

Rural Drinking Water Situation: Challenges and Opportunities in West Bengal

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ABSTRACT

“Safe water, sanitation and hygiene” are necessities of life and are also imperative to reduce “child mortality” and sickness.¹ The United Nations’ Human Rights’ Council adopted a binding resolution recognizing the human right to water and sanitation is a part of the right to adequate standard of living. India has met the millennium development goal (target 7c) to halve by 2015 those without access to an improved water source. However, achieving water safety and security for rural areas remains a challenge. Water quality problems are primarily caused by pollution and overexploitation.

The National Rural Drinking Water Program aims “to provide every rural person with adequate and safe water for drinking, cooking, and other domestic basic needs on a sustainable basis.”² In West Bengal, the State VISION 2020 document highlights ensuring permanent drinking water security at 70 liter per capita day in rural West Bengal by 2020. Though 87,133 (91%) of habitations in West Bengal are fully covered with water supply, 5,448 (6%) habitations are quality affected due to chemical contamination (arsenic, fluoride, iron, and salinity), and microbiological quality remains widespread. Nearly 12% of water sources were found contaminated as per routine monitoring reports. In this paper, an attempt is made to highlight the overall rural drinking water quality situation in West Bengal. Issues and concerns toward ensuring adequate safe access to “safe drinking water” in rural sectors have also been discussed.

Keywords: NRDWP, VISION 2020, arsenic, wealth quintile

1. BACKGROUND

“Water Quality” is closely associated with the health of people and environment. The principal barriers to solve this issue are “lack of awareness” about “water quality” and “lack of capacity” to protect it.³

On July 28, 2010, through Resolution 64/292,⁴ (United Nations General Assembly, 2010) the United Nations General Assembly accepted “the human right to water and sanitation” in a very explicit manner. They emphasized the necessity of “clean drinking water and sanitation” for every human right.⁵

In November 2002, the Committee on Economic, Social, and Cultural Rights adopted General Comment No. 15⁶ on the right to water. Article 17 mentions that “The human right to water is indispensable for leading a life in human dignity. It is a prerequisite for the realization of other human rights.”

In India, “rural drinking water supply” is considered a “state subject.” As per the 11th schedule of the Indian Constitution, “rural drinking water supply” can be delegated to “Panchayats” (village administration) by the states.⁸ In spite of the reported water supply coverage (i.e., 91% of rural habitations with 100% population coverage),⁹ water quality issues still affect public health in West Bengal.

2. SITUATION

According to the World Health Organization (WHO)/ United Nations Children’s Fund (UNICEF) Joint Monitoring Program¹⁰ (UNICEF and WHO, 2012)

1 Mudgerikar, A., & Cranin, A. (2012). Review of status of equity in WASH programming in India. Retrieved April 26, 2017, from www.ircwash.org/sites/default/files/Mudgerikar2012-Review.doc

2 Ministry of Drinking Water & Sanitation (MDWS), Government of India. (2002). National Rural Drinking Water Program (NRDWP) guidelines.

3 UN-Water Decade Programme on Advocacy and Communication (UNW-DPAC). (2010). Clean water for a healthy world addressing water quality challenges and solutions: An advocacy guide and action handbook. Casa Solans, avenida Cataluna 60-50014. Zaragoza, Spain. www.unwater.org/2010/downloads/wwd2010_advocacy_guide_print.pdf

4 United Nations General Assembly. (July 2010). Resolution A/RES/64/292.

5 Ministry of Drinking Water and Sanitation (MDWS), Government of India. (2016). Annual report 2015–16. Retrieved April 26, 2017, from www.mdws.gov.in/sites/default/files/annual-report2015-16.pdf

6 General Comment No. 15. The right to water. UN Committee on Economic, Social and Cultural Rights, November 2002.

7 United Nations General Assembly. (July 2010).

8 MDWS, Government of India. (2016).

9 Ministry of Drinking Water & Sanitation (MDWS), Government of India. (2013). GoI as on 31st March 2013. Retrieved May 26, 2013, from <http://www.mdws.nic.in>

10 UNICEF & WHO. (2012). Progress on drinking water and sanitation.

for Water Supply and Sanitation, India has met the millennium development goal (target 7c) to decrease the percentage of people with the lack of “access to safe drinking water” to 50%.¹¹

The National Rural Drinking Water Program (NRDWP) aims to provide every rural person with adequate safe water for drinking, cooking, and other domestic basic needs on a sustainable basis,¹² and the State VISION 2020 document¹³ highlights the importance of ensuring permanent drinking water security at 70 liter per capita day in rural West Bengal by 2020.

Water quality, safety, and security have emerged as major issues and critical concerns for West Bengal, despite significant achievements in coverage of rural population by community water supply schemes. In regard to natural resources, ground water availability in West Bengal is sufficient overall,¹⁴ and the state has provided one tube well for approximately every 150 people in the rural areas. However, a large numbers of these sources are contaminated due to high arsenic and fluoride presence above the permissible limits. Out of 132,267 public water sources tested in 78 blocks of eight districts, namely, Malda, Murshidabad, Nadia, North 24 Parganas, South 24 Parganas, Howrah, Burdwan, and Hooghly, 33,541 sources (25.4%) are found to have arsenic concentration over the permissible limit 0.05 mg/L. Similarly, 50,387 public drinking water sources were tested in 43 blocks in seven district (Uttar Dinajpur, Dakshin Dinajpur, Malda, Birbhum, Bankura, Purulia, and South 24 Parganas for the assessment of fluoride in ground water by Public Health Engineering Department, Government of West Bengal in 2007). As per reports, 1,801 water sources (3.57%) were found to contain fluoride above the permissible limit 1.5 mg/L¹⁵ (Figure 1). Along with the chemical contamination, the bacteriological contamination risk is also widespread, and its extent and magnitude is yet to be fully assessed. Nearly 1.85 million diarrhoeal cases were reported from West Bengal in the National Health Profile in 2011. According to the monitoring data of Government of West Bengal, 218,487 public drinking water sources were tested between January 2012 and December 2012. About 20,631 (9.40%) of those were with fecal contamination.¹⁶ (Block is a sub-district unit to administer planning and implementation of all government development program. District is a local administrative unit and generally forms the tier

of local government immediately below sub-national states and territories.)

Public Health Engineering Department, Government of West Bengal jointly with UNICEF conducted a multidistrict assessment on water safety in 2008 in Nadia District, West Bengal. About 400 drinking water sources (based on cluster-sampling approach) were analyzed for pH, electrical conductivity, turbidity, appearance, nitrate, iron, thermotolerant coliform (TTC), and fecal streptococci using standard methods. Half of the drinking water sources reported having TTC or fecal coliform >0 CFU/100 mL. About 50% of public boreholes, 49% of private boreholes, and 47% of Piped Water Supply Schemes were found to contain TTC >0 CFU/100 mL. The unsanitary conditions around public drinking water sources and unprotected private shallow wells pose a potential risk for the contamination.

The infant mortality rate of West Bengal is 32.¹⁷ comparatively lower than that of the national average of 44. However, the morbidity rate and numbers in West Bengal are comparatively high. The total reported diarrheal cases in West Bengal is 18% of the total cases in the nation as per the National Health Profile. This makes West Bengal as the second highest ranking state in diarrheal case after Andhra Pradesh.

Despite good network of decentralized water-testing laboratories and regular testing of drinking water sources, the information generated largely remains unanalyzed resulting in action gap toward timely mitigation measures. To increase the confidence in the data generated through labs, a referral check mechanism is essential.

A recent analysis by UNICEF, India (based on NFHS-3) revealed that in rural West Bengal, 18% of the wealthiest population in the society enjoy access to water via pipe distribution system. On the contrary, it is 0% for the poorest quintile. Only 3% of the richest quintile use unimproved sources while it is 11% for the poorest quintile. To address the disparity, policy and actions are required to reach the underprivileged and unreached communities on priority.

According to Census 2011 data, nearly 80%¹⁸ (10.97 million) of rural households in West Bengal largely depend on the boreholes/tube wells as their principal drinking water source. About 11.4% (1.57 million) of rural households are using tap water as the main source of drinking water. While there is an increase of 4.4% households using tap water in West Bengal (Census 2001), there are large numbers of households yet to be provided with tap water connections. Even if the availability of drinking water within premises increased by 7.1% in West Bengal (Census 2001), still

11 MDWS, Government of India. (2013).

12 MDWS, Government of India. (2002).

13 Public Health Engineering Department, GoWB. (August 2011). VISION Plan 2020.

14 Ray, B. (2016). Tracing the progress of Drinking water security in Rural India through policy initiatives. *Risk, Hazards, & Crisis in Public Policy*, 7(1), 25–51.

15 United Nations General Assembly. (July 2010).

16 MDWS, Government of India. (2013).

17 UNICEF & WHO. (2012).

18 MDWS, Government of India. (2013).

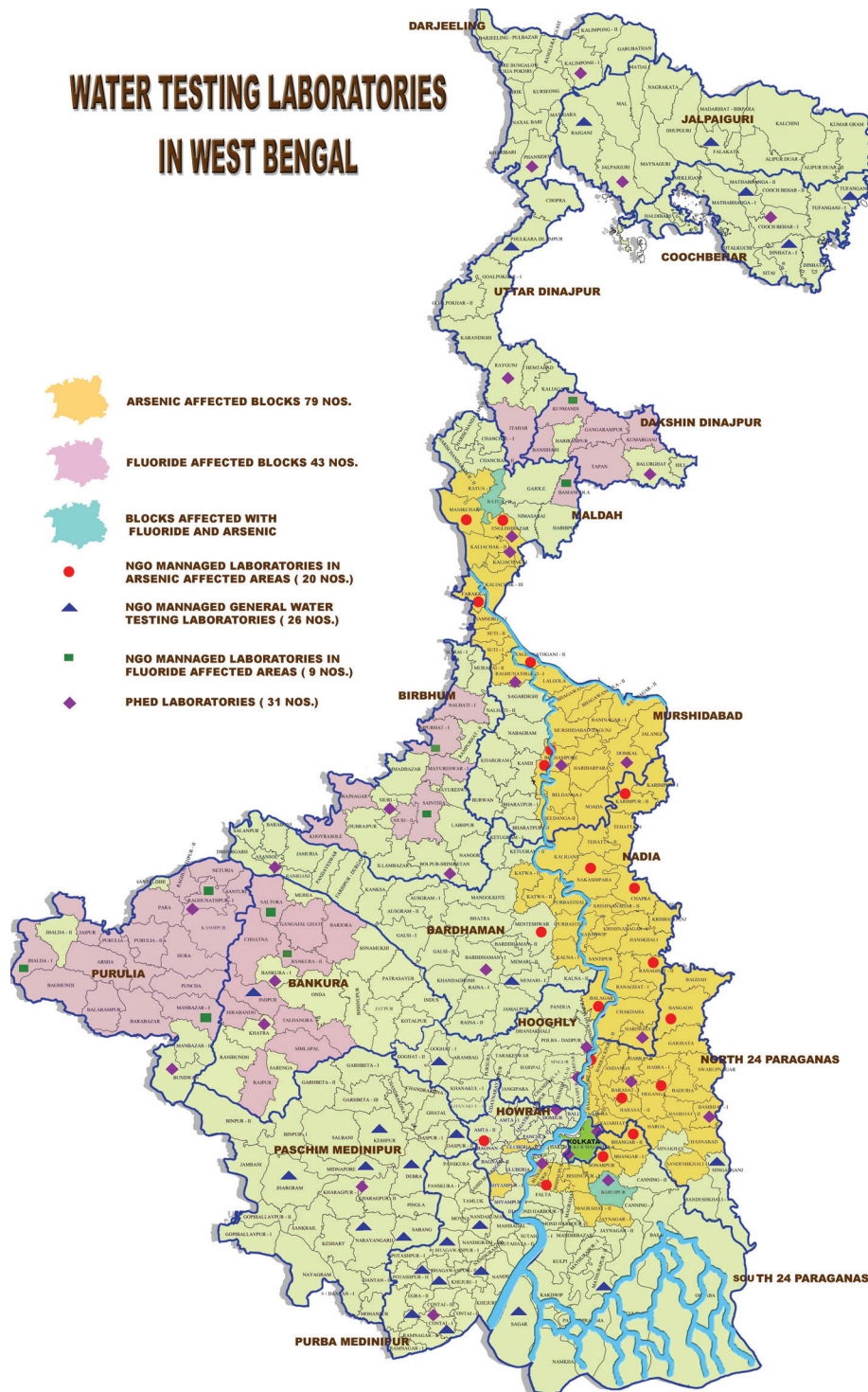


Figure 1. Water testing laboratories in West Bengal.

31.5% (4.32 million) families travel >1/2 km to bring drinking water (Census 2011). Compared to other social groups, the number of households in rural areas (in %) with access to drinking water facility inside their “premises” is much lower among the scheduled caste (SC) and scheduled tribe (ST) households. For the former, the statistics stands at 30% (1.19 million) of the households, and for the latter, it is as low as 15%

(0.17 million). The coverage is generally inadequate in rural areas irrespective of the social group. If we consider tap water supply from treated water sources, covered wells, tube wells, and hand pumps as improved sources of drinking water, we can state that 88% (12.10 million) of rural households in West Bengal have access to improved sources of drinking water, which is better than the national average of 75.60%.

Situation Analysis

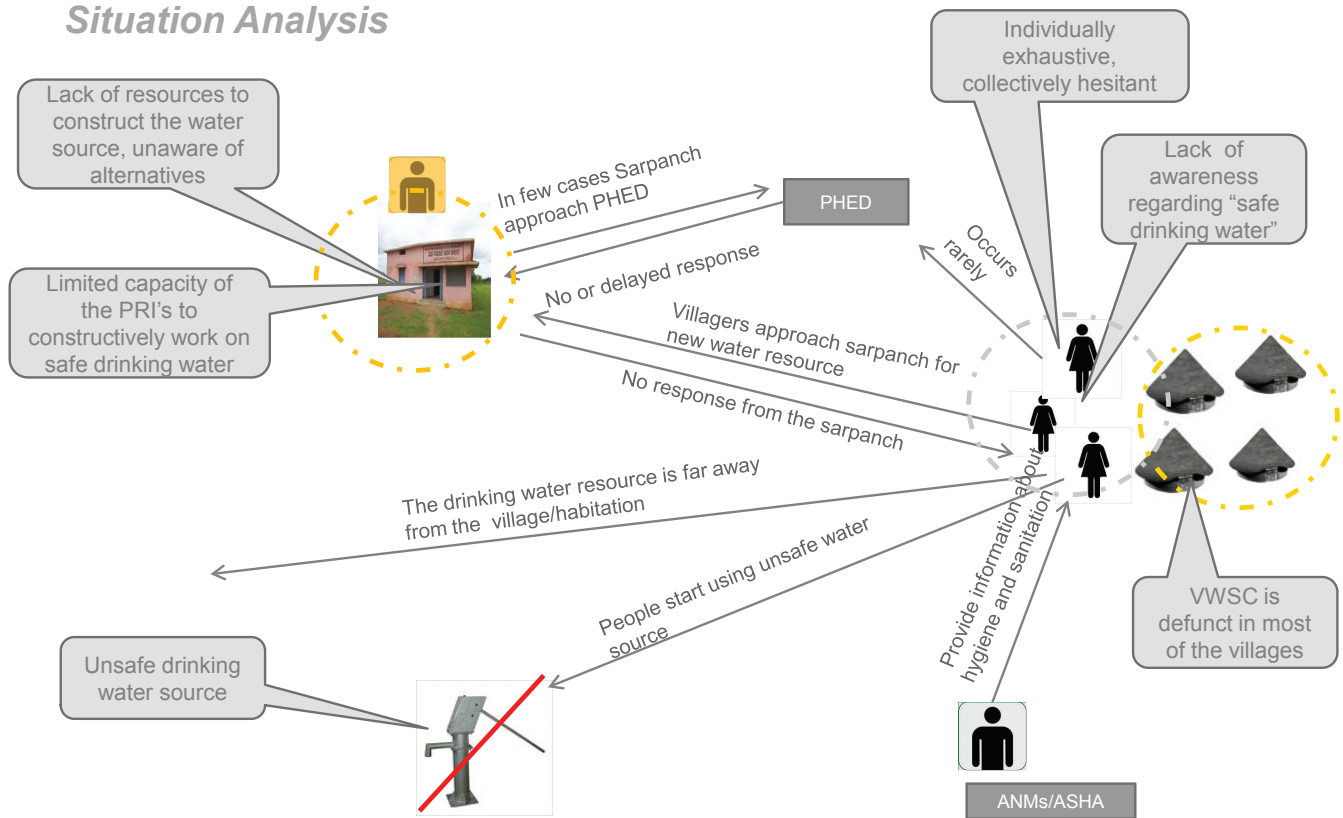


Figure 2. Barriers to demand for safe drinking water.

Drinking water sector deserves the highest priority over the other competing water uses in view of the limited and dwindling water resources. There is a need to give a voice to those without access to safe drinking water and ensure that they are treated fairly. A focus on water security, sustainability, water safety, and the environment (including climate change) is needed to ensure equity in water resource management.

3. BARRIERS TO DEMAND FOR SAFE DRINKING WATER

People do not understand “safe water” issues and so do not conceptualize “safe” drinking water as an entitlement. So, they do not argue it’s their right. For example, few citizens think it to be “availability of water round the clock.” Some citizens perceive as “having hand pump being installed in their house.” The overall belief of people about the “right to safe water” implies somebody’s capability to locate and contact the appropriate individual capable to solve water-related issues.

Figure 2 illustrates the multiple layers of barriers and interventions faced by people to obtain information related to “safe water” to assimilate new know-hows and translating those into household

behavior. Figure 2 further extends the scenario from “individual and household” level to “community” and “policy” levels. Community level engagement and involvement is necessary to address the associated risk (i.e., contaminated low quality water) and the lack of active “Village Water and Sanitation Committee.” The above described factors constitute essential roadblock to have access to “safe and sustainable water.”

4. ISSUES AND NEEDS FOR DRINKING WATER IN THE RURAL SECTOR

In the context of West Bengal state, the following issues and concerns for rural drinking water sector are summarized as follows.

4.1 Policy action gap

- The NRDWP guidelines expect states to ensure household water safety and security in rural areas. However, the relevant matching actions and equal understanding toward its implementation among stakeholders is yet to be in place. There is a need to sensitize stakeholders around the policy and to develop decentralized plans for ensuring household level water safety.

- Despite efforts for providing safe drinking water through long-term surface water supply options under the master plan for arsenic mitigation, significant segments of the population continue to be at risk and yet to be fully covered with safe water. There is a need to accelerate the service delivery addressing the bottlenecks. Community also needs to be proactive to demand and gain access to safe drinking water.
- Policy guidelines for reducing sanitary risks and disinfecting bacteriologically contaminated tube wells exists. Timely action toward water safety at the user end still remains challenging. There is a need for improving convergence between programs and departments toward coordinated actions for the treatment of contaminated water sources through greater community involvement.

4.2 Convergence and intersectoral coordination

- Limited intersectoral collaboration and convergence among the key stakeholders (water, health, and rural development) and procedural and implementation related bottlenecks retard the service delivery. Therefore, the benefits of the program do not reach to the marginalized and deprived communities including to those living in water quality affected areas.
- Inadequate information (diahoreal cases and water quality-affected sources) sharing between key line departments impacts adversely toward mitigation efforts especially in the quality-affected areas and enhances avoidable public health risk and disease burden.

4.3 Equity and exclusion

- Rural–urban divide exists in creating drinking water facilities within the premises. For example, 56% of urban households, 30% of rural areas, 30% of SC rural households, and 15% of ST rural households have drinking water facility within the premises (Census 2011).
- Huge disparities exist across the rural districts of West Bengal in terms of the improved water supply through water pipe connections. About 4.2% households in Uttar Dinajpur have water pipe connections compared to 23.5% households in Darjeeling (Census 2011).

4.4 Implementation level

- Water, sanitation, and hygiene (WASH) service delivery system especially for the treatment of contaminated water sources and related information management needs to be augmented at sub-district level.
- Limited appreciation exists among water supply institutions/departments toward responding to the changed program needs as outlined in NRDWP. This is especially prevalent for community, and stakeholders' engagement is needed for improved service delivery and its sustenance in rural areas.
- NRDWP guidelines expect devolution of powers and transferring rural water supply schemes to the local Panchayat Raj Institutions (PRIs) to ensure greater stakeholder involvement and local ownership. However, for sustainable and decentralized management, more efforts and investment would be required toward capacity building of PRIs for achieving the program objectives.
- Inadequate analysis of primary water quality data and absence of referral testing system poses the risk of reducing the water quality monitoring and surveillance program to water testing and data collection only.
- Movement of arsenic in underground aquifer and arsenic presence in food chain have increased the public health risk and exposure. This is compounding in the absence of concurrent surveillance and mapping.

4.5 Community level

- There is a limited information sharing among the user communities on water quality and health linkages coupled with inadequate strategy and plans toward investment on community capacity enhancement for decentralized management.

5. OPPORTUNITIES

Enabling policy environment at the national and state levels and large resource allocations for ensuring water safety and security provides excellent opportunities for water sector in India to improve the service delivery and reduce WASH-related disease burden.

S.N. Dave, water, sanitation, and hygiene (WASH) specialist, is working with United Nations Children's Fund (UNICEF). He has 33 years of rich experience in development sector managing development programs in government and UNICEF. He possesses professional expertise in WASH, Water Quality Monitoring and Surveillance, Integrated Guinea Worm Eradication, and Integrated Watershed Development Program areas.



By profession, he is an Agricultural Engineer with a Diploma in Management and also holds a certificate on WASH in school from Emory University, USA. He did a Dynamic Leadership Certificate course from Harvard Business Publishing, USA. Mr. Dave has visited couple of countries for sharing his experience during international conferences held at UK (WEDC), Sweden (World Water Week), Bangladesh (WEDC), and other South Asian countries (Sri Lanka and Nepal). His papers have been published on water safety and security in international publications. One of his projects on biogas-linked toilet model that conserves energy and reduces greenhouse gas emission is published as an innovation in UNICEF global website.

Dr. A. Shunmuga Sundarraj has obtained a Ph.D. degree in chemistry and worked as a National Consultant in the Ministry of Drinking Water & Sanitation, Government of India for 3 years and involved in the preparation of guidelines and manuals relating to water quality program. Besides coordination with all States/UTs for institutionalization of Water Quality Monitoring and Surveillance Program, he liaised with the key resource institutions at the national and state levels dealing with water quality issues under Rural Water Supply Program. He worked later as a Consultant, Water Safety and Security, UNICEF, Kolkata Field Office for 6 years. He provided technical support for implementing the National Rural Drinking Water Program and demonstration of innovative projects especially in arsenic-and fluoride-affected districts in West Bengal.

