Bangladesh Institute of Peace and Security Studies
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Arsenic poisoning in Bangladesh

Is it a security issue?

Ishtiaque Alam

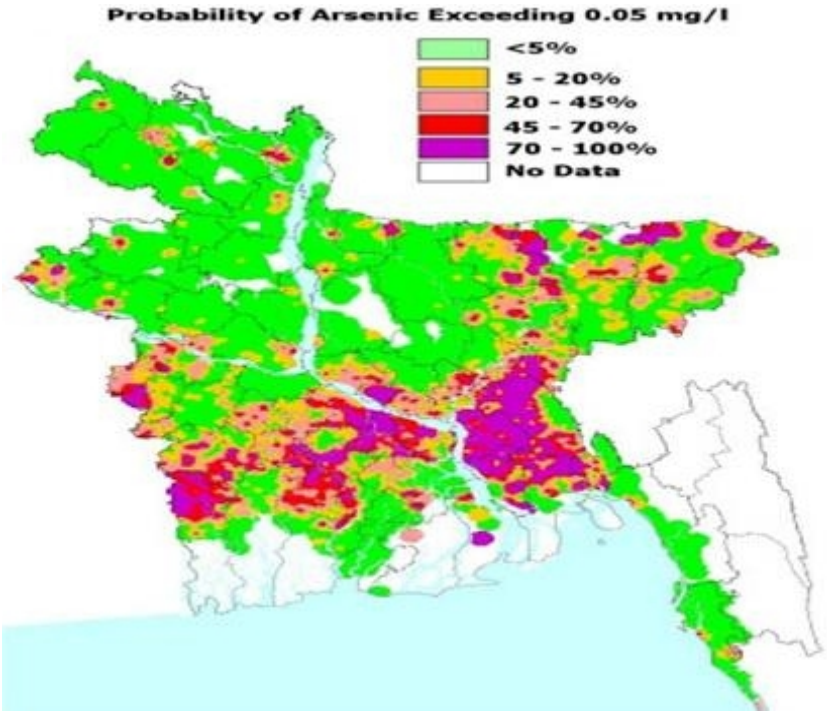
Introduction

Bangladesh bears the scar of poisoning of a population by contamination of groundwater with arsenic. Groundwater used for drinking has been contaminated with naturally occurring inorganic arsenic which poses a severe threat to the people who are exposed to it. It is estimated by Bangladesh Bureau of Statistics that Bangladesh has a population of 160 million inhabitants. Of them between 35 and 77 million people are affected by arsenic contaminated water. This is because affected populace use arsenic contaminated water as drinking water. This number is so huge that it accounts for just short of half of the total population of Bangladesh. The scale of this environmental disaster is greater than any such event seen before. World Health Organization described the arsenic crisis in Bangladesh as "the largest mass poisoning of a population in history". According to a national daily newspaper of Bangladesh, The New Age, arsenic is tagged as "a ticking time bomb" (The New Age, 26 April, 2010). It has been proved in scientific study that chronic arsenic exposure through drinking water is associated with an increase in the mortality rate. High exposure rate to arsenic by the people of Bangladesh raises the concern for national security, although in nontraditional sense. Long exposure to arsenic is associated with several cancers; toxic effects on the liver, skin, kidney and lung; and other fatal poisoning. These health effects can endanger the security of the country in the long run. Arsenic poisoning creates fragmentation within the society and cracks social cohesion. As a consequence social disorder and inequality start to take shape latently which has the potential to emerge as a national security threat. It is being increasingly viewed that 'securitization' of health is a necessary response to the increased threats posed by diseases in the era of globalization. In line with this view, arsenic poisoning in Bangladesh is entering into the domain of securitization as it is crossing the threshold of being regarded as a health problem only.

Nature and extent of exposure

Poisoned aquifers are a regional problem in this part of the world. The process of arsenic poisoning in Bangladesh is due to excessive dependence on groundwater. About 90 percent

people in Bangladesh use groundwater. Arsenic is discharged into groundwater due to natural causes. Geography is partly liable for arsenic contamination in Bangladesh because arsenic is released through out the aquifers of alluvial and deltaic sediments. In Bangladesh shallow groundwater is contaminated with arsenic. If measured with the standards of World Health Organization (WHO), arsenic concentration in water is clearly in excess of the maximum level recommended by WHO of 10 micrograms per litre. In most of the affected areas of Bangladesh arsenic concentration in water is above 50 micrograms per litre.



A UNICEF 2008 report reveals that of the total 4.7 million tube-wells in Bangladesh, as many as 1.4 million had traces of arsenic more than that delineated by the Bangladesh government.

A report from FAO suggests that arsenic in groundwater may pose an even more insidious threat. The report concludes that people may be exposed to arsenic not only through drinking water, but indirectly though food crops irrigated by contaminated groundwater. “Where concentrations of arsenic in soil and water are high, we found a correlation with high arsenic content in crops," says Sasha Koo-Oshima, an FAO water quality and environmental officer. It is estimated that each year, the amount of arsenic added to arable soil, mainly paddy fields, through irrigation amounts to around 1,000 tonnes. Staple food crops such as rice may be an important source of exposure to arsenic. Arsenic levels in the grain of different varieties of rice in Bangladesh were as high as 1.8 parts per million, compared to levels of just 0.05 parts per million in Europe and the United States. As such the health of the entire national population is at risk.

Arsenic poisoning: A national health security issue

Arsenic exposure in Bangladesh is widespread and it involves thousands of wells. There are more than 8,000 villages in Bangladesh where more than 80 percent tube-wells are arsenic contaminated. Continuing exposure will occur in massive toxic effects on the liver, skin, kidney, cardiovascular system, and lungs. Excessive exposure of arsenic in well water may result in cancers of bladder, kidney, skin, and lung. Such exposure to arsenic increases the risk of morbidity and death. According to a recent survey (2010) of Bangladesh Bureau of Statistics and UNICEF, 12.6 percent of households, equivalent to about 20 million people, still drink water containing arsenic. This indicates that 20 million people are constant risk of arsenic poisoning. Arsenic poisoning can impair the intellectual function of children. The Lancet study shows over the past decade, more than 20 percent of deaths recorded in the study which accounts for 12,000 people in the Araihazar district of the capital Dhaka appear to have been caused by arsenic-tainted well water. Sustained drinking of water containing 500 µg/l of arsenic may result in 1 in 10 people dying from arsenic-related cancers. The study found that when compared to those exposed to the lowest arsenic levels (less than 10 micrograms of arsenic per litre of water); people with levels of 10-50 micrograms had a 34 percent higher risk of death. Those with the highest level of exposure (between 150 and 864 micrograms) had a 64 percent higher risk of death. Furthermore, on an average, a Bangladeshi adult drinks about 4 litres of water a day and consumes about 450 grams of rice. Assuming that water and rice have 0.05ppm and 0.5ppm arsenic respectively, the dietary intake from water and rice would be 380 micrograms (200 from water and 180 from rice). This is about double the FAO/WHO limit of dietary intake of arsenic. Arsenicosis is indeed becoming a national health security issue as no other disease has endangered so much people in Bangladesh.

A national security threat?

Once confined to the rumblings of ‘low’ politics, many health issues are now advancing towards the apex of the security agenda. Policy makers working in various national and international organizations and national governments grapple with a range of important links between health and security. Regarding the issue of arsenic poisoning in Bangladesh certain thoughts demand judgments. The 2010 Lancet study estimated that nearly 35 to 77 million people in Bangladesh have been exposed to hazardous concentration of arsenic. If numerically counted this amount is very proximate to half of the total population of the country. As this toxic substance increase the mortality rate, it means that nearly half of the whole populations’ lives are in danger. If arsenicosis, arsenic poisoning, is viewed from a strand of disease, it portrays that infected populace are critically ill. Many lost their limbs due to infection from gangrene. They are no longer able to support their own families and the society as well. They are physically, mentally and psychologically in a situation that made them unable to perform their respective duties. They fail to contribute to their family in particular and to their state in general.

Marginalization of arsenicosis patients creates the possibilities of social fragmentation. Loose social cohesion contributes to the weakening of social norms and values. Arsenic affected

people are barred from social activities within the community and in the worst case scenario they face rejection from their own immediate family members. Some patients often face severe social misbehavior. Arsenic poisoning sometimes creates arsenic panic among the unaffected people. Unaffected people often become angry and violent towards the affected which could jeopardise societal harmony. Arsenicosis patients often find it extremely difficult to get a job. Having found no other way to run their families they may engage in criminal activities. Arsenic panic among people hampers common day to day work as a state of fear is constantly weakening the concentration of the people. Affected people are frequently discriminated in their jobs, having proper medical facilities and above all in the society. Arsenic also cause disturbance in having one of the fundamental rights of life; that is of education. Affected children find it quite difficult to carry on their education which in turn affects the future leadership in the long run. Women particularly suffer much owing to the conservative nature of Bangladesh society. When they face rejection from their husband, they often end up in committing suicide. Encountering all round rejection from every known quarter arsenicosis patients suffer from insecurity complexes. They develop a belief that the state may not be in a position to provide them with physical safety. When a large number of people will feel the same way, the result would inevitably be violent.

Implications

The implications of insecurity complex and loose social cohesion could be disastrous. Affected people are not fully functional people. Their inabilities will ultimately complicate the proper functioning of the state apparatus. In a country where nearly half the people are dangerously exposed to arsenic poisoning, intellectual capacity of those people will also be limited. As young affected children face difficulties to get access to education this in turn may affect the country in the long run. Future policy makers will constitute from these poorly educated children. Then they will not only become burden of the society but also to the state. Owing to huge number of people are exposed to arsenicosis the subsequent health cost will also likely to magnify manifold. This will put further strain on already broke people. As a result of rising health cost the government has to allocate resources sacrificing from somewhere else. This would result adverse consequence if necessary resources were allocated from development sectors depriving many from having other benefits. Moreover, large number of arsenicosis patients would also put enormous strain on government organizations. This will exacerbate situation in a country where already doctor-patient ratio is very small. Nonetheless, excessive pressure of patients may also result in demotion of quality of services. Another aspect is that as an arsenic panic is prevailing among the people, this could affect the international image of the country. Bangladesh is promoting itself as a tourist friendly country. But if her international image becomes affected because of arsenic panic she may lose substantial amount of foreign exchange due to collapse in tourism sector. From the above discussion it becomes clear that arsenic contamination can threaten national security of Bangladesh in the nontraditional sense. Although state failure by arsenic contamination is very moot but weakening of various government institutions; social organizations; norms; values and social unity through it cannot be ignored.

Response

Bangladesh government is working from the outset to address arsenic contamination as a serious issue. A number of programs have been initiated by the Bangladesh government to specifically address arsenic, including the Bangladesh Arsenic Mitigation Water Supply Project (BAMWSP) and the DPHE-UNICEF 45 Upazila program. The National Arsenic Mitigation Information Centre (NAMIC) was established by BAMWSP for collecting; storing and disseminating information related to arsenic problem. The Bangladesh Water Development Board, under the Ministry of Water Resources, has undertaken hydrogeochemical investigation of deep aquifers in different parts of the country with the Geological Survey of Bangladesh. In order to deal with the problem with utmost importance at the highest level of the government, an Inter-Ministerial Secretaries Committee on arsenic has been formed by the Government of Bangladesh. This Committee oversaw the preparation of the National Policy for Arsenic Mitigation and Implementation Plan for Arsenic Mitigation, which was approved by the Cabinet in 2004.

Beside the government initiatives a number of international and national NGOs, national and international universities (such as The Bangladesh University of Engineering and Technology (BUET), Dhaka University, Rajshahi University, Columbia University, Texas University, Cornel University) have also undertaken initiatives to combat the arsenic problem in different parts of the country. With support from development partners Asia Arsenic Network, World Vision, the NGO Forum, Dhaka Community Hospital, BRAC, Care Bangladesh, IDE Bangladesh and Water Aid Bangladesh have been engaged in different mitigation activities. Some of these organisations engaged several other local NGOs and organisations for conducting the field level activities like awareness campaigns, tube-well screening, and patient identification.

Way ahead

In order to cope with the growing vulnerabilities posed by arsenic both short-term and long-term preventive strategies need to be taken for consideration. Short-term strategies may include:

- Identification of nearby tube-wells that have water with a low arsenic content.
- Supply water filters to each and every household. A filter invented by Dr. Abul Hussam, a Bangladeshi, cost only $35 to produce but it is a marvel of effectiveness and simplicity. It can remove arsenic, iron, manganese, and many other toxic substances from water. This filter needs to be popularized.
- Supply chemicals to be used daily to remove arsenic from household drinking water. Hydrated ferric oxide has been suggested to be the arsenic- removing agent.
- Use of surface water sources that have been treated by filtration and chlorination.
- Closure of highly contaminated tube-wells when a temporary water source has been identified.

Along with the short-term measures a number of long-term strategies should be taken to effectively deal with the situation. Some long-term strategies are:

- Sinking of deep tube-wells (below 200 m) and protected dug wells or ring wells (20-30 m).
- Rain water harvesting has a good potential for drinking water supply in arsenic affected areas of Bangladesh.
- Pond sand filters are the simplest technology of treating the surface water to make it drinkable.
- River sand filters are another way of having arsenic contamination free drinking water.

Arsenic contamination and its subsequent outcomes draw attentions from many quarters. Scientific researches have been conducted; medical experiments have been intensified and new techniques for combating it are also underway. But looking at the issue from a security angle is also necessary. No other disease has contaminated so many people in Bangladesh before. Moreover, arsenicosis patients will likely to be increased in future as symptoms of arsenicosis emerge only when they are exposed to it for quite sometime. As a result, there is a dangerous possibility in future that the young generation will going to be affected in the days to come. So, precautions and planning should be geared beforehand to face the crisis with greater efficiency. Unless and otherwise we take it very seriously, we may face the circumstances that none of us want to confront. We should keep in mind that many African states are failed because of pandemics like HIV/AIDS. Securitization of arsenic contamination will put the issue on a more policy-level agenda and thereby, hopefully, will get greater importance for mitigation. Good news is due to governments effective efforts with the support of several development partners, 14% of the people living in arsenic affected area of the country have already switched to safe drinking water. This poisonous substance not only endangers social unity but also the physical security of the affected people. Steps also need to be taken which will ensure the safety, economic stability and dignity of infected peoples' lives.

Ishtiaque Alam is a graduate of International Relations, Jahangirnagar University, Dhaka. He is currently serving as a Research Associate at the Bangladesh Institute of Peace and Security Studies. His research interest includes traditional and non-traditional security issues of Bangladesh and South Asia. He can be reached at: ishtiaque@bipss.org.bd.