Chapter 7 - Communication for Development

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Summary

There is limited information about attempts to communicate with families and communities about arsenic in drinking water supplies. Despite the global nature of the problem, little documentation exists about efforts in different countries to communicate with people about the risk to their health from arsenic. This chapter fills that void by providing a synthesis of the global experience to date.

The single largest communication initiative on arsenic comes from Bangladesh. A multi-media, multi-level communication strategy was launched by the national government, with UNICEF assistance, in four rural areas in late 1999. An initial evaluation indicates that the strategy is raising awareness and villagers are switching to safe sources of water. Until more results are available, the Bangladesh example offers communicators with some 'best practices' for designing and implementing a large-scale communication strategy.

Limited experiences from other countries, such as India, Argentina, Australia and the United States, also provide insights into ways of communicating effectively about the arsenic problem.

In addition to these examples, there is a rich and varied body of literature that documents the global experiences of public health communications. The chapter reviews case studies from Asia, Latin America and Africa on how communicators are addressing issues critical to people's health, such as sanitation and hygiene, reproductive health and HIV/AIDS. These experiences reflect a significant evolution in theory and approaches to changing people's behaviour that are relevant to communicators working on arsenic.

Principles for communicating about arsenic

Notions of how to communicate with families and communities about their health are changing in significant ways. The concept of communicating *to* someone is giving way to more democratic and egalitarian ideas of communicating *with* a person whose health is at risk.

Top-down health education models are being replaced with more participatory approaches. Communicators are using more rigorous methodologies to develop strategies. Some of the best practices from private sector advertising are being adopted for effective 'social marketing'. More fundamentally, there is a growing recognition that communication generally needs to address underlying conditions – socio-economic, cultural, legal and policy environments – that influence why people act the way they do.

A number of key principles (Jackson, 1997) derived from the global experience of public health communication can guide efforts to address the arsenic problem in various countries.

- ***Levels of knowledge can be raised, but may have little or no effect on behaviour***. In Bangladesh, a one-year project with Dutch funding to raise awareness about arsenic in six district towns did not achieve its hoped-for breakthrough in behavioural change. Fifty per cent of families who knew their tubewells were contaminated by arsenic continued to drink the water, despite access to new or safe sources (Hanchett *et al.*, 1999).

- ***Beliefs and values influence how people behave.*** The roots of people's beliefs and values are complex and multi-faceted. In Bangladesh, a belief that "I will/will not get sick from drinking arsenic affected water" could have several underlying beliefs. "It's the devil's water" or "Allah will decide whether I get sick" (Asiatic, 1999a) suggests a sense of fatalism. Likewise, the value a poor person puts on having a sanitary latrine, or sending a child to school, may be linked to perceptions of economic cost and benefit, or social status. Beliefs and values do not take place in a vacuum, but are shaped and respond to the context of people's lives. Fatalism, for example, often comes from a lack of viable options and a feeling of lack of control over one's life.
- ***A behaviour is likely to be repeated if the benefit is rewarding, and less likely if the experience is punishing or unpleasant.*** A pilot project in Argentina investigated a home-based solution to the arsenic problem by providing arsenic removal salts directly to poor families. Government sanitation workers followed up with house-to-house visits to show people how to use the salts and to emphasise the importance of changing their drinking water habits. The salts effectively lowered arsenic levels by 70 per cent. The success of this technology was due to its easy use in the home. This facilitated behavioural change in the short term (Rivero *et al.*, 1999). Unfortunately, the new behaviour could not be sustained because the supply of salts ended with the project.
- ***Individuals are not passive responders, but have a proactive role in the behaviour change process***. Public health officials in the United States use advances in communication technology to interact directly with people affected by arsenic. Web pages and 'open meetings' on the Internet provides a forum for a two-way flow of information, letting people decide on their role in the communication process, ascribe meaning to messages and control the process of behaviour change.
- ***Social relations and social norms have a substantial and persistent influence on how people behave.*** Communication strategies targeting social groups (e.g., family, co-workers and youth clubs) may contribute to substantial and sustainable behavioural change. The stronger the affiliation with a group, the more responsive a person is to the group's norms. The national arsenic communication strategy in Bangladesh, for example, aims to leverage the influence of Muslim *imams* (religious leaders) to promote a norm of sharing arsenic-safe tubewell water (Asiatic, 1999b).
- ***Behaviour is not independent of context. People influence, and are influenced, by their physical and social environments.*** This principle emphasises that health behaviour is influenced by a vast array of biological, environmental, social, physical, spiritual, economic and regulatory factors. In the Indian state of West Bengal, strong resistance to an arsenic removal technology was overcome when villagers travelled to a nearby community to talk to their neighbours who had already adopted the innovation.

Managing the communication process – lessons from Bangladesh

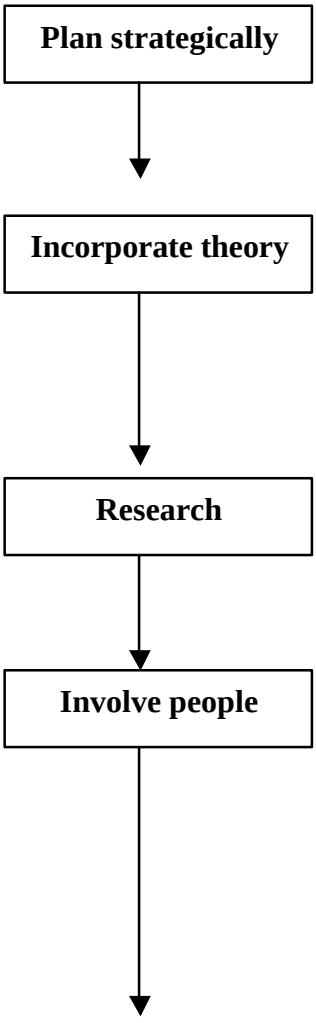
No single universal strategy exists for changing complex human behaviour. However, the experience of developing a national communication strategy for arsenic in Bangladesh provides some best practices for planning and managing processes of communicating about arsenic in drinking water supplies.

Up until 1998, relatively little communication work for arsenic had been done in Bangladesh. As a result, awareness was low, despite the severity of the problem. A baseline survey indicated that only 7 per cent of 1,839 people interviewed had heard of arsenic (OMQ, 1998).

There were also disagreements on what would be technically correct to communicate. Misinformation was a serious concern. A small working group of government scientists and technical advisors filled this void by reviewing the available literature and coming to a consensus on a set of 'technical parameters' to guide the communication strategy "see Annex 7.1".

These parameters ensured that the information communicated was technically accurate, leaving communicators free to get on with the work of deciding how best to communicate. The Bangladesh example helps to demonstrate the importance of ensuring that the information disseminated is accurate and consistent. Time and resources need to be invested in ensuring that the content of the communication passes the most stringent technical scrutiny.

The approach to developing a communication strategy on arsenic in Bangladesh is relevant to communicators in other countries. While the social, political, economic and technical context will be different, the following critical path can inform the development of an arsenic strategy.



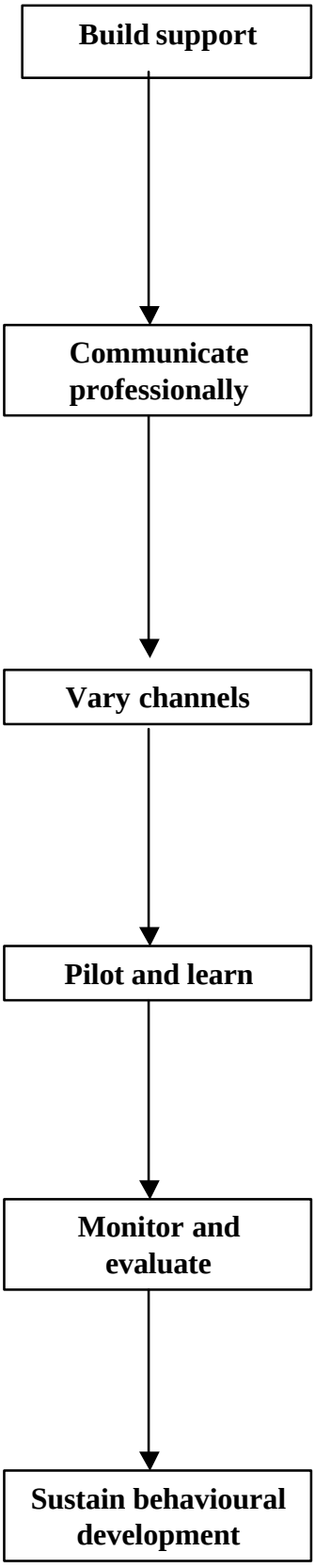
A number of conceptual models exist for planning communication strategies. The Bangladesh strategy adopted the ***ACADA planning process*** (assessment, communication analysis, programme design, action) used by UNICEF.

Communication and behavioural science theory provides communication planners with a framework for planning a strategy to change behaviour. In Bangladesh, ***diffusion theory*** was applied to identify the various stages large groups of people pass through in adopting a new behaviour and technology.

The communication process began with a rigorous investigation of ***knowledge, attitude and practice***. Rapid rural assessments, using standard qualitative methodologies, were used.

Participatory rural appraisal techniques were used to give villagers a voice in identifying their needs and solutions. This included mapping exercises to identify local resources and special meetings to try to include all the different groups in a village to determine how best to communicate about arsenic. The challenge in Bangladesh, as elsewhere, is to turn over communication processes and methods to local people, putting them at the core of communication

analysis, planning and action. This approach relies on accountable and flexible institutions, considerable resources, trained facilitators and recognition that changing behaviour is a long-term process.



The Bangladesh example demonstrates that a ***broad, multi-sectoral approach*** to arsenic is needed for behavioural development and social change. The strategy included an advocacy plan to ensure high-level support from senior policy makers and politicians at the national and sub-national level. Social mobilisation at the grassroots complements advocacy by moving entire segments of a society towards the goal of drinking safe water.

UNICEF and the Government of Bangladesh engaged a ***full-service social marketing agency*** to produce and manage the communication strategy. This approach proved more efficient and cost-effective than hiring staff to provide specialised services in media production, media planning, research and strategy development. Creating one team to develop the campaign also ensured that all media and communication materials were consistent and mutually reinforcing.

Television and radio commercials were used to generate general awareness and support for the arsenic project in Bangladesh. However, ***interpersonal communication*** was the key to behaviour change. Communication tools were developed for health workers, NGO volunteers and tubewell testers coming into direct contact with the household.

Important lessons were learned in Bangladesh during the pilot phase in four *upazillas* (an administrative unit). The pilot highlighted problems in coordinating activities across various government departments, identified training gaps and confirmed acceptance of the various communication materials.

As the Bangladesh strategy is fully implemented, ongoing process monitoring will measure the responsiveness and efficiency of various government institutions to carry out the communication strategy. Qualitative and quantitative assessments at mid-term and the end of a communication strategy indicate whether the strategy is successful in changing behaviour.

Getting people to change their behaviour and maintain that new practice or attitude is the essential task of the communication strategy in Bangladesh. It will require a continual flow of new ideas and support. It will also require more targeted communication to those resisting change, or left out of the process. Communicators will need to upgrade their skills and capacity to move beyond raising awareness to working with communities and families in ways that support long-term behavioural development.

7 Communication for development

Introduction

There is limited information about attempts to communicate with families and communities about arsenic in drinking water supplies. Despite the global nature of the problem, little documentation exists about efforts in different countries to communicate with people about the risk to their health from arsenic. This chapter fills that void by providing a synthesis of the global experience to date.

The single largest communication initiative related to arsenic at present is in Bangladesh. A multi-media, multi-level communication strategy launched in 1999 with assistance from UNICEF aims to help people switch from arsenic-contaminated water to safer sources for drinking and cooking. Radio and television commercials are being aired for free by state-owned media outlets. Interpersonal communication and outdoor media are being used initially in limited areas as the project scales up.

The Bangladesh example, presented here as a case study, provides insight into some best practices for developing and managing complex processes of communicating about arsenic.

Other experiences from India, Argentina and the United States point to lessons on how to communicate effectively about arsenic. There is also a brief introduction to risk communication, an approach commonly used in developed countries to respond to critical environmental and public health problems.

These initiatives are augmented by the rich experience of public health communicators globally in managing processes of behavioural and social change. Experiences from Asia, Latin America and Africa in other fields, such as sanitation and hygiene, reproductive health and HIV/AIDS, provide important lessons to communicators working on arsenic.

The global experience in public health communication informs approaches on how best to communicate about arsenic. The chapter begins by examining communication within an historical context so as to understand the dramatic evolution in approaches and practices over the past several decades. The chapter then traces the evolution in theory and practice from its top-down origins to more popular models of participatory communication. Finally, experiences from the field – successes and failures – are presented. The reader will find that these broad themes and lessons are particularly relevant to communicators and policy makers in developing countries concerned about arsenic.

7.1.1 A brief historical overview

Notions of how we communicate with families and communities about their health are evolving in radical ways. The concept of communicating ***to*** someone is giving way to fundamentally more democratic and egalitarian ideas of communicating ***with*** a person whose health is at risk.

Fifty years ago, communication in the development sector was a simple, ***one-way flow*** of information from sender to receiver usually through the mass media. This approach reflected the norms of the modernisation paradigm that emphasised transferring technology and norms from the ‘developed’ to the ‘developing’. By the 1960s, a ***two-step***

flow model emerged, recognising the importance of social networks and opinion leaders as go-betweens for the media.

A more influential model grew out of ***diffusion*** studies in the United States "see section 7.2.1". Diffusion theory suggests that people pass through a series of stages as they take up – or reject – a new idea or practice (Valente and Rogers, 1995). At least ten popular models of these 'stages of change' are in practice in communication today. Rogers (1995) suggests that people becomes aware, then concerned, acquire knowledge, are motivated, intend to act, try out the new behaviour, evaluate and then decide to keep up the new behaviour or not.

Communicators use diffusion as a planning tool in deciding which approaches and media to use – and at what stage – to encourage people to take up a new practice. In recent years, communicators have included more participatory techniques, in response to criticism that diffusion is a top-down, hierarchical approach to behavioural development (McKee, 1992).

By the mid-1970s, communication practice began to reflect wider shifts in global development. Top-down began to give way to the practice and rhetoric of ***participatory approaches***. Chambers (1994) and others wrote of the need for 'reversals' in development so that local people, especially the poor, could be active participants in their own development. Values that promoted a focus on income-poverty and economic development broadened to include social development and good government, eliminating poverty, and decentralisation and democracy (Singhal and Sthapitanonda, 1996). Making participation meaningful, however, has often proved elusive (Rahnema, 1992).

Participatory communication projects aim to 'empower' individuals and communities to take control of their lives. Information flows both ways between sender and receiver. Local beneficiaries are involved in designing the message and share in the responsibility of being the sender. Low cost technologies such as low-power VHF FM radio, camcorders, desk-top publishing and the Internet all open up opportunities for people to be in charge of their own communication. In the participatory model, communication is a process, not a series of products.

7.1.2 Some definitions

New acronyms and terms keep coming up to describe the evolution in methods and approaches to communication. These changes often reflect paradigm shifts in the development sector.

IEC refers to *information, education, communication* and is often associated with hierarchical, top-down approaches to development (Burgers, 1999). In contrast, many communication practitioners today advocate *behavioural change communication (BCC).* ***BCC*** shifts the emphasis from making people aware to bringing about new attitudes and practice. BCC tries to understand people's situations and influences, develops messages that respond to these concerns and uses communication processes and media to persuade people to increase their knowledge and change risky behaviour (UNICEF, 1999b)

Social marketing is an approach to communication in the development sector that adapts some of the techniques used in commercial marketing. It relies on segmenting the market, 'consumer' research, concept development and the mass media in particular to bring about acceptance for a social idea, cause or practice (Berry, 1993).

Social mobilisation differs from social marketing because it aims to muster national and local support for a general goal or programme through a more open and uncontrolled process. It is often less concerned with attempting to bring about behavioural change by researching and communicating specific messages than it is with mobilising large segments of society to a goal (such as universal immunisation, literacy or family planning). The idea is to use as many channels as possible at an accelerated rate (McKee, 1992).

In practice, there is often not a clear division between these various approaches. Communicators often mix elements from each of these strategies. As a result, communication in the development sector is evolving into a multi-disciplinary mix of communication, sociology, anthropology, education, social marketing and social mobilisation.

7.1.3 Advances and challenges in communication

Communication is frequently taken to mean spreading information or generating media materials *ad hoc*. These approaches often lead to disappointing results. Empirical evidence shows that simply raising awareness can fail to make an impact on what people think and do (FHI, 1999, Seidel, 1992, Jackson 1997).

Measuring success is also a challenge. Communication and social mobilisation require considerable resources and a long-term view. There is usually no quick pay-off in terms of sustained behavioural change. As a result, the number of posters printed and radio commercials broadcast are often used as proxy indicators for whether communication strategies work or not (Chatterjee, 1999).

Many communication initiatives – particularly around behaviour change – attract support because they claim they can change something. In the field of HIV/AIDS, for example, much of the funding for communications initiatives has gone into attempts to change individual behaviours. Much of this work has had a substantial impact. However, some critics assert it has not sought to change the underlying factors that are driving a still escalating epidemic – poverty, social exclusion, prejudice and discrimination, migration and poor health systems (Gray-Felder and Deane, 1999; Airhihenbuwa *et al.*, 1998).

Behavioural science and communication theories can play a useful role in the design and implementation of communication strategies (Jackson, 1997). Theory provides communicators with a conceptual framework for why people act the way they do and how best to respond. Yet many communication strategies often start without a firm theoretical footing (Witte, 1998). Strategies that are developed without a clear notion of why people act the way they do are unlikely to result in the desired change in attitudes and behaviour.

Despite these limitations, there are numerous examples from around the globe of successful strategies that promote good health and change behaviour “see section 7.3”. These experiences provide important insight into how best to develop an effective communication strategy.

All communicators, for example, agree that research on knowledge, attitude and practice (KAP) is an important preliminary step. Generating baseline data is equally important in allowing communicators to measure progress.

Communicators also rely increasingly on tools for participatory learning and research. Many also see the need to address gender issues as part of any communication strategy in an attempt to address inequity and inequality. Lessons from social marketing point to the importance of carefully segmenting a target audience and reaching people through a wide variety of media. In many communication strategies, social mobilisation is key to achieving certain goals.

7.1.4 Holistic approaches

These issues have led some communicators to look at more holistic approaches to communication. United Nations agencies, such as UNICEF and UNFPA in particular, emphasise a 'rights-based' approach to communication for development "see section 7.3.5". Advocacy is an important approach in ensuring that universal declarations of human rights translate into services (UNICEF, 1999a).

Communicators are looking increasingly to integrate a gender perspective into communication strategies. This includes promoting and ensuring the participation of women and girls in all stages of a programme, including research and social analysis. It means moving away from a traditional approach where health and development messages are directed only to girls and women – ignoring roles and responsibilities of men and boys. Gender progressive communication also includes boys and men as communication audiences and participants. It builds consensus on root causes of gender inequality within a particular social context and tries to equip men and women with the tools and skills to advocate for structural change.

Communication for development is an amalgamation of the approaches mentioned so far. In practice, communication for development is a researched and planned process crucial for social transformation. It operates through three main strategies; *advocacy* to raise resources and political and social leadership commitment for development goals; *social mobilisation* to build partnerships and alliances with civil society organisations and the private sector; and *programme communication* for changes in knowledge, attitude and practice of participants in programmes.

Communication can play a central role in changing the behaviour of individuals and groups when combined with the development of appropriate *skills* and *capacities* and the provision of an *enabling environment*. Communication also plays a key role in *behavioural development*, a term used in this chapter to describe the process of putting a principal focus on children, encouraging early habits and attitudes that result in healthy behaviour (UNICEF, 1999b).

In summary, communication needs to be understood and used as a *process* – and not simply a collection of print materials, radio commercials and television ads – to change what people think and do (Chatterjee, 1999).

7.2 Strategies for communicating for development

7.2.1 Communication models

Communication professionals – and those working in public health in particular – are known for generating models to chart the process of behaviour change (Bowes, 1997). These various models reflect historical developments in approaches to communication. Some of these models, and the lessons they offer, are presented here.

Diffusion

In the 1940s, sociologists in the mid-west state of Iowa developed a theory to explain why farmers were reluctant to take up new hybrid corn varieties. The general picture was that farmers would only gradually give up their resistance to the new corn after talking with neighbours who were already satisfied 'adopters'. Diffusion studies have since laid the groundwork for a variety of behaviour change models across the social sector. Communicators find these models particularly useful in determining strategic approaches to large population groups (UNICEF, 1999a).

Diffusion is a process by which a new practice or behaviour gets communicated through certain channels over time among individuals and groups (Rogers, 1995). In theory, there are six types of groups. *Innovators* act on information they get through the media and peers outside their community. *Early adopters* act if convinced by the media and innovators that the new practice 'works'. *Early* and *late majority adopters* rely heavily on information from their peers "see box 7.1". Mass media and traditional media are also important in modelling new behaviour to this group. *Late acceptors* and *resistors* require extensive peer group education (Rogers, 1995 and UNICEF, 1999).

These groups move through different stages of change as people decide on a new behaviour or practice. Although there are several versions of these stages, the principle remains the same. People do not suddenly begin to do something they have never done before. They learn, weigh the benefits and see if anyone else is doing it. They acquire the skills needed for the new behaviour, apply it to their own lives and evaluate whether it is worthwhile continuing. They may reject the behaviour, or encourage others to follow their lead.

A basic notion of diffusion is that a new idea is adopted slowly during the early stages, builds steam and then flattens out again. When plotted over time, the rate of adoption is typically S-shaped as early adopters tell others about their experience and encourage them to take up the new practice. A critical mass builds and then levels off as fewer individuals or groups remain to adopt the behaviour (Backer *et al*, 1998). At each stage, experience shows that people need different kinds of information, emotional support and skills.

Box 7.1 Diffusing an arsenic removal technology in India

In 1998, a large non-governmental organisation in West Bengal, India initiated a pilot project to provide drinking water to 115 villages. Ram Krishna Mission Lok Shiksha Parishad (RKMLSP) developed a 'demand-driven' approach to try to heighten community ownership and responsibility for water supply schemes. Villagers were asked to participate in selecting appropriate technologies, contribute 30 per cent of capital costs and provide funds for operation and maintenance. This was in sharp contrast to several decades of government-led planning to provide drinking water to rural areas free of cost (Dey and Sengupta, 1999).

Twenty-six villages in two districts covered under the project had to contend with an additional challenge – arsenic in the groundwater supply. RKMLSP worked through an informal network of community organisations to generate awareness about the arsenic problem. A water and sanitation committee was established in each village to discuss various technological options to ensure an arsenic-safe supply of water for drinking and

cooking. Domestic household filters and arsenic removal units attached to hand pump tubewells were new technologies put before the communities.

To diffuse this technology, RKMLSP organised a series of 'awareness camps' to bring villagers together to talk about arsenic. Scientists explained why the water was contaminated, while doctors gave graphic accounts of the effect on health. Water from various tubewells was tested. Contaminated wells were marked with a red 'x' as a visual prompt to villagers not to drink that water.

Discussions between the villagers and the NGO were intensive and time-consuming. At the outset of the project, RKMLSP projected that it would take approximately two to three months to create institutions in the village to take up the new arsenic technologies. In reality, this process often stretched into six months (DMC, 1999).

Some communities were reluctant to try the new technologies. In the Baruipur area, people responded negatively to the idea of attaching arsenic removal units to public tubewells. They complained that the capital outlay was too high and were suspicious that not everyone who used the tubewell would contribute to operation and maintenance costs.

RKMLSP overcame the resistance by bringing community leaders from Baruipur to neighbouring villages so that 'early adopters' could demonstrate the new technology and explain the arrangements for sharing costs. The treatment unit was also redesigned for Baruipur to make it smaller and cheaper. An independent evaluation concluded that modelling the new behaviour, and improving the cost, played a critical role in the decision by villagers in Baruipur to install 12 arsenic removal units (DMC, 1999).

Social learning models

Health Belief Model

According the health belief model, two main factors are likely to influence whether an individual will adopt a particular behaviour to protect his or her health. One, they have to feel personally susceptible to the disease. There has to be a perception of ***risk***. Second, the person must believe that the recommended action will be ***effective*** in reducing the perceived risk and that the benefits outweigh the costs of not acting (Rhodes and Fishbein, 1997). The health belief model identifies certain barriers that influence health behaviours. Barriers may be thought of as psychological (e.g., embarrassment), structural (e.g., lack of transportation, lack of access), or financial (Witte, 1998).

Theory of Reasoned Action

This theory says ***intention*** is the primary determinant of behaviour. A person's intention to perform a particular behaviour is a function of two determinants. First, there is the person's attitude towards performing the behaviour. Attitudes are shaped by beliefs about the consequences of performing the behaviour, such as the cost and benefits of taking preventive action. Secondly, intention is influenced by social, or normative, pressure. This theory suggests that communication is usually more successful when it focuses on specific behaviours ("don't drink water from this red marked tubewell") rather than broader categories of behaviour ("always drink safe water").

Social learning theory

Social learning theory proposes that two key factors influence behaviour. A person must believe the benefits outweigh the costs. More importantly, the person must have a sense of personal agency, or ***self-efficacy*** (Bandura 1995). A person with a developed sense of self-efficacy holds strong convictions that he or she has the skill and abilities to act consistently to protect his or her health, despite various obstacles.

Self-efficacy builds when people set goals, monitor their behaviour and enlist incentives and social support. Bandura's research shows that if people are not convinced of their personal efficacy, they rapidly abandon the skills they have been taught when they fail to get quick results.

Another central concept is that individuals can acquire cognitive skills and new patterns of behaviour ***vicariously*** by observing others. Bandura emphasises the power of mass media, particularly television, in creating a 'symbolic environment' in which new ideas and social practices are rapidly diffused within and between societies.

Box 7.2 Putting theory to work in Kenya – the case against fear tactics

An example from Kenya helps to demonstrate the limitations of using fear to promote behavioural change. Witte *et al.* (1998) applied behavioural theory to evaluate the effectiveness of 16 different HIV/AIDS communication campaigns at various sites along the Trans-Africa Highway in Kenya. The investigators looked at the different strategies for ***threat*** and ***efficacy***.

Threat was used to make the target group feel susceptible to risk. If the threat was perceived as serious, investigators wanted to know whether people would take action to protect their health. Their response was evaluated in terms of self-efficacy ("Am I able to protect myself from HIV infection?") and response-efficacy ("Does wearing a condom protect me from HIV?").

The evaluation found that none of the materials promoted threat and efficacy at the same time. The study concluded that a communication strategy could fail when people perceive the threat to be trivial and/or not pertinent to them. In the Kenyan case, some materials simply drew no reaction from the audience.

Where it generated fear, the study found that people were not left with a sense that they could action to protect their health. Respondents felt unable to perform a recommended action ("I cannot bring up the issue of condoms with my partner") or believed the response would be ineffective ("Condoms don't work; they have holes in them"). They then gave up trying to control the danger. Instead, some controlled their fear by denying the risk of infection, defensively avoid the issue, or perceive manipulation ("AIDS is a hoax; it's really a government plot") (Witte *et al.*, 1998). Theory in this case helped to demonstrate that a fear-based communication strategy fails when it triggers fear control processes.

Process model

The 'process model' is a straightforward, linear path of health education. It was first adopted in the 1980s in rural Honduras to promote oral rehydration therapy, using an extensive print, broadcast and interpersonal communication campaign. Process models focus on education, how people learn and social marketing. The main difference from learning models is that process models focus on specific communication inputs and learning, rather than a person's motivational state and perceived self-efficacy. Process

models also stress assessments at several points in a campaign to make sure there is a fit between the message and the information people need to change their behaviour (Bowes, 1997).

PRECEDE model

PRECEDE (Predisposing, Reinforcing, Enabling Causes in Educational Diagnosis) shifts the focus from messages, media and audience to the social, political, organisational and regulatory issues that affect public health. It uses a complex scheme moving backwards through six phases to get at the root causes of a health problem. Social and epidemiological outcomes are traced back to behaviour, which in turn are traced back to social, educational and administrative roots. Health education is divided into three components: targeting individuals, health workers and the community (Bowes, 1997).

Risk communication

Risk communication is a term frequently used in 'developed' countries to describe the process of communicating with people about risk factors associated with industrial technologies, natural hazards and human activities. It adheres to many of the same principles of behavioural change described in this chapter.

However, strategic approaches frequently differ given the wide disparity between 'developed' and 'developing' countries in terms of people's access to media, levels of education and media literacy, socio-economic profiles, institutional norms and structural issues. Risk communication relies heavily on the mass media, public relations and interactive communication technologies, such as the Internet, to create an informed dialogue with the public to identify and avoid risk (ATSDR, 1999).

Risk communication is part of the wider discipline of *risk management*, which strives for some *quantitative* expression of hazard and the exposure of different populations. This is then summed up in a calculated probability for various outcomes and relative risk trade-offs. Yet, the public often uses different, and legitimate, criteria to evaluate the same facts. The response is usually *qualitative*: "Is this safe to do, yes or no?" "Will my children be harmed if they are exposed to this?" "What a horrible way to die." (Leiss, 1999).

Under certain circumstances, for example, some expert assessors may regard low-level exposure to a known carcinogen as an insignificant threat to public health. The public's perception of the meaning of this information could be quite different. Risk communication looks to bridge not only the communication gap, but the gap in credibility as well. This credibility often depends on how risk communicators 'frame' information.

Slovic (1997) argues that risk communication only gains legitimacy and acceptance if the public is actively involved in the assessment and risk decision-making.

7.2.2 Principles to guide communication

A number of key principles derived from the global experience of public health communication can guide efforts to address the arsenic problem in various countries. These principles (Jackson, 1997) are useful in amalgamating theory with practice.

- ***Developing new behaviours is a process, not an event. Learning often requires repeated attempts at the desired behaviour.*** This principle underscores the importance of setting specific objectives for behavioural development. Change will be

gradual. Individuals will move at different paces and should set their own goals. Communication strategies need to keep in step with people's intention to act and provide the proper inputs to create an enabling environment for change. Empirical evidence shows that simply raising awareness will not lead to long-term behavioural change. Sustaining behaviour change – moving from awareness to action to long-term behavioural maintenance – requires ongoing and systematic approaches to communication.

- ***Beliefs and values influence how people behave.*** Beliefs involve how people think about consequences or what is likely to happen. Values are qualitative judgements about outcomes or events. Strategies to target beliefs need to address risk, self-efficacy and perceived social norms. Perceptions of benefits, costs and social relevance all target values. There are likely to be a multitude of beliefs and values under the belief and value of primary interest. For example, the belief that "I am not likely to get sick from drinking arsenic affected water" could have several underlying beliefs: "Only old people get sick" and "It's in God's hands whether I get sick" (Asiatic, 1999a).
- ***A behaviour is likely to be repeated if the benefit is rewarding; it is less likely if the experience is punishing or unpleasant***. Communicators must not assume that people are content to change their behaviour. Collecting water from a new, but distant source because it is arsenic-free will result in more drudgery for women in Bangladesh (Asiatic, 1999a). Communicating the perceived benefits needs to precede or accompany mitigation activities. Behaviour can also be reinforced through the experience of personal control, success and social recognition.
- ***Individuals are not passive responders, but have an active role in the behaviour change process.*** Fundamentally, it is people, not health educators, who control the process of change. They decide to take part in communication activities. People assign meaning to messages. They evaluate their experience with new behaviour. The implication of this principle is that effective strategies for behavioural development are deeply rooted in research of existing knowledge, attitude and practices (UNICEF, 1999). Community participation is key to this communication process. It relies on dialogue, consultation with and empowerment of people in a community to identify and decide how best to overcome the problems. In 1993, CARE Bangladesh launched a nine-month pilot project to improve hygiene behaviour in 9,100 households. The project relied on intensive interpersonal communication using innovative games, stories and songs developed with villagers, based on their beliefs and practices. The number of interventions was kept small, involving all family members. At the end of the project, diarrhoea prevalence had dropped by two thirds and dramatic improvements were reported in proper hand washing and safe disposal of children's faeces (Bateman, 1995).
- ***Social relations and social norms have a substantial and persistent influence on how people behave.*** These norms extend from individuals to social groups (e.g., family, work group, club). The stronger the affiliation with a group, the more responsive a person is to the group's norms. Communication strategies targeting social groups may achieve substantial and sustainable behavioural change. The national arsenic communication strategy in Bangladesh leverages the influence of

religious leaders to promote a norm of sharing arsenic-safe tubewell water (Asiatic, 1999b).

- ***Behaviour is not independent of the context in which it occurs. People influence, and are influenced, by their physical and social environments.*** This principle emphasises that health behaviour is influenced by a vast array of biological, environmental, social, physical, spiritual, economic and regulatory factors. Existing theories and models commonly ignore this context and focus on the individual. Evaluations of HIV/AIDS campaigns in Africa, Asia and Latin America suggest communication strategies to change individual behaviour without addressing these wider issues are inadequate to promote behavioural development (Airhihenbuwa *et al.,* 1998). Social mobilisation and advocacy are key interventions to widen the acceptance for new norms and values, creating an environment for individuals to make healthy choices.

7.3 Strategies in action

Programme communication, advocacy and social mobilisation are key strategies in communication for development. This section reviews some of the global experiences of communicators. Where possible, reference is made to field experiences about arsenic communication. The global experience on other key public health issues, such as reproductive health, HIV/AIDS and sanitation, are presented.

7.3.1 Programme communication – strategies for arsenic & HIV/AIDS

Arsenic

In mid-1998, the Government of Bangladesh and a consortium of Dutch consulting firms launched a limited public information campaign in six district towns to tell people about arsenic in the drinking water supply. Most people in the town were using hand pump tubewells, drawing water from 'shallow' aquifers contaminated by high levels of arsenic.

While there was a wide variation in the extent of contamination, the project estimated that some 150,000 people were at risk of chronic arsenic poisoning from drinking from tubewells (Hanchett *et al.,* 1999). Tubewells were marked red (unsafe) and green (safe) based on the results of a field test. Local women were recruited and trained to communicate with users on the importance of drinking water safe from arsenic.

By 1999, the project launched a more ambitious and intensive series of 'arsenic weeks' to mobilise key influential people and to broaden the reach of communication. Some 30 primary school teachers, community leaders and influential residents from each town were brought together to learn about the arsenic problem, ask questions and consider options. Groups of approximately 50 caretakers responsible for tubewells installed as part of the project in each town were mobilised. They were trained during two half-day workshops on how to communicate with water users about arsenic. Up to 500 people in each town turned out for open meetings. Primary school children were given colourful stickers with simple messages about the need to drink water only from a green-marked tubewell (van Agthoven *et al.,* 1999).

A survey showed that the strategy did raise awareness. Almost two-thirds of the population reported having had some exposure to the campaign. 80 per cent of these people could explain the meaning of the colour coding on tubewells. Those who had not been reached by the communication activities were more likely to drink unsafe water.

Raising awareness, however, was not sufficient to bring about the hoped-for changes in behaviour. Six months after the campaign ended, more than 50 per cent of those who knew the meaning of red-marked tubewells continued to drink that water despite the health risk (Hanchett *et al.*, 1999). The evaluation highlighted the difficulty in changing firmly entrenched behaviour. Not only were the arsenic-related messages unfamiliar, they also contradicted more than a decade of government and non-government communication efforts promoting tubewell water as safe to drink.

The evaluation revealed other problems. Paint faded over time, leaving people confused about which tubewells were safe and which were not. Some people confused the colours, especially children and poorly educated women. The situation was aggravated by long queues at 'safe' tubewells, leading to flare-ups and arguments over shared facilities.

Some of these issues are programmatic in nature. A better paint would address the fading problem, while more water points would address the lack of supply. However, the Bangladesh experience also demonstrates the importance of a more systematic and comprehensive approach to communication. The interventions in the towns were limited, with few communication materials, inadequate levels of interpersonal communication and no reinforcing mass media. Importantly, the communication strategy was not designed to address the wider socio-economic and cultural context that plays a critical role in behaviour change.

HIV/AIDS

The experience of AIDSCAP, the most ambitious international HIV/AIDS project to date, provides insight into the need for strategic and comprehensive approaches to communication. AIDSCAP was implemented by Family Health International and its partners in 45 countries between 1991 and 1997. Funding was provided by USAID.

The project supported the production and dissemination of some 5.8 million pieces of communication material, including printed items, advertisements, copies of videos, dramas, television and radio programmes. These materials reached almost 19 million people.

Evaluations of AIDSCAP projects in 19 countries suggest that behaviour change communication can have a significant impact on what people think and do. In Cameroon, the number of male students who reported having more than one sex partner dropped from 53 to 36 per cent in three years. 62 per cent of sex workers in the AIDSCAP intervention area in Nepal reported using condoms with their most recent client in 1996 – up from 35 per cent in 1994. Condom use among sex workers outside the project area actually decreased. In Jamaica, the majority of the population now reports some kind of behaviour change to avoid HIV (FHI, 1999).

Certain time-tested elements of health communication remain the foundation of behaviour change communication for HIV/AIDS prevention – and are equally applicable to communicating about arsenic. These include identifying and segmenting target audiences, using multiple communication channels and involving target audiences in developing materials and messages.

Through technical assistance, training and distribution of a series of handbooks, the project promoted a shift from the top-down IEC model to a more systematic approach that gives people the knowledge, skills, encouragement and support they need for HIV

risk reduction. Communication specialists working in HIV/AIDS have begun to broaden their approach to address the social, political and environmental factors that influence risk behaviour. Experience with HIV/AIDS has made it clear that an individual can rarely sustain a change in behaviour without a supportive environment. The project offers some important lessons to communicators about arsenic:

- In addition to encouraging individual behaviour change, programme communication can create environmental conditions to make it easier for people to reduce their risk. A carefully designed information campaign targeted businesses, religious leaders and the media to secure their backing for a more supportive environment for Jamaicans to discuss safe sex.
- Contracting out communication services to local social marketing agencies and communication consultants can be more cost effective than training project staff in specialised communication skills.
- AIDSCAP used a 'stages of change' model to plan communication activities. In this construct, people go from being aware of a risk, to getting motivated, trying a new behaviour and then adopting it full-time (or not). A study in eight countries showed that planners using the model could design specific interventions most suited to where people were on the continuum.
- Peer counsellors and grassroots communicators need to upgrade their skills continually in order to be effective. A study in 21 countries showed that as people moved past the awareness stage, counsellors did not have the skills to promote behaviour change and maintenance. An effective communication strategy on arsenic needs to anticipate this evolution in training needs.

7.3.2 Social mobilisation – Latin America and South Asia

Social mobilisation attempts to bring together a wide coalition around a particular goal. Citizens, communities, various groups and institutions are all encouraged to rally behind a specific cause, such as universal sanitation coverage, children's immunisation or food-for-all.

A social mobilisation campaign to encourage breastfeeding in Brazil in the mid-1980s targeted mothers as well as health services, the infant food industry, employers, decision-makers and local communities. An evaluation revealed a dramatic increase in the duration of breastfeeding in Greater Sao Paulo and a reduction in infant mortality due to diarrhoea and other infections (McKee, 1992).

The best-planned communication strategy can have little impact if there are problems with the project itself. An example from Bangladesh demonstrates the point. Between 1972 – 1997, various donors contributed some US$ 175 million for a rural water supply and sanitation programme in rural Bangladesh. In addition to sinking tubewells and building latrines, the project relied on social mobilisation to promote behavioural change. The aim was to generate demand for latrines, change people's hygiene practices and to promote the safe use of water. Communication materials were developed and public sector and NGO workers were trained to mobilise villagers at the grassroots level. The strategy included community planning and building local political support (Danida, 1999).

The results were limited. An evaluation shows that one fourth of latrines in use were not sanitary, adding to environmental pollution. People's practices and understanding of

personal hygiene remained poor. Hand washing after defecation was not followed assiduously. Bathing in polluted pond water continued. People persisted in the belief that children's faeces was not harmful and did not dispose of the waste safely

A number of factors undermined the efforts at social mobilisation. The impact of training tubewell mechanics to carry out social mobilisation was limited because of their low education levels. At the same time, more qualified government workers, NGO staff, local leaders, schoolteachers and *imams* trained for mobilisation lacked the necessary incentives and professional dedication to disseminate health and hygiene messages. Supply was an issue. While the numbers of private latrine producers did increase, sales centres remained far away from most villages, driving costs up and buyer interest down.

Strategies to address institutional issues could have been strengthened. Mobilisers often lacked the skills or means to motivate local politicians mostly concerned with rent seeking and getting votes. The government department responsible for the project also failed to recruit staff quickly or to set up management structures to monitor and coordinate the work (Danida, 1999).

Overall, evaluators found that the project needed more effective strategies to target the poorest people in a community and to address gender inequities. Decisions on where to situate a tubewell fell to the most rich and influential. Public tubewells often ended up away from the homes of poor people and closer to those already well served. While communicators were delivering the correct message, there was not a supportive environment for people to make choices that could protect their health.

7.3.3 Social marketing – getting the right media mix in Bolivia

Fertility and infant mortality rates in Bolivia are among the highest in Latin America. In 1990, the government launched a national reproductive health programme to promote healthy reproductive practices, improve services and increase acceptance for modern family planning methods. Health communication was a key programme strategy.

In 1994, the government launched an intensive mass media campaign directed at four major cities. More than 40 radio and 11 television commercials were aired over seven months and rebroadcast a year and a half later. Posters, videos for health clinics and a comprehensive set of print materials for health workers to discuss with clients were prepared. The major campaign themes were "Reproductive health is in your hands", "Get information and services where you see this (programme) logo" and "You decide when and how many children to have" (Valente et al., 1996). The strategy promoted birth spacing, family planning, pre and postnatal care, breastfeeding and prevention of unsafe abortions.

An impact survey showed that overall exposure to the campaign, and recall of messages, was high. Practically all Bolivians in urban areas reported being aware of some aspect of the campaign. There were also significant changes in behaviour. Family planning use reported by those highly exposed to the campaign increased by 61 per cent. Misunderstanding about the details of specific family planning methods did persist and the evaluation showed more research was needed on how partners communicate with each other on family planning.

Many scholars argue that the mass media are effective at disseminating information, but that interpersonal communication is necessary for behaviour change. Many communication projects use mass media to advertise new ideas and products, and rely on

outreach and peer education programmes for adoption (Berry, 1993; McKee, 1992; Seidel, 1992). Similar principles were applied in deciding what channels to use in the Bolivian campaign. Mass media would raise awareness and knowledge, change attitudes and encourage people to act. Interpersonal communication and detailed family planning use would push people to the next step of changing their behaviour. The efficacy of mass media and interpersonal communication also depends on the quality of the content, treatment and dissemination.

An evaluation of the campaign (Valente and Saba, 1998) looked closely at the relative importance of mass media and interpersonal relations. The results support prior research that shows the mass media influence the information-related steps to behaviour change. At the same time, people's exposure to personal networks (including friends, community leaders and health professionals) was associated with all steps to behaviour change.

7.3.4 Advocacy – reproductive rights

Advocacy, in its broadest sense, is an effective way to use information to bring issues and problems into the public domain for discussion and action. The first task of advocacy often is to raise awareness in general, yet its ultimate objective is to spark action – either from decision-makers or their constituents (UNICEF, 1999a).

Advocacy requires gathering, organising and formulating information into argument and then communicating that through various interpersonal and media channels to political and social leaders. The aim is to gain commitment and active support for a development objective and prepare society for its acceptance over the long-term.

Many United Nations and other development agencies frame development and communication objectives within a human rights context. They use advocacy tools to raise awareness generally, bring about policy change and to mobilise resources. International Plan Parenthood (IPPF)'s global field experiences with advocacy demonstrate some of these strategies in action.

IPPF's Charter on Reproductive Rights is based on the legal framework of CRC and CEDAW. It reiterates the extent to which sexual and reproductive rights are already recognised as human rights. It looks to ensure more choice in health services as a key strategy in fulfilling rights and to increase the capacity of NGOs to monitor and ensure the fulfilment of these rights (UNICEF, 1999b).

Hungary, Lithuania, Bulgaria, Russia, Latvia and Slovakia have used the Charter as a background reference for input into draft legislation on reproductive health and sex education. China, Korea, Thailand, Vanuatu and Tonga have translated the Charter into their own language. Following advocacy from IPPF, the medical associations of Kenya and Tanzania have requested copies of the Charter for their members as part of a campaign on medical ethics. Family planning advocates in Colombia, Palestine and Senegal now offer legal services related to the Charter.

Rights-based advocacy is a time-consuming process, often complicated by the gap between the international discourse and the context of national and local realities. The legal terminology used in international rights conventions and how local people talk about their own lives are often at odds. More fundamentally, Western constructions of individual human rights can conflict with notions of community and collective interests in developing countries (Blanchet, 1995).

7.3.5 Advances in communication technologies – Australia and the U.S.

Advances in technology are changing the shape and form of how communication, particularly in developing countries. The idea of the community as a physical place is shifting in favour of "virtual" communities (Bowes, 1997). The development and spread of interactive, computer-based media have removed some of the geographical constraints of traditional broadcast and print media. The Internet and direct broadcast satellites are leapfrogging structural and social barriers to communication.

Government agencies are capitalising on the growing access to the newer technologies to communicate about arsenic in drinking water supplies. Examples from the United States and Australia provide just two of a multitude of web sites developing in response to the public's demand for information about arsenic.

Health officials in Australia use the Internet as one component in a larger strategy to communicate publicly about the risk to health from arsenic in mine tailings (http://www.hna.ffh.vic.gov.au). Government web sites provide information for 'question and answer' sessions, newsletters, press releases and policy announcements. In 1998, this was supplemented by a series of community forums in five centres to bring together government experts and community people to discuss the problem. No evaluation of the impact this approach is available.

Recent studies from Minnesota indicate the cancer risk from arsenic in drinking water is similar to the cancer risk from indoor radon and tobacco smoke. Updates on the impact on health are regularly posted on the state health department's web site (http://www.health.state.mn.us), along with consumer confidence reports, results of public hearings and health profiles.

These technologies are yet to make the same inroads in developing countries. Lack of infrastructure, costs, media literacy, perceived utility, as well as class, age and gender biases, hinder the rapid diffusion of new ways of communicating. Yet even this is changing because of the interlocking forces of media liberalisation and deregulation, as well as a changing global political and economic context.

Box 7.3 Communicating with children

A vast array of literature points to the importance of early childhood care and development. Empirical evidence shows that child development begins well before birth and is influenced by a myriad of cognitive, physical, psycho-social, environmental and cultural forces from conception to adolescence (Berk, 1994).

Certain principles adopted from Foster (1998) and Kolucki (1998) provide a useful guide to communicators working with children on public health issues. All children have a right to participate in communication strategies that impact on their lives. These can include child-to-child strategies and media especially for children.

The following principles and guidelines derive from research and experience, the *Convention on the Rights of the Child* (CRC) and what children themselves have taught communicators.

- Physical health, intellectual achievement, social skills and emotional well-being all work together in child development. These factors are ***interdependent***. The most healthful child-rearing style balances high expectations with high responsiveness to the child's needs. These children come to know their parents believe in them and will

guide them away from harm. Children also know that their parents will respond sensitively to their problems.

- Communication for, by and about children needs to ***model positive behaviour***. This is less confusing to a child than portraying a negative behaviour and telling not to do it. Child-to-child communication can portray younger children learning from older children and vice versa.
- It is important to discuss and challenge ***gender stereotyping***. Communication also needs to challenge stereotypes of class, ethnicity, disability and religion.
- Children need praise, encouragement and respect for their own unique temperaments, challenges and talents. Children with disabilities, in particular, need to be presented in the media as equal partners in societies, as opposed to hapless victims. Children's communication needs to promote ***self-esteem***.
- An enriched, stimulating home environment, school or care centre significantly improves a child's intellectual, physical, social and emotional development, especially when provided from birth onwards. Children's media needs to be as ***interactive*** as possible, encouraging learning, questioning and experimentation. Self-efficacy develops by letting children tell their own stories, through their own voices and in the development of their own media.
- Children's ***play*** provides the brain with the best foundation for all future learning and relationships. Children's communication needs to promote learning through play, instead of rigid or rote learning.

Child development is relevant to communicators working on arsenic in drinking water supplies for two reasons. It is a principle of development communication that children have a right to participate in communication activities affecting their health. Children are not invisible or passive recipients of information.

A focus on children in arsenic communication strategies is a long-term investment in healthy living and processes of social change. Children are often more enthusiastic consumers of information than adults, willing to try new practices and engage in activities that form good health habits (UNICEF, 1996).

7.4 Communicating about arsenic: a case study from Bangladesh

The Government of Bangladesh (GOB), with assistance from UNICEF, launched a comprehensive multi-media, multi-level communication strategy on arsenic in December 1999. The nature, origin and scale of the arsenic problem in Bangladesh are arguably unique in a global context. However, an approach to communicating about arsenic in that country can offer some lessons to other communicators dealing with arsenic in drinking water supplies.

7.4.1 Method of building a strategy

For many years, UNICEF used the Triple-A steps of assessment, analysis and action to plan and implement programmes. This familiar model was recently expanded to **ACADA - a**ssessment, **c**ommunication **a**nalysis, programme **d**esign and **a**ction (UNICEF, 1999a) and was used as a methodology to guide the design and implementation of the arsenic communication strategy in Bangladesh.

Assessment

Assessment refers to the research stage required in any communication strategy. In spite of the severity of the problem in Bangladesh, awareness about the arsenic problem was low. A 1998 baseline survey indicated that only 7 per cent of 1,839 women interviewed had heard of arsenic – 5 per cent in rural areas and 20 per cent in urban areas (OMQ, 1998). Only four per cent of respondents in another survey knew that it was important to drink from sources safe from arsenic in order not to get sick (Mitra and Associates, 1998).

A report by a social marketing agency based on group discussions and interviews among about 700 respondents (representing a wide variety of target groups) provided further insights into the challenges of communication.

- While there are wide variations in what people knew about arsenic contamination and its consequences on health, awareness levels were very low.
- The level of awareness was relatively higher in those areas where some arsenic mitigation activities had been conducted.
- The predisposition to behaviour change was relatively higher in those areas where there were known cases of arsenicosis.
- The differentiation between pathogen free and arsenic free water was not clearly understood.
- There was a general resistance to change water consumption and water management behaviour (Asiatic, 1999b).

The assessment stage also included an important step that was unique in the Bangladesh context. Up until 1998, relatively little communication work had been done on arsenic. As a result, there was little agreement on what would be technically correct to communicate. Misinformation was a serious concern. A small working group of government scientists and technical advisors filled this void by reviewing the available literature and coming to a consensus on a set of 'technical parameters' to guide the communication strategy "see Annex 7.1". These parameters ensured that the information communicated was technically accurate, leaving communicators free to get on with the work of deciding how best to communicate.

Communication analysis

The research findings had significant implications for the communication strategy. A series of exercises for a *communication analysis* identified key objectives for desirable behaviour, audiences to target and involve, appropriate strategies and the most effective communication channels.

A 'changeability grid' was used to identify behaviours along four parameters. Behaviours that were important from a health and social perspective – and easily changed - were considered the first priority. Important behaviours but less easily changed were the second priority. Less important and easily changed, and less important and less easily changed, were priorities three and four respectively. Strategic communication objectives followed from this exercise (Asiatic, 1999b).

In areas most affected, the priority was to convince people most at risk to collect their water for drinking and cooking from a safe source. The key shift in behaviour was for villagers to share water from tested and safe tubewells. Sharing water was portrayed in communication material as a short-term, emergency response to the problem. This was complemented by communication that promoted a longer-term response – informing

people about the need to convert to new, safe sources of water, such as pond water filtered through roughing media and sand.

Resistance was evident. Two decades of successfully communicating that tubewell water was safe needed to be unravelled. The research exercise revealed gaps in credibility that needed to be filled: 'First you tell us to give up our pond water because it was polluted. Now you are telling us the tubewell water is not fit to drink. Why should we believe what you say next?'.

In affected areas, villagers – particularly women – needed to be more involved in choosing alternate water supply sources. Men and boys had to share in the extra workload. Each of these communication objectives was addressed within the socio-economic dynamic of rural Bangladesh where women's mobility is often restricted and the gender division of labour excuses men from water collection. Unresponsive and hierarchical government systems are yet to be decentralised in ways that are accountable to villagers. Literacy rates and media access are lowest for those most at risk.

Communication planners in Bangladesh adapted diffusion theory as a conceptual framework for the strategy. Five stages of change were identified. The preliminary stages were to be addressed during the first year and a half of the communication campaign.

In this first phase, communication would provide input to address the general lack of knowledge. Those who were aware, but complacent, would be targeted with communication designed to penetrate indifference by highlighting the risk to health. The strategy would also address the needs of villagers concerned about the problem, but unable to act because of socio-cultural barriers. Communication targeted local politicians and community leaders to motivate them to provide solutions for people unable to access a safe source of water.

A mid-course review will reveal what communication activities are needed to address the final two stages of behavioural change. Diffusion theory recognises that late acceptors or resistors need special attention to bring about behavioural change. The positive experience of people who have accepted new drinking habits and water management will be modelled to those still drinking arsenic contaminated water. More intensive interpersonal communication will also address specific gaps in information that will be identified through ongoing research activities. Maintaining behavioural change will rely on a constant flow of information that reinforces new practice.

Programme design

A social marketing agency was selected through a competitive bidding process to produce the strategy. Standard practices for pre-selecting, contracting and working with an agency were followed (Gill and Galway, 1999; Greenberg, R. *et al.*, 1996). Rigorous evaluation tools were used to pre-test communication materials for comprehension, appeal, ability to create intent to act and perceptions of efficacy. Exit interviews with some 400 participants in focus groups in six districts revealed no gross negatives in the materials. Simple recall tests showed that people understood and remembered information (RCS, 1999).

The communication *programme design* for the first phase of the strategy called for an extensive multi-media campaign to target a national audience to raise awareness generally. Radio, television and print media presented information in a neutral, non-

sensational manner to avoid generating fear or over-stimulating demand for services not yet available across the country.

The mass media campaign addressed the credibility gap by using spokespersons deemed reliable and believable to a rural audience. Public services announcements were built around teachers, religious leaders and health workers, using a factual approach to reassure viewers and listeners that the situation was serious, but that people could take certain steps to protect their health. Television commercials also modelled gender progressive behaviour, with men taking on a greater role in the household to collect and manage water.

A different approach was adopted in areas where there was a programme in place to test all wells, ensure an alternate safe water source and provide appropriate health care. Communication was initially limited to four rural areas in the pilot phase. Interpersonal communication materials were more graphic and pictorial in presenting the impact on health, while providing information about what people could do to protect their health. The same credible spokespersons used in the mass media were carried through to communication materials used in face-to-face meetings. For example, *imams* in this predominantly Muslim country were enrolled to institute a social norm to share safe water as an auspicious act during their call for prayers and sermons.

Access to women in the home was, and remains, a significant barrier. Grassroots level health workers offer the only direct entry for communicating with women in most homes in rural Bangladesh. At the same time, health workers are burdened with carrying communication messages for a host of other health and social issues, often without the capacity or support needed to move beyond simply raising awareness. A simple, low-literacy flip chart on arsenic was developed as a communication tool. Similar materials were also developed for other grassroots level workers coming into the village, including tubewell testers, agriculture extension workers, teachers and NGO volunteers.

Research showed that children knew little about arsenic and few had heard of the word. Fewer still could connect arsenic with their tubewell water or make the association with arsenic-related illnesses. Supplementary reading materials were designed for school children aged 6-11 to introduce the arsenic problem in a staged manner, matching sophistication of the materials with different stages of a child's cognitive and psycho-social development.

The materials designed for use with children in the earliest classes created simple word associations between arsenic and tubewell water. The materials also encouraged children to develop a habit to drink water only from a tubewell marked with green paint, signifying it was arsenic safe. A picture book for class three children promoted a greater understanding of the problem and what drinking the water would do to health.

A classroom planner developed for class nine students provided key messages on what their village could do to ensure a safe water supply. It was designed to facilitate the transition of older students into active participants in the wider community (Asiatic, 1999b).

The Bangladesh experience underscored the importance of not underestimating the amount of time and resources needed to produce quality materials that are acceptable to a wide variety of stakeholders. The process of developing communication materials for children involved more than a year of intensive interaction with government education officials on content and presentation.

Action

It was recognised early that the arsenic problem in Bangladesh would require a multi-sectoral approach to communication. The Public Health Engineering Department (PHED) responsible for rural water supply relied on the assistance of various other government departments, including health, religious affairs, primary and secondary education, mass communication and state-controlled television and radio broadcasters. Partners in the NGO sector, including some of the largest organisations in Bangladesh, were also enrolled in an extensive consultation process.

These various stakeholders were brought together at various stages during 1998–99 to arrive at a consensus on the approach and implementation for a communication strategy. Individual ministries were responsible for sending appropriate instructions down through the chain of command to enrol grassroots workers in the communication activities. State-run broadcasters began to air the television and radio commercials based on a media plan prepared by the social marketing agency.

The agency was also responsible for monitoring media placements and field-level activities during the pilot phase at the sub-district level in 2000. Wide scale dissemination of communication materials, and training for grassroots workers, in various districts of the country will coincide with the expansion of tubewell testing and the provision of alternate sources beginning in 2001.

Other development players, including the World Bank, UNDP and international NGOs, are also engaged in significant arsenic mitigation activities. These groups participated in the process of consultation to develop the GOB-UNICEF communication strategy. Many have since decided to incorporate communication materials and methodologies from this strategy into their own programme activities.

7.4.2 Learning from Bangladesh

An initial evaluation of the communication campaign piloted in the four rural *upazillas* (administrative unit) indicates that the arsenic communication strategy in Bangladesh is raising awareness and helping to change behaviour.

In-depth interviews in mid-2000 with 224 respondents, including children, adults, grassroots government workers and service providers, provide some insight into the change in thinking about arsenic. 10 focus group discussions were also held in each of the four *upazillas*.

Awareness levels, which nationally were extremely low in 1998, increased dramatically. 95% of respondents could now explain that a red-painted tubewell indicated unsafe levels of arsenic, while a green-marked tubewell indicated that the water was safe for drinking and cooking. More than three-quarters of respondents understood that arsenic is a poison and were able to trace the origin to groundwater. 85% of respondents were also familiar with the symptoms of arsenic poisoning.

Behaviour in the four *upazillas* was also changing. Most respondents now attempted to collect and use water from a source they know is safe from arsenic. However, 16% said that they still drank from arsenic contaminated tubewells because a safe source was not available or was too far away (personal communication, Hussain, 2000).

The evaluation was helpful to communication planners in validating some of the approaches and activities under the campaign. It also highlighted weaknesses, providing

planners with opportunities to refine the strategy. Grassroots workers, for example, were enthusiastic about using the communication materials but needed more training and motivation in order to meet all the original targets for interacting with villagers on arsenic. Other groups identified as potential communicators, such as the elected heads of local government bodies, were less enthusiastic in assuming a role in the campaign. The evaluation also pointed to the importance of matching communication with the efficient availability of services – in this case, alternative sources of safe water. The principle remains that communication alone cannot lead to sustained behavioural change.

More experiences will be forthcoming as the Bangladesh campaign expands in 15 additional *upazillas*. Until those results are available, communicators can draw lessons from the methodology and approach used in Bangladesh. These can be broadly split into two areas: ***programme transformation*** and ***management excellence*** (Gill and Galway, 1997).

Programme transformation

Programme transformation looks at methods to ensure that communication is part of a process of social change and reform. This requires working actively with communities and families to identify problems and solutions that are appropriate to local realities. Social change also requires approaches to communication that promote equity along gender, class and ethnic lines. In the Bangladesh strategy, programme transformation is being addressed in several key ways.

Strategic planning using the ACADA planning process. A distinct campaign identity, focused activities and measurable outputs are hallmarks of the Bangladesh strategy. Research activities and the application of diffusion theory were important planning tools for selecting the most effective communication intervention.

Professional approaches to communication. The Bangladesh experience showed the importance of a multi-sectoral approach to communicating about arsenic. It also demonstrated the efficiency of working with professional communication agencies in putting together multi-media, multi-level campaigns. Professional standards in production were achieved, with the materials hitting high benchmarks for appeal, comprehension and efficacy. Over time, the materials will become more targeted to audiences where change is still slow.

Innovation in strategies, processes and products. The communication materials in Bangladesh were carefully designed to build on the experiences of past strategies. Products for grassroots workers were made less bulky and heavy, and more user-friendly. The strategy also aimed to enrol ‘new’ grassroots workers, such as agriculture extension workers and sales agents of pharmaceutical companies, to penetrate deeper into communities affected by arsenic.

Core values. The arsenic communication strategy promoted core values related to gender and equality. Women were portrayed in print and broadcast media as pro-active decision-makers. Materials also ensured that at least half the people portrayed were girls or women. Research activities and pre-testing ensured that half the respondents were women Ethnic minorities from Bangladesh’s hilly areas. The strategy made deliberate attempts to reach women in the home through as many channels as possible.

Management excellence

Management excellence refers to the processes followed in developing and implementing communication strategies. It identifies the institutional strengths and weaknesses often associated with communicating for development.

Outsourcing. The bulk of UNICEF's communication activities in Bangladesh are contracted out to full-service social marketing agencies, including the development of the GOB-UNICEF arsenic communication strategy. This approach ensured access to the best and most competitive private sector resources for research, market segmentation, production and monitoring and evaluation. The strategy also built the social marketing capacity of the advertising agency, moving away from the narrow pursuit of promoting a 'brand'.

Capacity building. UNICEF provided key support to GOB in developing the arsenic strategy. It also managed the bidding process for hiring a social marketing agency and production of materials. UNICEF's overall assistance expedited the process of putting together a strategy. It also supported ongoing efforts to sustain and build the capacity of the government's Public Health Engineering Department to manage complex 'software' interventions to change behaviour.

Creating institutional and organisational mechanisms within the public sector requires considerable time, funds and expertise on the part of the donor agency, as well as time and resources from the private sector agency. These are difficult to ensure over an extended period of time.

Training. The Bangladesh strategy called for the intensive involvement of grassroots government and NGO workers. This required extensive training and orientation that were often built into regular training schedules. The training modules focused on helping communicators understand their role in creating processes to raise awareness. These will be modified as the campaign progresses to raise the skills of communicators in facilitating processes of behavioural change.

Flexible teams. The strategy envisaged that flexible teams of professionals from different disciplines would come together to manage the process of building this communication strategy. This was largely successful as the strategy was developed with inputs from engineers, health professionals, educators, religious experts, anthropologists and communicators.

Getting people to change their behaviour and maintain that new practice or attitude remains the essential task of the communication strategy in Bangladesh. It offers lessons to communicators on best practices for developing and implementing a communication strategy for arsenic. The experience of that country will continue to be instructive to communicators as evaluations are completed on the impact of the approach.

7.5 A brief chapter summary

Experience demonstrates the need to ***plan strategically*** and link communication to available services. ***Theory*** can inform the development of a strategy and provide a framework for explaining why people act the way they do. This is complemented by ***research*** to ensure any strategy on arsenic communication is firmly rooted in local cultural and social norms. ***Involving the community*** moves communication away from a top-down approach to a more sustainable, effective flow of information between people.

The experience of communicating about arsenic and other pubic health issues clearly demonstrates the need for a broad, ***multi-sectoral approach*** to bring about sustained

behavioural development. Social marketing agencies can offer a full range of services in producing and managing a communication strategy. Up-front costs are often expensive and managing these services requires experienced and trained staff. However, this approach can be more ***efficient and cost-effective*** than retaining a large number of staff to provide specialised services in research and strategy development, media planning and media production.

Mass media and interpersonal communication are an effective combination in changing attitudes that lead to behavioural change. Yet, face-to-face communication is generally recognised as the most effective way to move people from being aware to trying and then adopting new behaviours.

Important lessons can be learned by taking a proposed strategy and ***piloting the approach*** in a limited area for a specific period of time. The pilot will confirm whether the strategy is effective in changing behaviour. It also reconfirms earlier pre-testing findings. Adjustments at this stage lead to a final strategy and an implementation plan for scaling up activities. ***Qualitative and quantitative assessments*** at the mid-term and end of a communication strategy indicate whether a strategy is successful and what adjustments are needed to ensure behavioural development.

Getting people to ***change*** their behaviour, and ***maintain*** that new practice or attitude, are essential objectives of communication for development. To reach these objectives, communicators need the skills and training to move beyond raising awareness to working with communities and families in ways that support long-term behavioural development.

These lessons derive from the numerous examples of communication strategies in action from across the globe. The range in approaches and methodologies is vast, as is the degree of success and failure in bringing about long-term behavioural change. While there is no single universal strategy for changing complex human behaviour, the experiences profiled in this chapter point to some best practices for communicators managing processes of communication for arsenic in drinking water supplies.

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Annex 7.1
Technical parameters for communication about arsenic

The following is a *guide to the social marketing agency developing a communication strategy for the UNICEF-assisted Safe Water Programme of the Department of Public Health Engineering. It sets technical parameters for what can be communicated, based on current understandings on arsenic. These parameters were developed after a review of available literature and with input from DPHE, MOH&FW, BAMSWP, UNICEF, WHO and World Bank. The technical parameters are not the actual messages to be promoted. The social marketing agency will use these parameters to develop messages which are appropriate to the relevant target audience (families, grassroots workers, doctors, government officials) and channels (mass media, outdoor media, interpersonal communications). The left-hand column indicates the technical parameter of what is being communicated. The right-hand column gives the appropriate reference (UNICEFb, 1999).*

Technical parameters	*References/citations*
BACKGROUND	
Arsenic is a substance that occurs naturally in the environment. It is part of the rocks and soil.	Arsenic is a ubiquitous element with metalloid properties. In nature, it is widely distributed in a number of minerals, mainly as the arsenides of copper, nickel and iron, or as arsenic sulfide or oxide. In water, arsenic is usually found in the form of arsenate (arsenic V) or arsenite (arsenic III). (**Special report on Arsenic. WHO 1981**)
You cannot see, taste or smell arsenic in water.	
HEALTH EFFECTS OF ARSENIC	
Arsenic is a poison. The body will try to expel arsenic through urine, faeces, hair and nails. If a person drinks arsenic-contaminated water over a long period of time, it can damage the body. In some cases, it can be fatal.	Arsenic in drinking water has been linked to elevated rates of bladder, kidney, skin and liver cancer, as well as other non-cancerous conditions such as nausea, abdominal pain and diarrhoea (**Guidelines for drinking-water quality, WHO, 1993**)
It can take years for symptoms to develop. You can drink arsenic contaminated water and not look or feel sick right away.	Signs of chronic arsenicalism, including dermal lesions, have been observed in populations ingesting arsenic-contaminated drinking water. Dermal lesions were the most commonly observed symptoms, occurring after minimum exposures of 5 years. (**WHO, 1993**)
If a person stops drinking arsenic contaminated water, some of the visible symptoms - such as thickening of the skin on the palms and soles (keratosis), dry, cracked skin on the feet and palms, and blackening and spotting of the skin (melanosis and leukamelanosis) - can be reversed in some cases. If patients continue to drink arsenic contaminated water, they can develop ulcers, gangrene and various	**(Vahter, Metabolism of Arsenic in Fowler, ed., Biological and Environmental Effects of Arsenic, 1983)**

kinds of cancer, which can be fatal. Some other non-cancer effects from drinking arsenic contaminated water include flushing of the face, conjunctivitis, generalised weakness, liver enlargement, chronic cough or respiratory difficulty, solid oedema of legs and hands, periperhal neuropathy. ***NB: Symptoms will not be indicated as sequential.***

Symptoms include skin lesions, dark spots on hands and palms, and hardening of skin into nodules. There is no medicine to cure arsenic poisoning. However, patients showing various clinical symptoms could be managed by symptomatic treatment in some cases. Localised skin cancer, if detected early, can be cured by surgical excisions. Having continued surveillance of those people showing skin symptoms may help detection of early cancer and treatment.

Arsenic in Drinking Water, NIPSOM, 1997. WHO, 1981. Marked increase..., Smith et al., American Journal of Epidemiology 1998. Manifestations:
clinical (skin lesions, melanosis, keratosis, oedema); complications (skin symptoms more pronounced, internal organs affected); malignancy (tumours, cancer, gangrene).

The skin symptoms can be painful if they become infected. Antibiotic lotions can be used for cracked skin to stop infection. Medicated ointments can ease the visible symptoms, such as dry, cracked skin. In the case of keratosis, the ointments keep the skin softer and may keep the nodules from getting larger. However, these problems will not go away if the person continues to drink arsenic contaminated water.

NIPSOM, 1997

As advised by Dr. Iftekhar Hussain, Deputy Programme Manager, Arsenic, Ministry of Health & Family Welfare, 21/2/99.

Susceptibility to arsenicosis depends on how much arsenic contaminated water you drink, the extent of the period you have been drinking that water and the concentration of arsenic in the water.

According to Chakraborti and Saha, the lowest arsenic concentration in water producing dermatosis was found to be 200 ppb. However, the total quantity of arsenic consumed per day and the duration of exposure are important factors. (**Biswas et al, 1998**)

A better diet may increase your resistance to some of the early effects of arsenic poisoning.

Both Vitamin C and methionine reduce the toxicity of arsenic. (**Biswas et al, 1998**, citing (**Harding, 1983**) and (**USEPA, 1988**)

Arsenic contaminated tubewell water can still be used for washing, clothes, utensils, bathing and other household purposes. Touching water that has arsenic is not hazardous.

For appreciable dermal absorption of arsenic, the skin has to be very hydrated - i.e., well over an hour of direct exposure to water. However, there is no firm data from human subject experimentation. **Dr. Buck Grisson, ATSDR & Charles Abernathy, EPA.**

Arsenicosis is not contagious. You will not get the symptoms of arsenicosis by touching or embracing a person who is suffering from arsenicosis.

(**WHO 1981**)

HYDROGEOLOGY, OCCURRENCE

Arsenic is a naturally occurring geological phenomenon. In Bangladesh, arsenic is being found in groundwater at different depths and in different concentrations underground.

BGS/MMI, 1998 found arsenic concentrations ranging from 2 to 167 parts per billion. Distinct spatial variations were found both on regional and local scales.

There are different theories as to the cause of the arsenic problem in Bangladesh. One theory claims that as groundwater is pumped out for irrigation and drinking water, mineral like pyrite containing more than normal amount of arsenic are exposed to oxygen and dissolve, releasing arsenic. In this view, fluctuations of the water table are the cause of arsenic contamination in groundwater. The other main theory is that arsenic was present in iron coatings in the aquifer. As aquifers became oxygen poor over time, the iron coatings dissolved, releasing arsenic naturally. This probably happened thousands of years ago. Many hydrogeologists believe that the latter theory is the cause in a large part of Bangladesh. Widespread arsenic contamination in Bangladesh is not caused by power poles, pesticides or fertiliser.

BGS/MMI, 1998

The accepted limit for arsenic in drinking water in Bangladesh is less than 50 parts per billion (ppb) (.05 mg/L). People should not drink or cook with water if a test shows 50 ppb or more.

Tubewells that test negative for arsenic will still need to be monitored periodically. Concentrations of arsenic in that tubewell water may increase naturally over time. A tubewell with unsafe levels of arsenic (50 ppb or above) does not need retesting. The arsenic in that water supply will not go away.

MMI, 1998 indicates that older wells were more likely to be contaminated than younger ones. This suggests that wells can be safe at one time and gradually become contaminated. Anecdotal evidence also supports this. However, this is thought to be a slow process, taking years.

** NB: the retesting protocol needs to be developed*

Once a tubewell is tested, the following protocol is to be followed: safe tubewells are those with less than 50 ppb and the spout will be painted green; contaminated tubewells are those with arsenic concentrations of 50 ppb or more. Its spout will be painted red.

** NB: the painting protocol needs to be informed to the private manufacturers of tubewells. Department of Environment. Environmental Conservation Act 1997.*

ALTERNATE SOURCES

Rainwater does not have unsafe levels of

Heijnen and Mansur, 1998 showed that rainwater stored in

arsenic. If rainwater is properly stored - in a dark, closed container with a lid to keep people or animals from touching the water - it will be safe to drink. The water can be stored this way for months. The tank, rooftop and gutter should be cleaned once a year using bleaching powder.

Water from ponds is often heavily contaminated with germs that can cause diarrhoeal diseases. Pond water is not safe for drinking without treatment.

Most pond water can be made safe to drink by filtering it through a pond sand filer. The sand filter needs regular cleaning. This will require a lot of community participation to keep the system clean and functioning. Water collectors need to pump water into the filter before filling their container so that the next user does not have to wait for the water to filter through the system.

Protect the area around the pond to reduce the risk of contamination. There are four simple steps. Latrines / disposal of faeces must be 10 meters away from the water source; do not allow animals (livestock) into the pond; do not bathe, wash utensils, soiled napkins or bedding in the pond; build an embankment at least one foot high around all sides of the pond to prevent surface water run-off draining into the pond. This advice needs to be promoted in conjunction with promotion of the pond sand filter.

ARSENIC REMOVAL AND SLUDGE DESTABILIZATION AT THE HOUSEHOLD LEVEL

Phitkiri (alum) is a short-term, emergency response for people who have no alternate source of safe water. It removes some arsenic, but not all. It may also not make the water safe if the original concentration is quite high. It should only be used until the family can get safe water from another source (e.g., a neighbour's safe tubewell, deep tubewells, RWH, PSF). Alum promotion needs to be closely linked with messages to keep the kolshi (container) well cleaned, using an abrasive, to prevent

properly designed jars can remain pathogen-free for months. They found no faecal coliform in stored rainwater after 6-18 months of use.

DPHE (unpublished) have made water quality tests on stored rainwater and found it pathogen free.

Bilqis et. al 1995

It is well known that pathogens will die off naturally with storage. More than 50% of the pathogens in water will die within two days and 90 percent will die by the end of one week. **Linsley et al. 1994.**

DPHE (unpublished) has made water quality tests on PSF water and found it pathogen free. * *NB: do not encourage people to boil their water due to the environmental damage this may cause.*

NB: the Safi filter, activated alumina are still unconfirmed as options; these could be included as options once verified as safe and effective.

NIPSOM 1997 reports that the alum method removes about 70% of arsenic. Steps for use are outlined in pages 37-38.

Khoe and Emett 1999 A field demonstration of arsenic removal process in Sonargaon showed that dosing tubewell water in a kolshi with alum (20-30 mg/l) removed 50-75% of arsenic.

Bilqis et al. 1995 demonstrated that water stored in kolshis experiences exponential growth in fecal coliform levels over a matter of hours (from 2 to 2510 CFU/100 ml in 10 hours). Scrapings from the bottom of kolshis yielded high FC counts

a build up of germs. Letting water sit overnight in a kolshi may remove a small amount of arsenic in some but not all cases. Again, this should only be promoted as a short-term, emergency response.

(up to 75,000 CFU/100 ml).

Passive sedimentation removes only a limited amount of arsenic – allowing precipitation of naturally occurring iron (5 mg/l) could only remove 25% of arsenic **Khoe and Emett 1999. UNICEF/DPHE 1999** Action Research Report finds 60% removal over 24 hours - but only at four inches from the surface.

MYTHS

Boiling does not remove arsenic. It can make the problem worse because the water boils down, leaving less water but the same amount of arsenic.

OTHER

In the case of diarrhoea, follow the three golden rules: increased fluids; continued feedings; if the diarrhoea persists after three days seek medical help.

CDD case management. Messages developed as part of government ORT communication campaign.