

# **Impact of arsenic contamination in groundwater on poverty and choice of mitigation technology for rural communities in Bangladesh**

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## **Abstract**

Discovery of the presence of arsenic in the drinking water in Bangladesh has been a cause of red alert in the public health arena. With a per capita income of US\$482 (2006), dealing with this crisis is a major challenge for the government of Bangladesh, donor communities and the NGOs working in Bangladesh. However, heterogeneity of the people in terms of their choices for mitigation measures, income/wealth, information, health, poverty, social status and religion, often makes it difficult to find an efficient solution.

The main focus of the study is to look into the current status of arsenic contamination in the rural drinking water sources in Bangladesh to a) understand the effect on the resource utilization pattern at the household and its consequence on poverty status of the household due to arsenic related risks; b) determine the preference in terms of mitigating measures at the household and at the community level; and c) analyze precautionary as well as preventive measures adopted at the household and at the community level in terms of income, wealth and community characteristics

The study finds that in terms of adoption, information and proper information provides a major role for adoption of technologies. It has also found that some technologies are more popular among educated groups compared to others.

It finds that higher O&M costs may deter poor households to adopt rainwater harvesting, arsenic and iron removal plant and tara pump technologies. At the same time, people who are using these technologies are willing to pay more for better quality of services, implying that current status of services are not satisfactory to many. People with lower literacy level prefers deep tubewells and tara pump technologies because they are mostly supplied through government institutions. Interestingly, income poverty is not a major deterrent for adoption of technologies because most of them are provided by the NGOs and Government Agencies. On the other hand asset poor household seem to prefer dug well and arsenic and iron removal plants. However, as people improves their wealth they would also, at the same time, will not use dug well for their source of water supply.

Media exposure is a very important variable to influence decisions related to adoption or rejection of technologies. Consequently, government should use appropriate messages on Radio, TV and Newspapers to influence the decisions. With the current strategy of communication that exists in Bangladesh media, households with media exposure do not like to use dug well, pond sand filter, and piped water supply technologies.

Providing information on arsenic mitigation technologies will significantly improve adoption of dug well, piped water supply system, rain water harvest system and arsenic and iron removal technologies. It is also a major variable to influence the decision at the

household level. Interestingly, the current level of information on deep tubewell is working against this technology, mostly because of inefficiencies in providing the quality of service by the providers, despite the fact that this technology is the most poor-friendly technology.