatic channel to reach women in the home are extremely limited.**

2 **Supplementary channels can include high school students, water-sanitation committees and others.**

3 **District, Thana and NGO Officials must all be brought on the same platform of standardized knowledge and understanding in order to provide an enabling and supportive environment for programmatic activities.**

H. POTENTIAL MEDIA

1. Field visits confirmed that arsenic related communication would have to be conducted through a mix of mass and inter-personal media

Mass media – electronic
Radio was observed to be a suitable channel of communication. We observed that often a radio playing in one household was audible in several surrounding homes.

Television viewing was quite common among men, women and children. Even those who did not possess television sets went across to their neighbors to watch programs. Drama serials and the Friday evening film were particularly popular among all groups.

Miking was popularly mentioned as an effective means of mass communication.

Mass media – print
Access to newspapers and magazines was limited. Newspapers were an important source of information for literate audiences especially SAEs and HWs. Leaflets and booklets it was mentioned should be disseminated widely to spread awareness about arsenic mitigation. Even though this would primarily be a medium for the literate population but it would also have a ripple down effect on the illiterate masses also.

Mass media – folk
In general men and boys are much more mobile than women and girls, they go to the *haat* or weekly market regularly and attend folk events such as *jatras*. Women and girls who are mainly confined to the domestic sphere sometimes have the opportunity to go to *melas* along with men and boys.

Interpersonal communication materials
All potential communicator groups said that their effectiveness would be greatly enhanced if they were given appropriate and attractively designed teaching materials such as posters, leaflets, flip charts, etc. However, large and cumbersome items should not be developed as these were unlikely to be used.

Implication

1 **A variety of media channels should be used to communicate information on the arsenic issue**
2 **Need of ensure easy comprehension for a non-literate, low media literacy audience**

I. RESPONSE TO TUBE WELL TESTING

J. People are curious and want to have their tube wells tested

We conducted about 15 tube well tests in Satkhira, Manikganj and Madaripur. In general, people were keen to have their tube wells tested by us. In some cases they even sought us out and brought samples of water from their tube wells. Initially, we faced some resistance from older people in the community but this was soon over come by the information we gave and the enthusiasm of the others. In most cases it appeared that people wanted to be reassured that their tube wells were safe. In instances where samples tested as arsenic contaminated people invariably asked for solutions.

2. Tube well testing and follow-up cannot be handled effectively by a single person

We found that at least 2-3 persons were required to visit a site for tube well testing. There are several tasks that cannot possibly be managed by a single person viz. talking to the people and explaining to them how to collect water samples correctly, actual testing, recording results, painting spouts, giving follow-up advice and so on.

3. There is a tendency to stop testing if no sample shows arsenic contamination

We observed that it was easy to become complacent when we found repeatedly that none of our test results showed arsenic contamination. We were keenly aware however that *each and every* tube well needs to be tested before all the tube wells in a particular locality can be declared arsenic free.

Implications

1 **Over stimulation of demand for testing should not be generated through mass media as programmatic support is not available across the board.**

2 **Tube well testers should be equipped to handle information demands at the time of testing**

J. RESPONSES TO THE STIMULI PREPARED BY THE AGENCY

1. Feedback on creative stimuli generally suggested that fear should be used as a key motivator to influence people's water consumption habits

Almost everywhere and in all groups the word "shotru" to describe arsenic was thought to be too "mild"; a stronger term such as "bish" (poison) it was felt would be more effective in highlighting the effects of arsenic. Other suggestions included "slow poison" and "silent enemy". To bring home the urgency of the threat of arsenic, mechanics from Satkhira suggested that the phrase "deri korben na" should be used. "Nirapod" was generally understood to mean pathogen free water i.e. tube well water or boiled water. In the context of arsenic mitigation, it was agreed that "nirapod" could mean arsenic/iron free.

The red cross was not powerful enough to indicate that arsenic contaminated water should be rejected; respondents from all groups felt that a more threatening symbol such as a skull should be used.

All groups of potential communicators observed that arsenic mitigation communication would be effective only if the threat of arsenicosis was depicted graphically i.e. it was essential to show pictures of symptoms and suffering to convince people to change their water sources.

2. Symbols and graphics were not always understood correctly

The graphic drop in the logo was not understood spontaneously. Some thought it looked like a betel leaf. With some prompting respondents were able to identify the shape as a drop of water. Health workers and students, being visually more literate than others, could identify the drop without assistance.

The glass of water in the logo was understood as symbolizing "nirapod" water. However, some respondents, primarily DPHE workers, thought it was meant to depict "poisoned water" and suggested that the water should be coloured darker to highlight the contamination.

3. *The colors green and red were identified with safety and danger respectively*

This was understood across the board. In Manikganj, some respondents said that they identified the colour red with danger because the sky turned red before a storm.

Implications

1 Stronger stimuli need to be used to motivate people to change behaviour

2 All materials will need to be pre-tested for acceptability, comprehensibility and potential effectiveness.

3 Low literacy levels and low exposure to communication material made it difficult for the audience to understand the materials shown, hence all materials prepared must take into consideration the textual and visual literacy level of the target audience.

Annexure

Members of the Research Team

RESEARCH TEAM MEMBER

ASLATIC MCL

1. Aly Zaker
2. Sara Zaker
3. Zobaida Akhter
4. Farooque Ahmed
5. F. H. Neville
6. Siddartha Swarup
7. Kaisar Ahmed
8. Nizamuddin Ahmed
9. Nazemuddin
10. Abdul Hamid Montu
11. Payal Ahmed

MRC-MODE

12. Tapan majumder
13. Shafique
14. Khaleda

CONSULTANT

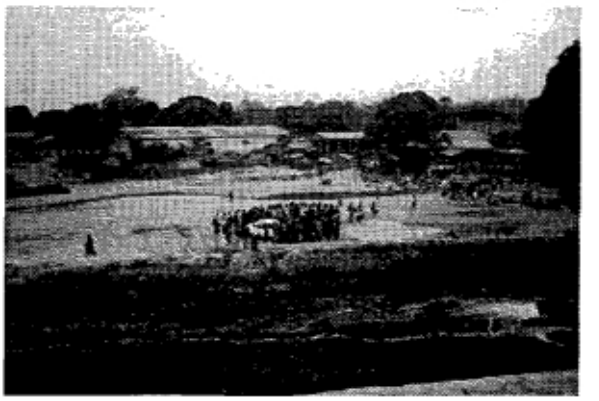
15. Dr. Shibtosh Roy
16. Deepa Grover
17. Biblob Bala

UNICEF

18. Ms. Shirin Hussain
19. Mr. Michael Galway
20. MS. Shantona Momtaz
21. Mr. Al Mumin


Photos
from
the field

Painting of tested TW, Manikganj



Overview of Huat

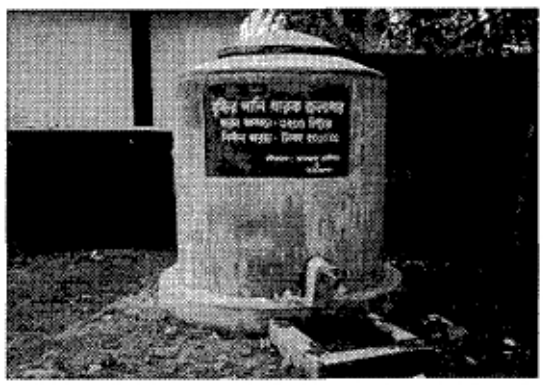
TW water Testing (UThan Baithak)

Testing of TW water

Potential mediam

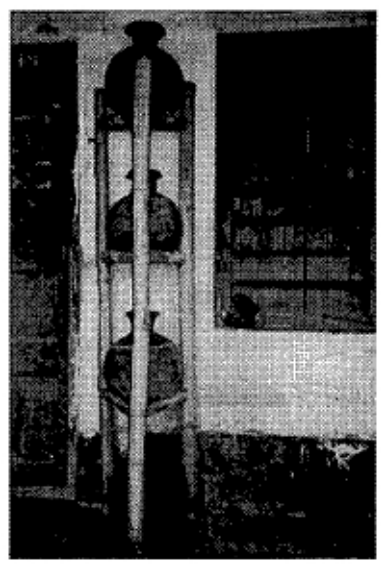
Redmarked TW in use
Jessore

Pond water bathing
Manikganj



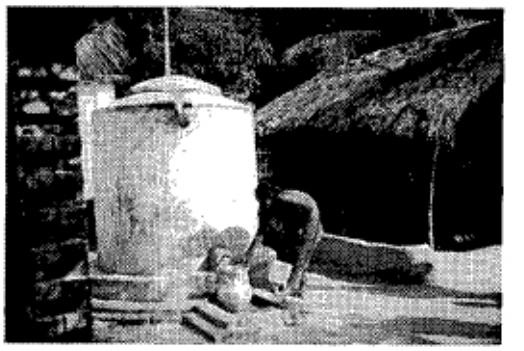
RWH container at, DPHE office,
Nowabganj

Collection of PSF Water
Satkhira



Kolshi System
UP Chairmans office
Satkhira

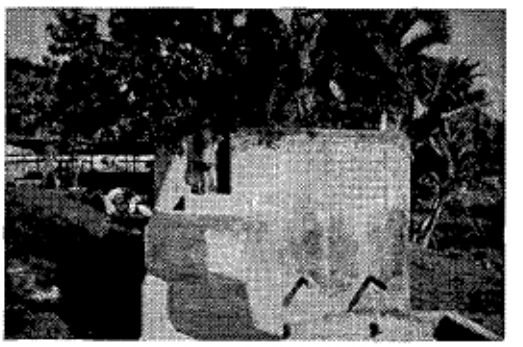
PSF in use
Satkhira



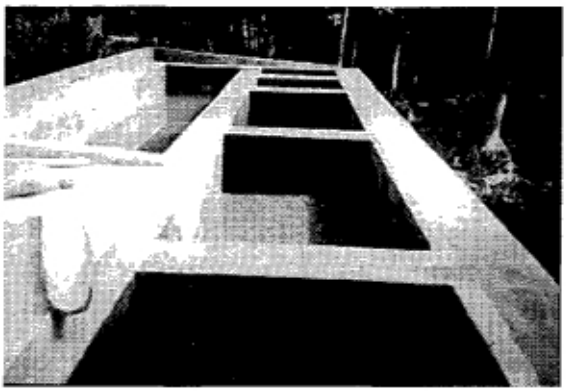
RWH in Satkhira

RWH in Sathkhira

Water collected within courtyard, Jessore

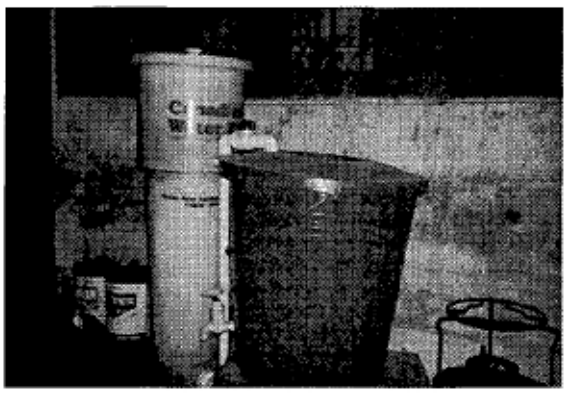


PSF, Manikganj



PSF under-construction
Jessore

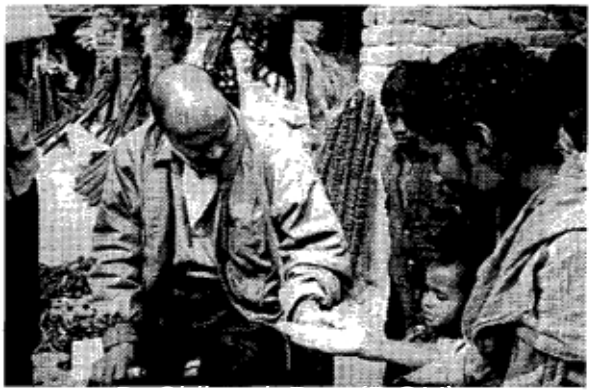
PSF in use
Satkhira



Canadian Water Filter, Proshika
Nawabaganj

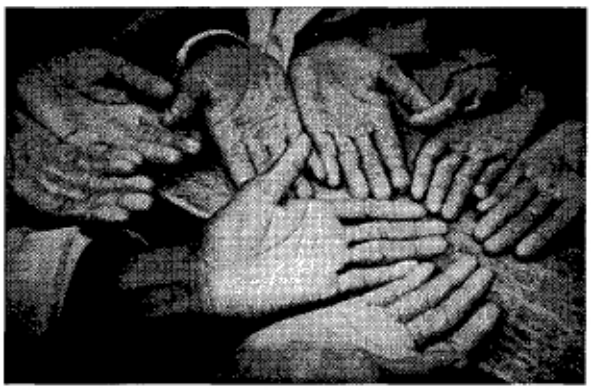
Demo of Rain Water Harvesting
Jessore

Patient, Rajshahi

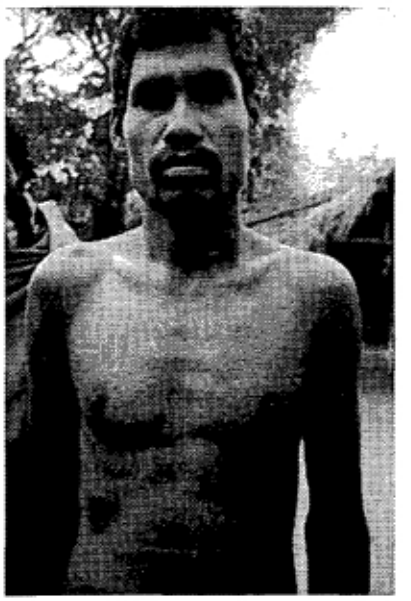


Dr Shibtosh Roy (DCH)
checking patient
Jessore

Patient, Nawabganj



Patient, Jessore



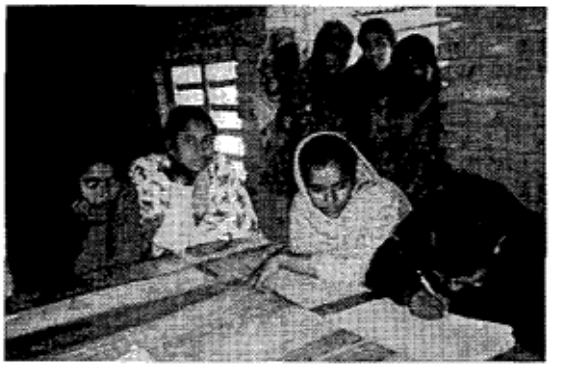
Patient, Jessore

Female Group

High School Girls

Female Group

SAEs



High School Girls

Discussion Guides

Tour Schedule for Arsenic Campaign Field Visits

Team	District	Thana	No. Of Villages	Date of Departure	Date of Return	No. of Days
A+B	Manikganj	1.Singair	3	04/01/99	07/01/99	5
		2. Shivalaya				
A	Jessore	1. Sharsha	2	09/01/99	12/01/99	4
		2. Jhikorgacha				
B	Satkhira	1. Kalaroa	2	09/01/99	12/01/99	4
		2. Satkhire Sadar				
	Calcutta, India			14/1/99	18/9/99	5
A	1.Nawabganj	Nabab Gang Sadar+Shibganj	2	14/1/99		5
B	Madirapur	1.Shibchar	2	14/1/99	18/1/99	5

Note:
No. of Days includes movement/travel time

VILLAGE OBSERVATION SCHEDULE

DATE:

NAME OF THE OBSERVER :

1. Name of the Village / Thana / District :

2. Approximate no. of household :

3. Approach road to the village : pucca/ semi pucca/ katcha

4. Mode of transport available :

5. Whether electricity isthere in the village or not :

6. Is there any community centre ?

7. How do the people buy their daily necessities and how far do they have to travel ?

8. Is there any regular bazaar/ market in existence ?

9. Are schools in existence : none / primary / secondary / high

10. Health centre in the village : how far is the nearest one ?

11. Is there / what is the source of safe water for consumption?

12. How many tubewells are there in the village?

13. How many are deep tubewells / shallow tubewells?

14. Has anybody/ organization checked the tubewells for water testing / repairing : who does it ?

15. Any alternative source of water : safe / unsafe

16. Building materials of the houses in the village : pucca with roof / pucca with tin shade/ mud house/ bamboo thatched house / others : specify

17. Level of hygiene : poor/ moderate/ good

18. Any TV / radio ?

19. Any communication materials e.g. posters, signs bill boards etc ?

GENERAL REMARK :

FGD Guide

Families

সালাম/ আদাব,

আমার নাম .....। আমি AMCL নামক একটি বিজ্ঞাপন সংস্থা থেকে এসেছি। আমরা আজকে এক জায়গায় একত্র হয়েছি তোমাদেরই কিছু বিষয় নিয়ে আলাপ করার জন্য।

Q.1 গ্রামের লোকদের প্রধান পেশা কি ? এ ছাড়া আর কি করে ?

Q.2 কৃষি কাজের পানি কোথা থেকে আসে ? . . . . . গ্রীষ্ম, বর্ষা, শীতে ?

Q.3 আর ঘরে ব্যবহারের পানি ? . . . রান্না-বান্না, থালাবাসন ধোয়া, পায়খানা/ গোসলখানা ?

Q.4 গোসল সাধারনতঃ কে কোথায় করে থাকেন ? . . . . বাচ্চারা, মহিলারা, পুরুষরা ? কি পানি ?

Q.5 আর কাপড় ধোয়া ? . . . . কোথায় ধোয়া হয় ? কে পানি জোগাড় করে ? কেন এই পানি ব্যবহার করেন ? স্বামী বলে না আপনি যান ? কেন আপনি আনতে যান ? Husband বলে না অন্য কেউ ?

Q.6 বিভিন্ন কাজের পানি পেতে কোন অসুবিধা হয় কি ? . . . . বিভিন্ন ঋতুতে ?

Q.7 আমরা আজকাল একটা কথা প্রায়ই শুনে থাকি যে সুস্থ্য থাকতে হলে 'নিরাপদ' পানি খাওয়া উচিৎ । এই নিরাপদ পানি বলতে কি বুঝায় ? . . . . কিভাবে/ কি দেখে বুঝা যায় যে পানি স্বাস্থ্যের জন্যে নিরাপদ ? . . . . কি করে পানিকে নিরাপদ করা যায় ? . . . . কোন উৎসের পানি বেশি নিরাপদ ? . . . . নিরাপদ পানি না খেলে কি সমস্যা হতে পারে ?

Q.8 এবারে আমরা একটু ভিন্ন একটি বিষয়ে আলাপ করতে চাই। সেটি হচ্ছে স্বাস্থ্য সংক্রান্ত বিষয়ে। কোন অসুখ হলে কি করেন ? . . . . নিজের . . . . বাচ্চাদের . . . . পরিবারের অন্যান্য সদস্যের ? আপনারা কোন উৎস থেকে স্বাস্থ্য তথ্য পেয়ে থাকেন ?

Q.9 আপনাদের এখানে কি স্বাস্থ্যকর্মী আসে ? তারা কি বলে ? তাদের কাছে কি ধরনের সমস্যার জন্যে আপনারা যান ?

Arsenic

Q.10 আপনারা কি আর্সেনিক এর কথা শুনেছেন ? এটি কি সমস্যা সৃষ্টি করে ? কারা আর্সেনিক সমস্যায় আক্রান্ত হতে পারে ? এই সমস্যার প্রতিকারের উপায় কি ?

Q.11 আপনি আর্সেনিক সম্পর্কে কোথায় শুনেছেন ? আপনি কি মসে করে আর্সেনিক একটি বড় সমস্যা ? . . . . কেন ? (Projective) আর্সেনিক যুক্ত পানি খেলে কি হয় ?

Q.12 আপনাদের গ্রামে বিকল্প উৎস কে স্থাপন করেছে ? . . . . কখন ? . . . . কেন ?

Q.13 আপনাদের গ্রামে টিউবওয়েল রক্ষনাবেক্ষন এবং দেখাশুনা কে করে থাকে ?

Q.14 বিকল্প পানির উৎস কে রক্ষনাবেক্ষন এবং দেখাশুনা করে থাকে ?

Q.15 আপনাদের গ্রামে টিউবওয়েলে পানি কে পরীক্ষা করেছে ? . . . কিভাবে করেছে ? এই পরীক্ষা করার প্রয়োজনীয়তা কি ? যদি আপনাকে কেউ এসে বলে এই টিউবওয়েল থেকে পানি খাবেন না আপনি কি করবেন ?

Q.16 আপনাদের গ্রামে Sub-Assistant Engineer গন আসে কি ? তারা এসে আপনাদেরকে কি বলে ? কত ঘন ঘন আসে ?

Q.17 আপনাদের গ্রামে টেলিভিশন আছে কি ? আপনাদের কি টেলিভিশন প্রোগ্রাম দেখা হয় ? . . . . কি ধরনের প্রোগ্রাম দেখা হয় ? কোন সময় ? কত ঘন ঘন ?

Q.18 আপনাদের কি রেডিও শুনা হয় ? . . . . কি ধরনের প্রোগ্রাম শুনা হয় ? মেলায়/ হাট/ যাত্রায় যান কিনা ?

Indepth Interview Guide

Sub-Assistant Engineer

সালাম/ আদাব,
আমার নাম .....। আমি AMCL নামক একটি বিজ্ঞাপন সংস্থা থেকে এসেছি। এ এলাকায় Arsenic সমস্যার ব্যাপারে আপনার কাছ থেকে কিছু জানবো।

1. আপনি কি Arsenic সম্পর্কে শুনেছেন ?
2. কিভাবে/ কোথা থেকে আপনি Arsenic সম্পর্কে শুনেছেন ?
3. কিভাবে Arsenic পরীক্ষা (test) করতে হয় ?
4. এই পরীক্ষার ফলাফল হতে আপনি কি ধারনা পেয়ে থাকেন ?
5. একটি টিউবওয়েল পরীক্ষা (test) করার পর আপনার কি করনীয় থাকে ?
6. Arsenic বিষক্রিয়ার সুদূর প্রসারী ফলাফল সম্পর্কে আপনি কতটুকু অবগত আছেন ?
7. Arsenic সমস্যার ব্যাপারে DPHE এই এলাকায় কি কি কাজ করছে ? কবে থেকে ? বর্তমানে কি হচ্ছে ? ভবিষ্যতে আর কি করতে পারে ?
8. এ ব্যাপারে আপনার মত (Sub-Assistant) Engineer দের কি কি করতে হচ্ছে ?
9. আপনি বলেছেন/ আমরা জানি আপনারা Tube-well এর পানি Test করে থাকেন। এ ব্যাপারে আমরা একটু বিশদভাবে জানতে আগ্রহী।
   a) আপনি কোন্ কোন্ জায়গায় এ যাবত Test করেছেন ? শহরে না গ্রামে ?
   b) এই ব্যাপারে আপনাদের কোন Training দেয়া হয়েছে কি ? এই Training এর ব্যাপারে আপনাদের মতামত কি ?
   c) যখন Test করেন তখন লোকের প্রতিক্রিয়া কি হয় ? আর যখন রং করেন তখনই বা লোকের প্রতিক্রিয়া কি রকম হয় ? এ ব্যাপারে আপনার অভিজ্ঞতা কি ভাল বা মন্দ ?
10. এবারে গ্রাম সম্পর্কে একটু জানতে চাইবো -
    a) কত ঘন ঘন আপনার গ্রামে যাওয়া পড়ে ?
    b) সাধারনত মাসে কয়টি গ্রামে যাওয়া হয়ে থাকে ? গত মাসে কয়টিতে যেতে পেরেছিলেন ?
    c) আর্সেনিক সম্পর্কে লোকের ধারনা কি ? তারা কি আপনার কাছে কোন অভিযোগ করে বা কোন তথ্য জানতে চায় ?
    d) টিউবওয়েলের পানি পান না করলে লোকেদের কি নিরাপদ পানির উৎস আছে ? নিরাপদ পানি বলতে আমরা কি বুঝি ?

e) আপনি তাদের আর্সেনিকের ব্যাপারে কি বলে থাকেন ? আর Test করা বা রং করার ব্যাপারে কিছু বলেন কি ? বললে কি বলেন ? আপনার কথা শুনে তারা কি বলে / কি করে ? আপনার কথা শুনতে তারা আগ্রহ প্রকাশ করে কি ?

f) আপনার মত Engineer দের এ সংক্রান্ত কাজ করতে গিয়ে কি কি অসুবিধার সম্মুখীন হতে হয় ? (Resources, time, non-cooperation / resistance, people not interested etc.)

11. আবাসিক সমস্যা নিরসনে আপনার মত Engineer রা কি ভূমিকা পালন করতে পারে ? কেন ? কিভাবে'? আর কি করতে পারেন ? আপনার মত অনেকের সাথে আলাপ করে আমরা এটা বুঝাতে পারছি যে আর্সেনিক সমস্যা সমাধানে প্রয়োজন নিয়মিত ভাবে দুষিত নয় এমন টিউবওয়েল গুলো Test করানো এবং দুষিত টিউবওয়েল এর পানি পান থেকে বিরত থাকা।

a) এব্যাপারে গ্রামের লোকদের উদ্বুদ্ধ করতে আপনার মত Engineer রা কোন ভূমিকা পালন করতে পারে কি ? ..... কেন ..... কিভাবে ..... এর কি কি সুবিধা/ অসুবিধা .....

b) এ ছাড়া আর্সেনিক বিষক্রিয়ার উপসর্গগুলো যে ছোঁয়াচে নয় এবং আর্সেনিক আক্রান্তদের সাথে যে স্বাভাবিক সম্পর্কে বজায় রাখা উচিৎ এ ব্যাপারে গ্রামের লোকদের উদ্বুদ্ধ করতে কি আপনারা কোন ভূমিকা নেওয়া আপনাদের পক্ষে সম্ভব কি ? হ্যাঁ হলে তা কিভাবে ? অসম্ভব হলে সমস্যাটি কি ..... (Lack of time/ expertise/ credibility problem/ difficult to motivate etc.)

c) আপনাদের যদি Test করতে আর্সেনিক দূষিত পানি পান না করতে এবং আর্সেনিক আক্রান্তদের সাথে স্বাভাবিক ব্যবহার করতে উদ্বুদ্ধ করতে হয় তাহলে আপনাদের কি ধরনের সহযোগীতা প্রয়োজন ?

- Resource
- Information
- Authority

12. আপনাদের কাজে লাগতে পারে এমন কিছু বিষয় নিয়ে আপনাদের সাথে আলাপ করতে চাই। আপনাকে শুরুতেই বলেছি যে আমরা Communications সংস্থায় কাজ করি। এ দুটো দেখুন ঃ (Show Communication materials)

-- x --

FGD Guide

High School Children

সালাম/ আদাব,

আমার নাম .....। আমি AMCL নামক একটি বিজ্ঞাপন সংস্থা থেকে এসেছি। আমরা আজকে এক জায়গায় একত্র হয়েছি তোমাদেরই কিছু বিষয় নিয়ে আলাপ করার জন্য।

Let the participants introduce themselves.

Explain : Need for tape recording
Everyone should talk
There is no right or wrong, individual views are important.

Q.1 Short Discussion :

a) তোমরা কে কোন্ ক্লাসে পড় ?
b) তোমাদের কি কি বিষয়ে পড়ায় ?
c) সমাজ-বিজ্ঞানে/ বিজ্ঞানে ইত্যাদিতে কি পড়ায় ?

Q.2 স্কুলে পড়াশোনা ছাড়া বইয়ের বাইরে অন্য কিছু করায় কি ? .....

Q.3 সারাদিনে কি কি কর ? কতক্ষন লাগেঃ স্কুলে যাবার আগে, স্কুলে, স্কুলের পরে ?

Arsenic [বিশদভাবে আলোচনা করুন]

Q.4 a) Arsenic সম্পর্কে তোমরা শুনেছ কি ?
b) এটি কোথেকে আসে ? এটি কি ক্ষতি করে ? এতে কি সমস্যা হয় ?

Q.5 Explain Arsenic problem, Arsenocosis and its health and social consequences.

a) Arsenic সমস্যা সম্পর্কে কি বুঝলে ? এটি কেন হয় ? কিভাবে এ থেকে রক্ষা পাওয়া যায় ?

b) তোমর পরিবারে যাতে এতে কেউ আক্রান্ত না হয় সে ব্যাপারে তুমি কি করতে পারো ?

c) আর তোমরা কি মনে করো যে তোমাদের মত ছাত্র/ছাত্রীরা সমাজের অন্য সবাইকে আর্সেনিকের বিরুদ্ধে লড়তে সাহায্য করতে পারে ? এ ব্যাপারে তোমাদের আগ্রহ আছে কি ?

d) তোমরা কি ভাবে / কোন্ সময় এ কাজ করতে পার ? কতটা সময়ই বা তোমরা দিতে পারবে ? এ ব্যাপারে তোমাদের স্কুল কি ভাবে সাহায্য করতে পারে ?

-- x --

Indepth Interview Guide

Health Workers

সালাম/ আদাব,

আমার নাম ..... । আমি AMCL নামক একটি বিজ্ঞাপন সংস্থা থেকে এসেছি। আপনারা যে সকল বিষয়ে সাধারনত পরামর্শ দেন এবং আরও দু'একটা নতুন বিষয়ে আলাপ করতে চাই।

Q.1. a) আপনি ক'টা গ্রামে কাজ করে থাকেন ?

b) কত ঘন ঘন একটি গ্রামে যান, অর্থাৎ মাসে ক'বার যান।

c) কি ধরনের লোকেরা আপনার পরামর্শ এবং স্বাস্থ্য সংক্রান্ত সেবা নিয়ে থাকে ?

d) তারা আপনার কাছে কি ধরনের সাহায্যের বা পরামর্শের জন্যে আসে ? নারী / পুরুষ ?

e) তারা কি আপনার কাছে আসে না আপনি তাদের বাড়ী যান ? . . . . . কেন ? . . . . .

Q.2. a) আপনি সাধারনতঃ কি কি বিষয়ে গ্রামের লোকদের পরামর্শ দিয়ে থাকেন ?
(Health, nutrition, FP, Gender, ORT, immunization, reproductive health, pre-pest natal care . . .)

b) এ ধরনের বিষয়ে পরামর্শ দিতে বিষয়গুলো সম্পর্কে কিভাবে জেনেছেন ? (Training, books, other communication materials etc.)
[PROBE ON COMMUNICATION MATERIALS]
এগুলো কি ভাবে আপনাকে সাহায্য করছে ?

c) আর, স্বাস্থ্য সংক্রান্ত ব্যাপারগুলো বুঝানোর জন্যে কি কোন ধরনের বই, leaflet, প্রদর্শনী দ্রব্য ইত্যাদির সাহায্য নিয়ে থাকেন ? এগুলো বুঝাতে কি ভাবে সাহায্য করে ? এগুলো ব্যবহারে সুবিধা বা অসুবিধা কি ?

Q.3. a) আজকাল আর্সেনিক সমস্যার কথা শোনা যায়, এ সম্পর্কে আপনাদের কাছে কোন তথ্য আছে কি ? বা আপনাদেরকে কিছু বলা হয়েছে কি ? আর্সেনিক কোথা থেকে আসে ? এটি কোন্ ধরনের সমস্যা করে ? এতে স্বাস্থ্যের উপর কোন প্রভাব পড়ে কি ?

b) এ ব্যাপারটি আপনি জানেন কি যে আর্সেনিক যুক্ত টিউবওয়েলের পানি খেলে Arsenicosis বা আর্সেনিক বিষে মানুষ আক্রান্ত হয় ?

c) আর্সেনিক আক্রান্ত হলে কি কি উপসর্গ দেখা দেয় সে সম্পর্কে আপনাদের কোন ধারনা আছে কি ?

d) কোন ধরনের লোকেরা আক্রান্ত হয় ? সবাই নাকি নারী / পুরুষ ?

e) সাধারনতঃ আর্সেনিক যুক্ত পানি পান করার কত পরে উপসর্গগুলো দেখা দেয় ?

f) আর্সেনিকের বিষক্রিয়ায় আক্রান্ত হলে এর কোন চিকিৎসা আছে কি ? বা চিকিৎসায় এই রোগ ভাল হয় কি ?

g) আর্সেনিক কি ছোঁয়াছে অর্থাৎ একজন আক্রান্ত হলে তার সংস্পর্শে কি আর একজন আক্রান্ত হতে পারে ?

h) সাধারনতঃ আর্সেনিক আক্রান্ত রোগীদের অন্যরা কিভাবে দেখে থাকে ? নারীদের ..... পুরুষদের ? এর কোন সামাজিক গুরুত্ব আছে কি ?

Q.4. তাহলে ব্যাপারটি দাঁড়াচ্ছে যে আর্সেনিক যুক্ত টিউবওয়েলের পানি খেলে আর্সেনিক আর্সেনিক বিষে মানুষ আক্রান্ত হ। উপসর্গগুলো দেখা দিতে অবশ্য কয়েক বছর সময় লাগে। কিন্তু আর্সেনিক রোগের কোন চিকিৎসা নেই। পরিনাম হচ্ছে মৃত্যু। অবশ্য আর্সেনিক ছোঁয়াছে নয়, কিন্তু রোগীরা এক ঘরে হয়ে যাচ্ছে। স্বামীরাও স্ত্রীদের ত্যাগ করছে। সামাজিক সমস্যার সৃষ্টি হচেছ।

a) এই সমস্যা সমাধানে কি করা যায় ? কি ভাবে তাদের Test করতে, Point করতে বা নিরাপদ পানি খেতে উদ্বুদ্ধ করা যায় ? আর কিছু ? সামাজিক সমস্যাগুলির সমাধানই বা কি করে করা যায় ?

b) এতে আপনার মত স্বাস্থ্য কর্মীরা কি ভূমিকা নিতে পারে ? আপনাদের সক্রিয় ভূমিকা নিতে হলে কি ধরনের সাহায্য দরকার ?
(resource, information, training .....)

c) কি ধরনের ম্যাটেরিয়াল আপনাদের দরকার ..... নিজেদের জন্যে এবং লোকদের উদ্বুদ্ধ করতে ?

Desk Research

Dhaka Community Hospital.

Communication material	: **Booklet.**
Title	: **Arsenic Pollution in Ground Water of Bangladesh.**
Language	: **Bengali & English.**

Contents:

This book is delivers information about Arsenic & Arsenicosis. Contents of information are

A. What is Arsenic? **b) Arsenic in Bangladesh. c) Sources of contamination. d) Health effects of Arsenic. e) Toxicity of Arsenic. f) Patient of Arsenicosis. G) Usual symptoms of Arsenicosis. H) How to combat Arsenicosis.** Some of the best features in this booklet is all the main points are been highlighted in boxes & provides the vital information regarding the consequences of Arsenic & Arsenicosis.

B. Other findings from DCH were through personal interview with Dr. Sibtosh Roy. He has provided one of the major information regarding the symptoms. As per Dr. Roy " This is one of the critical aspect that all the doctors are going to face. Presently the symptoms, which are shown in the entire brochure & explained as the early symptoms, are actually not the primary symptoms. In the process of consuming Arsenic contaminated water through drinking & cooking one get effected by Arsenicosis. But the reaction of the poisoning is not immediate. Because Arsenic poison works like slow poison. It may take 3 to 13 years for the physical visible symptoms to come out. But the internal damages take place long before that. More research is needed to confirm the early symptoms & to identify the same.

UNDP financed program with "Ministry of Health & Family Welfare" Government of the People's Republic of Bangladesh.

Communication materials	**: Brochure. Training manual.**
Title	**: Arsenic contamination of Ground Water in Bangladesh**
Language	**: English/Bengali.**

Contents:

The four side folded brochure on Arsenic contamination in ground water of Bangladesh provides information in the form of the basic findings. The **introduction** gives general information about the country. **Land & climate** gives information about the geographical information. In the Environmental problems it gives information about the Arsenic problems. How Arsenic is getting in to the drinking water is explained in "**Arsenic Contamination of ground water related problems**". This section is quite elaborated & picture of a contaminated tube-well is given. Information regarding the health issue is focused on " **Health hazards from drinking arsenic contaminated ground water**. In the management section the information is given regarding the identification of the problems. At present what are the challenges we are facing or we are going to face with Arsenic is explained in **"The Challenges"**

The training manual mainly provides information about the Arsenic facts. It also provides information for testing & how the testing can be done. Other information like the health factors is also been focused in the book. It has been presented with photographic image of the patients. How one can avoid Arsenic contamination is also been suggested.

Other brochure gives photographic image printed in boxes & the information is printed below. The color used is some kind of texture from the computer design gallery.

Press release & Daily/weekly/monthly Newspaper.

Newspaper is one of the main source for disseminating information among the general people all over the country. Our findings from the newspaper are as follows:

1. **Provides information regarding Arsenic poisoning in ground water in all over the country.**
2. **Information regarding the most effected areas is also provide.**
3. **Patient information & findings from them about their problems.**
4. **Highlighting the problem faced by various Laval of people with the arsenic poisoning.**
5. **Social problem faced by the people who are affected by Arsenicosis.**
6. **Relevant facts of Arsenic & its consequences are also published.**
7. **Testing procedure & information regarding the testing also released.**

The information in the newspaper is mainly the problems & less of solution. Reports are collected from various sources & been published in the newspaper. Activities of all the agencies involved in the Arsenic mitigation program are also been published, which informs the general people about the activities.

Disaster forum

Communication material	: Booklet on Alternative source of water.
Title	: "Arsenic Problem" & "Search for Safe water"
Language	: Bengali.

Contents:

This booklet provides information regarding the Alternative source of water. The contents of this book are: a) Ring-well, b) Rain water harvesting, c) Pond Sand filter, d) Pitcher filter, e)House hold mini sand filter & at the end general information regarding the Arsenic contamination.

The information contains the following for all the Alternative source of water:

- How to build/have various alternative source of water.
- Cost for various alternative source of water.
- Maintenance instruction.
- How to use the alternative source of water & what are the benefits one can enjoy from the alternative source of water.

All the information provided in this booklet with photographic image. At the end information regarding the Arsenic contamination & the facts of Arsenic poisoning is given in brief.

Directorate of Health Services, Government of West Bengal. Supported by Unicef

Communication material	: Folder
Title	: Arsenic Contamination in drinking water: the problem and mitigation.
Language	: Bangla

Content:

This shaded green booklet essentially included a few basic questions of the issue. It began with a small introduction on arsenic, its existence in West Bengal and in the neighboring countries. Then it elaborated magnitude of the problem in WB.

The second section started with the fundamental question of what arsenic contamination means and why it was found in tubewell water. As this folder was a production of the Health Directorate, it gave emphasis on health related questions. The sign and symptoms of Arsenicosis were described in detail in the next two pages either in question-answer form or using headings for important things. The last section concentrated mainly on how to combat this disease- the stages and treatment in each stages The questions/headings were formed in the way a layman could have in mind and the language used here is simple, positive and explanatory. For example when it explained what to do if anybody is suspected to have Arsenicosis-it spoke first on the reversible stage and need for proper treatment in time and later got into the risks of Arsenicosis.

Key Observation:

1. A reader friendly, simple language gave a general appeal effect.
2. Right use of light yellow boxes to communicate most important things.
3. Use of pictures as and when possible constructed demonstration effect.

School of Environmental Studies, Jadavpur University, Calcutta, India.

Material : A technical/research paper on arsenic contamination in TW water of some Districts in West Bengal.
Title : Arsenic in ground water in six districts of West Bengal

Content

The technical paper had a few heads:

1. Introduction: It covered arsenic problem reported in the countries of the world. Clinical manifestations of Arsenicosis on human body and presence of arsenic in tubewells of six districts in West Bengal.
2. Methodology: It described the technique of water collection from the well and testing procedure of suspected samples. Also testing of urine, skin, nail etc in different scientific scales. Bore-hole sediment analysis was given too.
3. Regional setting: Regional geology of the contaminated area was discussed here. It is found that arsenic contaminated groundwater occurs in the modern deltaic sediments. Geo-morphology and Geohydrology were explained.
4. Results and discussion: Arsenic was found in six districts by the side of the river Ganga of WB. These areas are located in the upper delta plain and mostly in the abandoned meander belt. 800,000 people from the affected areas are drinking arsenic contaminated water and amongst them at least 175,000 have arsenical skin lesions. Tube well water as well as hair, nails, scales, liver tissue analysis show elevated concentrations of arsenic in people drinking arsenic contaminated water for a longer period. The source of arsenic is geological. Various social problems arise due to skin lesions in these districts. Malnutrition, poor socio-economic conditions, illiteracy, food habits and in take of arsenic contaminated water for many years have aggravated the arsenic toxicity. If alternative water sources are not utilized millions of people in the area will suffer in near future.

Bangladesh Rural Advancement Committee

BRAC has initiated a program on arsenic mitigation with the purpose of determining the nature, extent and magnitude of the problem.

The specific objectives of the program are:

- Assess the capability of of BRAC-trained village health workers in testing the tubewells in their own villages;
- Test the reliability of field kits used in ground water testing; and
- Assess the capacity of BRAC in undertaking a large scale testing program through it's countrywide network.

BRAC believes that the advantage of involving the community in the process of testing is the creation of awareness about the problem, as a by-product of the testing program itself. Also, it believes that NGOs working closely with the community, meeting and interacting on a regular basis to implement various programs and disseminate related messages.
BRAC has worked with DPHE in the testing experiment which shows that effective collaboration between the govt. and NGOs can be forged to address a huge problem such as arsenic contamination in ground water in Bangladesh.

Department of Public Health Engineering (Unicef assisted)

DPHE has planned a comprehensive program for arsenic mitigation. The following are the key activities planned under the Unicef assisted program:

A. Arsenic Field Testing and Paint Marking

1. Blanket testing of all TWs & Pre-installation screening for new TW site
2. Paint marking on TWs- Paint red on hand pump of arsenic affected TWs and green on no-arsenic tubewells after testing.
3. Supply of arsenic field test kits
4. Training on arsenic field test kits
5. Training on arsenic field testing

B. Exploratory Deep Boring

1. Drilling of exploratory deep tubewell for hydro-geological investigation
2. Water quality testing of exploratory deep TWs

C. Training of DPHE personnel & private drillers/TW mechanics

1. Training on deep drilling technique in LWT areas and installation of Tara deep TW, PSF & Rain Water Harvesting tank.

D. Site Selection

1. Organizing water user groups on choice of technology options & site selection

E. Mobilization of Materials

1. Supply of materials for water points

F. Installation of Water Points

1. Installation of water points in unserved and underserved villages

G. Post installation arsenic testing

1. Post installation arsenic testing of newly installed tubewells
2. Paint marking of tubewells
3. Supply of arsenic field kits

H. Training of Caretaker Families and Water Users of Water Points

Bibliography/key interviews

SOURCE	DOCUMENTS & DATA COLLECTED	CONTACT PERSON
BRAC	1. SUMMARY ON THE RECENT STUDY ON ARSENIC. (REPORT). 2. BROCHURE ON ARSENIC.	MR. ZAKARIA. ADDRESS: BRAC CERNTER. MOHAKHALI. (15^{TH} FLOOR).
UNICEF	1. LIST OF THE THANAS TESTED FOR ARSENIC. 2. LIST OF THE PROGRAM VILLAGES. 3. REPORT ON BRITISH GEOLOGICAL SURVEY (BGS). 4. COPY OF THE PROPOSAL FOR DFID. 5. NATIONAL MEDIA SURVEY 1998. 6. MEDIA ANALYSIS ON ARSENIC CONTAMINATION.	MR. MICHAEL GALWAY ADDRESS: BSL OFFICE COMPLEX(HOTEL SHERATON) 11 MINTO ROAD , DHAKA.
DHAKA COMMUNITY HOSPITAL (DCH)	1. BOOK ON ARSENIC POLLUTION IN GROUND WATER OF BANGLADESH. 2. ARSENIC PROBLEM AND WATER RESOURCE MANAGEMENT IN BANGLADESH. 3. BROCHURE REGARDING VARIOUS ASPECTS OF ARSENIC.	DR. SHIBTOSH ROY. ADDRESS: NEAR MOGHBAZAR RAIL CROSSING. DHAKA.
DISASTER FORUM	1. FACT SHEET UPDATE II FEBRUARY 28^{TH} 98. 2. FACT SHEET	MS. EMA & MS. SHEHNAZ. ADDRESS: 6/8 SIR SYED ROAD.

	UPDATE III MAY'98. 3. FACT SHEET II SEPTEMBER'97. 4. BOOKLET ON ARSENIC EXPLANING THE VARIOUS SOURCES OF SAFE WATER. 5. FACT FILE CONTAINING THE REPORT FOR THE YEAR 1997.	MOHAMMADPUR. DHAKA.
UNDP	1. TRAINING MANUAL BY DR.A Z M IFTEKHAR HOSSAIN.	Dr. AZM Iftekhar Hossain MOH+FW UNDP OFFICIALS
UNICEF BANGLADESH INFORMATION RESOURCE CENTER	INFORMATION REGARDING THE PROBLEMS FACED AT THE TIME OF IMPLEMENTING THE PLANS.	
SCHOOL OF ENVIRONMENTAL STUDIES. JADAVPUR UNIVERSITY, CALCUTTA	REPORT ON ARSENIC IN GROUND WATER IN SIX DISTRICTS OF WEST BENGAL, INDIA. COMMUNICATION MATERIAL DEVELOPED BY UNICEF, CALCUTTA	INTRNET.
THOMPSON SOCIAL	WES PRA REPORT	
WORLD BANK	PROJECT REPORT	MR. BABAR KABIR
PRESS REPORT	FILES	DAILY NEWS PAPERS.
ICDDR,B ENVIRONMENTAL HEALTH PROGRAMME	REVIEW OF STATUS OF ICDDR,B ARSENIC MITIGATION P[ROJECT IN MANIKGONG SADAR THANA, MANIKGONG	DR. BILKIS AMIN HOQUE

Abbreviations

1. BRAC- Bangladesh Rural Advancement Committee
2. DC- Deputy Commissioner
3. DPHE- Department of Public Health Engineering
4. EPI- Expanded Program on Immunization
5. HW- Health Worker
6. ICDDR,B- International Center for Diarroheal Disease Research, Bangladesh
7. KAP- Knowledge, Attitude, Practice
8. NGO- Non-government Organization
9. NIPSOM- National Institute for Preventive and Social Medicine
10. PSF- Pond Sand Filter
11. RMP-Rural Medical Practitioner
12. SAE- Sub-assistant Engineer
13. TG- Target Group
14. THFPO- Thana Health and Family Planning Officer
15. TNO- Thana Nirbahi Officer
16. UNDP- United Nations Development Program
17. UNICEF- United Nations Children's Fund