

Provisioning of Arsenic-free Water in Bangladesh: A Human Rights Challenge

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Prepared for
Session I: Engineering and Special Vulnerabilities, at Workshop on
Engineering, Social Justice, and Sustainable Community Development

Organized by
The National Academy of Engineering (NAE) Centre for Engineering, Ethics, and Society
(co-sponsored by the Association for Practical and Professional Ethics, and
the National Science Foundation)

Washington, D.C.: October 2-3, 2008

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Abstract

It has been officially recognized in Bangladesh that 50 percent of her 150 million people are at risk of arsenic poisoning from groundwater used for drinking. Out of the 30 million households in Bangladesh, 50% are at risk of arsenicosis and 40% households are poor in terms of food-intake poverty that is disproportionately affected by arsenicosis. The Government of Bangladesh, in its *Action Plan for Poverty Reduction*, has clearly stated that to ensure 100% access to pure drinking water across the regions, the Sono Filter invented by our local scientists should be used and that within the shortest possible timeframe. This paper intends to argue that while this is absolutely necessary from the perspective of basic human rights and Constitutional and *Justiciable* rights, its accomplishment poses real challenges on technical, social and financial grounds.

It is argued that, in addition to other solutions, the first and foremost challenge is to provide six million poor households arsenic-free water. The Sono Filter appears to be one of the best solutions. The current total demand for Sono Filter in Bangladesh would be about 15 million units. Provisioning of 6 million filters to the poor would require at least US\$ 300, or about 10 percent of the national annual development budget – a huge **financial constraint**. The **technical constraints** are manifold ranging from production of millions of Sono Filters, and their distribution and follow-up. These are essentially the issue of managing any technology in a scale unprecedented in Bangladesh. Among **social constraints**, the key issues include lack of awareness about arsenicosis among the social gatekeepers; widely held myths, misconceptions and stigma among people with arsenic poisoning; and inadequate commitment of the policy makers to expedite the mitigation process.

Finally, it is argued that in mitigating this crisis, Bangladesh will enhance its technical capacity in developing local solutions and develop mass awareness about safe drinking water. We are already observing such benefits from development, deployment, and use of Sono Filters. The opportunity to mobilize the whole country on this basic premise has unprecedented benefits in healthcare. It also fulfills the United Nation's Millennium Development Goals to "Ensure environmental sustainability", help to "Halve by 2015, the proportion of people without sustainable access to safe drinking water", and "Eradication of extreme poverty and hunger" towards meeting the human rights challenge.

Introduction

Amidst widespread poverty, Bangladesh has always been treated by the international community as a success story in terms of people's access to safe and clean drinking water. This "success", in the past, has been reflected in the statistics appearing in the World Development Report (of the World Bank) and Human Development Report (of the UNDP) which show that over 90 percent of the population have access to safe/clean drinking water in Bangladesh. However, since mid-1990s, the success situation has been reversed due to official recognition that a large part of Bangladesh population – mostly rural (76% of Bangladesh population live in rural areas) – is at risk of arsenicosis due to arsenic- contaminated drinking water. Now, it is officially recognized by the Government of Bangladesh that 50 percent of her around 150 million people are at risk of arsenic poisoning from ground water used for drinking. Therefore, the people's access to safe and clean arsenic-free drinking water has declined from 94 percent in late 1990s to 65 percent in 2008. In view of this unprecedented disaster of arsenic poisoning in drinking water, the Government of Bangladesh, in its *Action Plan for Poverty Reduction*, has clearly stated that "to ensure 100% access to pure drinking water across the regions the Sono Filter invented by our local scientists should be used and that within the shortest possible timeframe"¹. This decision statement towards *poverty reduction* by the high policy level in the Government coupled with intention of not wasting time ("within shortest possible timeframe") by itself provides ample indication that providing arsenic-free

¹ Government of Bangladesh (2008). A Strategy for Poverty Reduction in the Lagging Regions of Bangladesh, General Economics Division, Planning Commission, Dhaka, pp.62, 85.

water to the people with 40 percent falling below the poverty line is a formidable human rights challenge in Bangladesh.

What do we want to say?

In this paper, keeping the above-stated in view, we want to argue that meeting this formidable human rights challenge has many dimensions including constraints and opportunities. The constraints have been grouped into three broad types, namely financial, technical, and social. All these constraints can be mitigated by appropriately using the opportunities – national and international.

Where lies the key human rights challenge?

A most recent study² conducted in six arsenic-affected villages in Bangladesh have shown that 10.2 percent of the population are affected by visible signs of arsenicosis (i.e., keratosis, melanosis, and karato-melanosis) with 16.1 percent among the poor, 5.4 percent among the non-poor, and 1.7 percent among the rich. The real rate of arsenicosis would be much higher than the rate with visible symptoms (shown in box 1), because many affected persons are yet to display visible symptoms and many others will have multiple organ complications with suppressed visible symptoms.

Box 1: Arsenic patients with visible symptoms of arsenicosis



² Barkat Abul, "Political Economy of Arsenicosis in Rural Bangladesh", in *Social Science Review*, Dhaka University, Vol.2, 2008 (in press).

Arsenicosis as a disease of poverty – is the key human rights challenge in Bangladesh. Arsenic-affectedness is not an economic status neutral phenomenon. The above study revealed that the poor people are disproportionately highly affected by arsenicosis than their non-poor counterparts in the same villages. In these rural areas, as shown in Table 1, poor people (i.e., land poor, income poor, food-intake poor) constitute 44 percent of the total population but they represent over 70 percent of all the arsenicosis patients having visible symptoms (keratosis or melanosis or kerato-melanosis); non-poor constitute 56 percent of the total population but 30 percent of all the arsenicosis patients, and the rich constitute about 8 percent of the total population but representing only about 1.4 percent of all arsenicosis patients. The estimated odds ratios show that the poor as compared to the non-poor has 3.4 times greater chances of getting arsenicosis, and the same is about 11 times higher for the poor as compared to the rich. This highly skewed inequality in the distribution of arsenicosis patients in rural Bangladesh provides enough evidence that *arsenicosis is a disease of poverty*.

Table 1. Economic status of arsenic-affected persons in six villages of Bangladesh, 2008

Poor, non-poor (including rich)	Household (number)	Population	Arsenic affected person (showing visible symptoms)	Not-arsenic affected person	Odds
Poor	520	2861	461	2400	0.192
Non-poor	780	3640	196	3444	0.057
<i>of which,</i> Rich	120	520	9	511	0.018
Total	1300	6501	657	5844	0.012

Note: Odds ratios, between poor and non-poor=3.37, between poor and rich=10.7, between non-poor and rich=3.16; Probability of affecting by arsenicosis, for poor =0.16, non-poor=0.05, rich=0.017. The six study villages are located in Kushtia district; these villages are highly affected ones.

Source: Barkat Abul, “Political Economy of Arsenicosis in Rural Bangladesh”, *Social Science Review*, Dhaka University Vol.2, 2008 (in press).

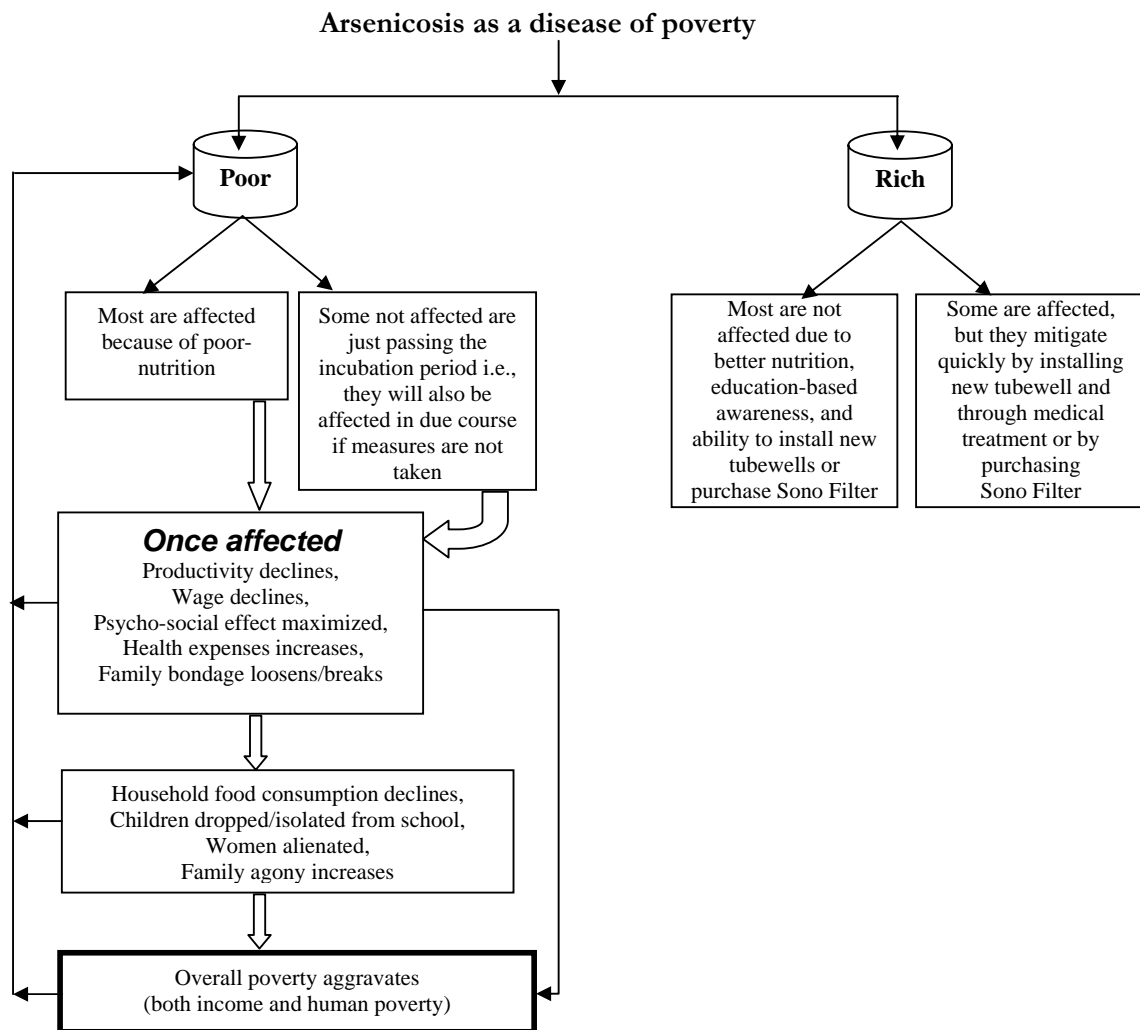
The human rights challenge of *arsenicosis as a disease of poverty* gets more complex due to the fact that arsenicosis is not only a disease of poverty, but also a poverty-aggravating or poverty-perpetuating disease. This is so because once a poor person is affected by arsenicosis (with multiple organ complications) he loses his ability to work and, in the absence of any financial assistance, the poor household gets into a perpetual poverty – a new type of poverty trap. Therefore, we have discovered two types of poverty associated with the drinking of arsenic-contaminated water in Bangladesh, which are:

Type 1: *Poverty-mediated arsenicosis*, implying that the poor people are disproportionately highly affected by arsenicosis as compared to the non-poor.

Type 2: *Arsenicosis-mediated poverty*, implying that the aggravation of poverty due to arsenicosis whereby the arsenic-affected poor people become poorer/pauper in the process due to economic, social, and psychological reasons (linkages are shown in Figure 1).

This dual poverty-poverty-mediated arsenicosis and arsenicosis-induced poverty – is a new type of poverty trap for Bangladesh. The income reduction effect and consumption shocks are the two major pathways through which economic burden of arsenicosis works.³ This trap poses a real challenge towards National Goals of Poverty Reduction because the conventional poverty reduction approaches address everything (income poverty, consumption poverty, employment poverty, credit poverty etc.) – but not the poverty associated with drinking arsenic-contaminated water. The latter is important because even if the income poverty is reduced the arsenicosis has the potential to offset that condition. This leads to another major challenge – the challenge of changing the mindset of policy makers regarding the very understanding of poverty associated with arsenic in drinking water.

Figure 1. Arsenicosis as a disease of poverty: Impacts of drinking arsenic contaminated water on the poor and the rich



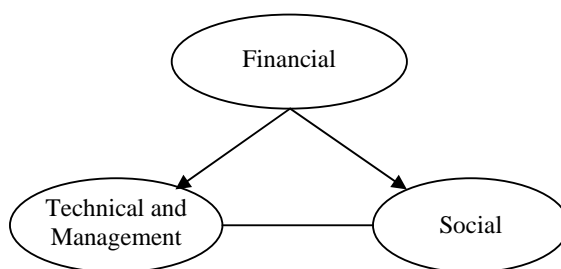
Source: Barkat Abul and Nur Ahmed (2007), “Poverty-Human Development-Family Development: Linkages and Doables”, Keynote paper presented at the 7th Annual Workshop, organized by Die Lichtbrucke Germany in Dhaka, Bangladesh.

³ Barkat Abul, AKM Maksud, KS Anwar, and AKM Munir (2002), “Social and Economic Consequences of Arsenicosis in Bangladesh”, in M. Feroze Ahmed, SA Tanveer, and ABM Badiuzzaman (eds), *Bangladesh Environment 2002*, Vol 1, pp. 216-233, Dhaka.

Meeting Challenges: Constraints

The human rights challenge of provisioning of arsenic-free water in Bangladesh is a challenge from the viewpoints of both Constitutional and *Justiciable* rights. From this standpoint, *arsenic-free water* for the citizens should be viewed as a *public good*. It is more so due to widespread poverty in Bangladesh. However, meeting this challenge of provisioning of potable water free from arsenic and other toxic species to the citizens of Bangladesh poses some real constraints, namely **financial, technical, and social**. As discussed below, these constraints are not standalone conditions, they are rather inter-related and inter-dependent and in combination they produce synergy in the whole process (Figure 2). Therefore, in meeting the human rights challenge of provisioning of arsenic-free potable water to the people, all these three constraints along with their multifaceted implications must be understood and internalized. In doing so, an in-depth understanding of the nature and gravity of these constraints is essential to successfully accomplish the complex choice of designing, developing and implementation of the national plan which will be intended to provisioning of arsenic-free water to the citizens.

Figure 2. Interrelationship of Constraints



The **financial constraints** are associated with the supply side of meeting the demand for arsenic-free water at the household level. Since piped water supply is rare in Bangladesh (except in some urban centres covering about 10% of the total population using groundwater from deep tube-wells and 16-20% of which are contaminated with high level of arsenic⁴), the most likely immediate solution should be to supply household filters. The low cost, scientifically proven, efficient, and already widely acclaimed and accepted Sono Filter⁵ appears to be one of the best solutions as a household filter in mitigating arsenic from drinking ground water.

There are 30 million households (a population of 150 million) in Bangladesh, and the estimated current demand for Sono Filter would be about 15 million units with 6 million units for the poor households and the rest 9 million units for the non-poor households (including 150,000 units for the rich households). Estimates based on the assumption that running each unit of Sono Filter will cost US\$50 (including price, management, administration, and cost for follow-up) the total amount needed for 15 million units will be US\$750 million⁶ which is equivalent to 25 percent of

⁴ Chakraborti et. al. Possible Arsenic Contamination Free Groundwater Source in Bangladesh., *J. Surface Sci. Technol.* (1999), 15, 180-188. Rahman et. al. *Environ. Sci. & Technol.* (2002), 36, 5385-5394.

⁵ Hussam.A and A K.M.Munir. (2007). A simple and effective arsenic filter based on composite iron matrix: Development and deployment studies for groundwater of Bangladesh. *Journal of Environmental Science and Health Part A.* 42: 1869-1878.

As on August 31, 2008 a total of about 85,000 Sono Filters have been distributed in Bangladesh by *Manob Sakti Unnyan Kendra* (Human Potentials Development Centre), a local NGO pioneered the innovation process, and now the production and distribution. Sono filter production unit has been established in Nepal; West Bengal (India) and Burkina Faso have indicated their interest in production.

⁶ US \$ 600 million (40 \$ price per unit multiplied by 15 million units) as one time cost to purchase the filter, and annually US\$ 150m (10\$ per unit) as management, administration, follow-up costs. Even at 50% reduction in production cost the

the annual development budget of the Government of Bangladesh. It is worthwhile to note that people in general in the developing countries (more so in the least developed countries with high extent of income poverty and illiteracy) are both unable and reluctant to pay for preventive healthcare services (e.g., water supply, sanitation, immunization, maternal health etc.) as compared to curative healthcare services (e.g., diabetes, heart diseases, cancer etc.). Therefore, it is most likely that the rich households and the non-poor who are relatively well-off will pay for Sono Filter. The poor will not be able to bear the cost. The real financial constraint, therefore, will be to provide 6 million units to the poor whose poverty is so acute that they will be unable to pay and, therefore, need affirmative actions. Under this non-affordability context, the only real and immediate solution would be to ensure poor people's access to this filter free-of-cost. This will cost an estimated amount of at least US \$ 300 million, which is equivalent to 10 percent of the national annual development budget of the Government of Bangladesh. In view of low per capita development budget, widespread poverty, and dual poverty associated with arsenicosis (a new type of poverty trap) – the amount needed to provide 6 million units of Sono Filters to the poor households should be treated as a huge financial constraint. This constraint must be mitigated and such mitigation is possible (discussed later in the *opportunity* part).

In connection with the above financial constraint, many pertinent issues will rise where the key issues would be the following:

- i. Who will provide the required US \$ 750 million? What could be the possible source(s) of financing?
- ii. How best to design the financing through the Government, private sector, overseas development assistance (ODA), non-government organizations, and individual categories of clients?
- iii. Who will provide US \$ 300 million which would be necessary to ensure supply of 6 million Sono Filters to the poor who are unable to pay and who are disproportionately highly affected by arsenicosis?
- iv. What could be the possible matching funding mechanisms?
- v. Who will coordinate funding and ensure transparency and accountability of the whole financing?
- vi. What needs to be done to expedite the process of allocation and disbursement of fund for Sono Filter distribution (on a priority basis) in congruence with the Government's stated *Action Plan for Poverty Reduction: "ensure 100% access to pure drinking water by providing Sono Filter within shortest possible time frame"*?

Money alone is not the only constraint. In view of the huge scale of the problem and lack of adequate experience and expertise in the Government in managing large-scale technology diffusion, the ***technical and management constraints*** are manifold. The key broad elements of this constraint include production of 15 million Sono Filters (and the number will increase with increasing population and increasing demand both in Bangladesh and outside) by maintaining high quality of the technology; appropriate storage; distribution of the technology to the right households at the right time; and coordination, monitoring and follow-up of the performance of the technology. This multidisciplinary endeavor will necessitate a well planned national team work of the production engineers; chemists; food scientists; public health experts; economists; management scientists; procurement and marketing specialists, local government

total initial commitment is substantial. Please note that Sono Filter is the lowest cost filter that will last for at least 5 years without adverse environmental impacts, and the active material is recyclable.

experts and so on. This is essentially an issue of managing the arsenic removal water technology in a scale unprecedented in Bangladesh. In this regard, it would be appropriate to raise some pertinent issues which could be termed as *constraints within constraints*:

- i. Who will ensure uninterrupted supply of active material – the Composite Iron Matrix (CIM) necessary for production of 15 million Sono Filter units?
- ii. What will be the institutional mechanism to guarantee quality of the filters?
- iii. What would be the filter transportation mechanism in a country where multimode transports is necessary to reach the end users, where many potential users live in hard-to-reach areas, where roads are deplorable in many areas, and where 4-month flooding a year is natural in many areas?
- iv. Who (which agency/agencies) will bear the responsibility to identify all households (estimated 15 million out of 30 million) who are drinking arsenic-contaminated water?
- v. Who will provide the accurate list of households requiring the filter (with names of household heads, household identity numbers with names of villages, unions, sub-districts and districts), and also by household economic status (poor and hard core poor, non-poor, rich etc.)?
- vi. Who (which agency/agencies) will screen the list and identify priority households who immediately need the filter?
- vii. Who will provide lists of all primary schools where tubewells are arsenic- contaminated? How best to reach those primary schools and train teachers about use of Sono Filters as well as about the ill-effects of arsenicosis?
- viii. How will the whole coordination mechanism work?
- ix. Will the Department of Public Health Engineering (DPHE placed under the Ministry of Local Government, Rural Development and Cooperatives) which is responsible for rural water supply be in a position to undertake all these responsibilities? Since DPHE is not adequately staffed and experienced, would it be necessary to involve the Ministry of Health and Ministry of Education officials at the grassroots along with the local government officials and relevant non-government organizations?
- x. As a high-priority public health concern, who will undertake the responsibility of medical treatment of the arsenicosis patients? This should be the domain of the public health system, but the public health system in Bangladesh is still not responsive enough to address this.
- xi. How will the people at the grassroots be involved in the whole process? This is absolutely necessary to accomplish the desired goals including the goal of sustainable community development.

Social constraints pose no less significant challenges than the financial and technical constraints in mitigating arsenic poisoning disaster in Bangladesh. Social constraints are specific constraints of individuals and the communities' knowledge-attitude-practice (KAP) towards life and livelihood. Social constraints are a function of culture, tradition, patriarchy, religion, poverty context, literacy, political system, historical system of local governance, climate, geographic variability, vulnerability, occupational structure and so on. The relevant social constraints have two broad dimensions, namely individual community-level constraints, and power structure-level constraints.

The essence of social constraints is best reflected in the social or psycho-social consequences of arsenicosis. These include, among others, people's ignorance leading to multiplication of sufferings, community refusal and neglect, discrimination, unhappy conjugal life, retardation of child development etc. A widely held belief that arsenicosis is contagious or similar to leprosy have serious social consequences, especially for women and children who get abandoned by their families. Among the prevailing superstitions or false beliefs in arsenic-affected rural communities, beliefs like "arsenicosis is a contagious disease", or 'cancer', or caused by 'evil spirit' or a consequence of "God's curse", 'sin' – are highly pronounced leading to accentuation of mental agony, anxiety, and frustration among most arsenic-affected persons. Arsenic-affected persons participate less in socio-cultural activities, and their fellow neighbors (who are not affected) dislike their participation. Arsenic-affected people themselves feel shy or hesitate to participate in social events due to "look down" status by others as well as themselves think that they look unfair due to spots on the skin. Arsenic-affected persons are not only discriminated and neglected by the neighbors but also by their own household members. In this regard, women were found to be the worst victims because of negligence and discrimination. They are ostracized by the community in various ways: in many cases, affected women are kept isolated (quarantined) in a separate room, neighbors are reluctant to talk to these women, people look down, and they face restrictions in sitting or sharing bed with a non-affected person, and non-affected persons express their unwillingness to cooperate with them.

Consideration of the arsenic problem as a contagious or infectious disease by both the patients and the family members or neighbors is a major social and public health concern in Bangladesh. Many of the *Imams* of mosques propagate that arsenicosis is a curse from Allah, which according to them, it is a result of "past sin committed by the affected person". Myths and misconceptions about arsenicosis have deeper consequences in terms of mental and social dimensions of health. To cite a few examples, (many) men having arsenicosis do not feel confident in marrying girls; men are disinterested in marrying girls having arsenicosis; in most cases, girls having arsenicosis face difficulties in getting married; most of the arsenic-affected men or women report "unhappy conjugal life"; instances are abundant that divorces took place due to arsenicosis of wife (not of husband); unhappy family condition associated with arsenicosis causes retardation in child's psychological and physiological development due to relative neglect, increased workload for the children, deprivation due to want of parental love and affection; and most shockingly, many arsenic-affected children reported that their school mate or peers avoid them or refuse to play with them.

The social constraints at the level of power structure can be viewed in a hierarchy ranging between local and national (central policy making) levels. At the local level, this constraint operates through lack of awareness about arsenicosis among the local government officials as well as among the social gatekeepers – the formal elected and informal opinion leaders. It is most likely that this group also lack interest due to relatively lower opportunity for corrupt practices in the process of distribution of Sono Filters. This is evident in the fact that although there is the Water and Sanitation Committee at the grassroots administrative level (Union Council level), the issue of arsenic is seldom discussed in the Committee meetings. Our experience also shows that without providing Sono Filters (free-of-cost) to the unaffected households of the social gatekeepers, it is almost impossible to enter an affected village to serve the real affected people, most of whom are poor. Another social constraint worth mentioning – based on our experience – is associated with lack of the community's interest in sharing the household filter. An individual household possessing a filter is often not interested in sharing the filter with the neighbor not having the same. The reasons behind the lack of community solidarity in sharing a technology are not known and are, therefore, worth in-depth research. The constraint at the level of national policy makers and politicians is reflected in their inadequate

commitment to expedite the process of resolution of the problem even in line with the Government's "documented commitment". This is clearly evident in the low budgetary allocation towards making Sono Filters available to the affected poor households.

Meeting Challenges: Opportunities

As argued in the previous section, arsenic poisoning of drinking water is a public health concern and a formidable human rights challenge in Bangladesh. This challenge encompasses financial, technical, management, and social constraints. This humanitarian challenge must be met to ensure economic development, poverty reduction, social justice, and sustainable community development. It has also been argued that without provisioning of arsenic-free drinking water to the vast majority of arsenic-affected people (most of whom are poor) within the special vulnerable context of Bangladesh the attainment of the key goals of the Millennium Development Goal (MDG of the United Nations, signed by Heads of 189 States) "Eradication of extreme poverty and hunger" and "Halving by 2015, the proportion of people without sustainable access to safe drinking water" will not be possible.

There exist ample opportunities to realize the human rights challenge of providing arsenic free water to the people of Bangladesh, especially to the 6 million households (30 million people) who are poor. The financial, technical, and social constraints associated with provisioning of Sono Filters to 15 million affected households (75 million people) can be removed through expressed commitment of the national and international development leaders and people's participation in the process. The *pathways of opportunities* include, but are not limited to, the followings:

- i. The highly efficient and low cost technology – Sono Filter – is already in place. The tangible benefits of development, deployment, and use of Sono Filter are proven in Bangladesh, and Nepal. Medium scale deployment in severely affected areas in West Bengal, India is in progress. Other affected countries are testing the filter in the field.
- ii. Mass awareness program of drinking safe-clean arsenic-free drinking water is credited to the wide network of the electronic media in Bangladesh. The Government (especially the Department of Public Health Engineering, the Ministry of Health and Family Welfare, and the Ministry of Information) is ready to enhance their relevant technical capacity and vigorously pursuing mass awareness campaign towards drinking safe water.
- iii. The Government of Bangladesh has already officially recognized that "to ensure 100% access to pure drinking water across the regions the Sono Filter invented by our local scientists should be used and that within the shortest possible time frame".
- v. The vibrant civil society including the relevant non-government organizations in Bangladesh has already recognized and accepted the technology as the best solution towards mitigating the public health disaster of arsenicosis.
- vi. Some non-government organizations (NGOs) working in the field of water and sanitation have started promoting the Sono Filter technology among the affected people in their respective catchment areas. Some NGOs are providing soft microcredit (with long-term easy interest or even interest free) to the affected poor people for buying Sono Filter.
- viii. Although not much pronounced yet, some of the School Management Committees in rural Bangladesh, have already purchased Sono Filters for their primary level students (aged 6 to 11 years), and many of the students collect arsenic-free water in bottles from for their family members.

- ix. The integrated arsenic mitigation program approach of *Manob Sakti Unnayan Kendra* (MSUK, Human Potentials Development Centre) – the prime mover of Sono Filter in Bangladesh has already been acclaimed much in Bangladesh and outside. This integrated approach puts “water at the centre” with other key components around water including installation of Sono Filter, medical treatment services, sanitation, income generating activities, education and motivation through Mother’s club, trainings, cultural troops, social mobilization, and research and publications. MSUK’s experience shows that arsenic-affected people express their sense of well-being after use of the filtered water; no new arsenicosis patients were found in the households using the Sono Filter; and users of Sono Filter themselves disseminate the good news about the efficacy of the Sono Filter. Moreover, people are finding the joy of using soft-water that they were missing their whole life.
- x. As part of the commitment of external development partners towards the Millennium Development Goal “*Develop a Global Partnership for Development*” (Goal 8) – the rich countries are committed to allocate 0.7 percent of their Gross National Income (GNI) as overseas development assistance (ODA) and undertake debt cancellation measures⁷. An amount of fund equivalent to a small share of the debt cancellation and a bit of committed ODA would be sufficient enough to meet the human rights challenge towards provisioning of arsenic-free water to the citizens of Bangladesh.

What Next?

Provisioning of arsenic-free water – in the form of supply of Sono Filters – to 15 million affected households including 6 million poor households in Bangladesh is **possible**. Transforming this possibility into reality requires partnership vision and commitment of the policy-leaders – both national and international, who should consider this complex humanitarian concern from the viewpoints of expediting the process of economic development (as “development as freedom”, as “development as inclusion of excluded”, as “human rights”), poverty reduction, social justice and sustainable community development. Realizing this will necessitate concerted efforts of all concerned stakeholders including the mass people at the grassroots.

Finally, by listening to the voice of an arsenic-affected poor woman in Bangladesh (see Box below) we want to conclude that in order to make engineering science and technology work for the people, especially for the poor and deprived people – a soul-search is necessary. Listening to the voice of Sakhina prompts us to pose three pertinent questions of complex choices – a 3C paradigm:

- Are we **concerned** enough about these people’s dignified life and livelihoods?
- Are we **committed** enough to associate ourselves as integral part of the solution?
- Are we **competent** enough (professionally, technically, morally, and ethically) to resolve this public health catastrophe?

⁷ UNDP (2002), Human Development Report 2002: Deepening democracy in a fragmented world, pp. 30-31. The total external debt of Bangladesh was US \$ 18.9 Billion in 2005 (see World Bank 2007: World Development Indicators, p.250).

Voice of an Arsenicosis-affected Poor Woman

“Three years back I started feeling that I am losing appetite. Then I found black spots in different parts of my body. A rural quack told me not to worry. But those spots got larger day by day. I had severe pains in those spots. People around me started saying that you are caught with leprosy which is caused by evil spirits and some sin committed by you. People around me started neglecting me, including even my household members. The marriage of my third daughter was about to be ready. The bride-side came and said that they are not agreeable to this marriage because I have a serious disease. My daughter has no spots like me. She is frustrated; and she no more visits her peers. My husband blames me, and at times warns me of an imminent divorce. What shall I do? What is my fault?....”

Sakhina (37 years), Village Alampur, District Kushtia, Bangladesh

Acknowledgement

The authors are indebted to Dr. Abul KM Munir for his providing support to use the relevant database available at SDC/MSUK, and Mr. Mozammel Hoque for his critical views and comments on the draft manuscript.