



Management

## **DRINKING WATER SUPPLY IN RURAL INDIA: NEED FOR STRATEGIC ACTION PLAN**

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### **Abstract**

Water scenario in India has been now fast changing because of increasing population, rising demand for irrigation to raise high-yielding varieties of crops, rapid urbanization and industrialization, electricity generation, impact of global warming, erratic rainfall, among others. Water for Life Decade [2005-15] and the annual World Water Day being celebrated on March 22 every year has significance to create awareness among all stakeholders that water is finite, scarce, costly, precious and has competing demand. Water should, therefore, be efficiently managed for country's sustainable socio-economic development. Drinking water in India has been significantly dependent upon the monsoon rains and increased climate variability is expected to impact it. Despite Government's several initiatives the current drinking water scenario needs strategic action plan to ensure that safe and quality drinking water is delivered in rural India by 2022. It is in this context this article highlights the Government's initiatives, current scenario and performance under the rural drinking water supply system and suggests strategic action plan for efficient management of rural drinking water supply system.

**Keywords:** Drinking Water; Rural India; World Water Day.

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### **1. Introduction**

Asian Development Bank in its report on *Water Operational Framework 2011-2020* explicitly cautioned that by 2030 water shortages are likely to aggregate 40 per cent in developing Asia and in India demand will exceed supply by 50 per cent. Domestic water usage in India has been predicted to increase from five per cent in 2000 to eight per cent in 2015 and 11 per cent in 2050. The Government in its document on "National Water Mission under the National Action Plan for Climate Changes" highlights plethora of problems and risks associated with increasing water scarcity. The United Nation's Annual World Water Development Report released in March 2015

says “In many countries including India, water use is largely unregulated and often wasteful. Pollution of water is often ignored and unpunished. At least 80 per cent of India’s population relies on groundwater for drinking purpose to avoid often unsafe surface water. It urges policymakers and communities to rethink water policies and calls for more conservation and recycling of waste water as is done in Singapore. Countries may also want to consider raising the price for water, as well as searching for ways to make water-intensive sectors more efficient and less polluting.”

## 2. Government’s Initiatives

- Acknowledging the significance of rural drinking water the Union Government has, since the first plan period [1951-56] till the eleventh plan period [2007-2012], invested Rs.711.1287 billion and provided Rs.687.86 billion in the twelfth plan[2012-17]. Similarly, States, too, have invested Rs.845.1762 billion during 1969-2012. The Union Government has doubled the investment in every plan after the sixth plan [1980-85] during which it invested as high as Rs.8.9538 billion as against a meager Rs.1.5717 billion during 1974-80.
- The Union Government in 1972-73 initiated *Accelerated Rural Water Supply Program* aimed at assisting States/Union Territories to accelerate the coverage of drinking water supply in ‘*problem villages*’.
- In 1986, the Union Government introduced a “*Technology Mission*” focusing on water quality, appropriate technology intervention, human resource development support and other related activities. It was renamed in 1991 as the *Rajiv Gandhi National Drinking Water Mission*.
- In 1999-2000, with the implementation of *Sector Reform Projects* the community was involved in planning, implementation and management of drinking water schemes. In 2002 this was scaled up as the *Swajaldhara Program*.
- From April 1, 2009, the program is restructured and named the National Rural Drinking Water Program (NRDWP). Union Government in 2005 launched Bharat Nirman, a program to build rural infrastructure. Rural drinking water was one of the six components of Bharat Nirman. The Centrally Sponsored NRDWP aimed at providing adequate and safe drinking water to the rural population was an integral part of creating rural infrastructure. The Bharat Nirman helped in mobilizing significant additional resources and creating an environment for the development of infrastructure and capacities for successful operation of drinking water supply schemes in rural areas.
- From 2010-11, States prepare Annual Action Plan, a framework for proper targeting and monitoring the progress under the NRDWP, detailing the activities, financial costs and action points in the rural drinking water sector. This has improved the effectiveness of the NRDWP. The Union Government is establishing “*International Centre for Drinking Water Quality*” in Kolkata. The objective is to concentrate on identification, mitigation and management of drinking water quality related problems with a focus on arsenic, fluoride and other emerging contaminants. The Centre will focus mainly on research and development activities, assessment of various treatment technologies, training, net-working with all related organizations, among others. This will facilitate to consider policy initiatives under the NRDWP in particular and in the drinking water sector in general.
- Government has, also, identified institutions/ organizations having domain knowledge and expertise in water and selected them as National Key Resource Centres which are engaged

in capacity building, reorientation of different stakeholders, dissemination of knowledge and information, documentation of best practices in order to achieve the goal of drinking water security in rural areas. At present there are 56 Key Resource Centres out of which 38 are in the area of drinking water, eight exclusively in sanitation and 10 for both drinking water and sanitation.

### 3. Current Scenario

- According to the World Health Organization and UNICEF, the use of improved sanitation coverage in rural India increased to only 21 per cent in 2008, number of “no source” villages still 65,000 and estimated 200 million people accessed unhygienic water.
- Not only many villages are without dependable source of drinking water but several villages have been experiencing impact of hazardous chemicals in the aquifers of groundwater. A high proportion of the rural population in India obtain their drinking water supplies from shallow and private bore holes, which suffer considerably from the impact of chemical fertilizers, pesticides and other elements injurious to health viz. fluoride, nitrate, chloride, arsenic, sulphide, iron, zinc, chromium and salinity.
- Government and other agencies have identified as under 185 locations/districts throughout the country where these pollutants cause harmful effects.

Table 1: Number of districts / States with hazardous chemicals

Fluoride [37] {9}	Salinity-coastal [11] {4}	Chloride [17] {5}	Sulphide [3] {11}	Zinc [6] {3}
Salinity-inland [12] {5}	Nitrate [68] {12}	Arsenic [4] {1}	Iron [26] {7}	Chromium [1] {1}

Source: Ministry of Drinking Water and Sanitation, Figures in parentheses [ ] & { } indicate number of locations & States respectively

- According to the Census 2011, about 85 per cent of rural households obtain drinking water from improved sources, viz. tap water [31%] well water [13%] hand pump/tube well [52%] and 4 per cent from unimproved sources.
- As on December 31, .2013 rural population accessing piped water [42.78%], rural households having drinking water in their premises [46.1%], households traveling 200 meters [40.9%] and between 200 and 500 meters [9.3%], households getting good quality water [87.7%] and those getting sufficient water throughout the year for all household activities [86.0%]

### 4. Performance

Performance under Bharat Nirman Phase I [2005-2009] and Phase II [2009-2012] is as under.

Table 2: Targets and Achievements under Bharat Nirman Phase I and II  
 [Number of habitations]

Category	2005-09		2009-12		Total	
	Target	Achievement	Target	Achievement	Target	Achievement
Uncovered	55,067	54,440	627	627	55,694	55,067[98.9]

Partially covered/Slipped Back	3,31,000	3,58,362			3,31,000	3,58,362 [108.3]
Quality affected	2,17,000	50,168	1,79,999	81,357	3,96,999	1,31,525[33.1]
Total	6,03,067	4,62,970	1,80,626	81,984	7,83,693	5,44,954[69.5]

Figures in parentheses indicate percentage achievements

- As on April 1, 2013 the current status of provision of drinking water in rural areas as measured by the percentage of rural habitations [11,61,018] where the population is fully covered with adequate (40 litres/capita/day) and safe drinking water is about 68.61 per cent of total rural habitations [16,92,251]. and 26.50 per cent [4,48,439] have been partially covered. Also, 82,794 habitations which were affected by the quality of water were covered, viz. arsenic [1917], fluoride [15565], iron [43662], salinity [18589] and nitrate [3061].
- During 2012-14 of the 12th plan [2012-17] 33,328 quality affected habitations have been covered.
- As on March 31, 2014, against targets of 2,31,632 partially covered/slipped back habitations achievements were 2,50,727 [108.2%] and against targets of 51,866 quality affected habitations achievements were 33,328 [64.2%] taking aggregate achievements of 2,84,055 habitations [100.2%] against targets of 2,83,498.
- As against the target of 4,34,664 rural habitations to be covered during the twelfth Plan, achievement so far is 2,84,055 [65.35%]. However, due to slippage of fully covered habitations to partially covered habitations in the year 2012-13, the target of habitations to be covered has increased. Some States have exceeded their targets, whereas Sikkim, Punjab and Mizoram have achieved less than 50 per cent of targets.

## 5. Thrust During Twelfth Plan

Twelfth plan has proposed that by end of 2017[i] At least 55% of rural households are provided with piped water supply [ii] At least 35% of rural households have piped water supply with a household connection; less than 20% use public taps and less than 45% use hand pumps or other safe and adequate private water sources [iii] All services meet set standards in terms of quality and number of hours of supply every day [iv] All households, schools and anganwadis in rural India have access to and use adequate quantity of safe drinking water[v] Provide enabling support and environment for PRIs and local communities to manage at least 60% of rural drinking water system and sources.

A project for the installation of Solar powered dual pump based piped water supply schemes in 10,000 habitations of 82 Integrated Action Plan districts with funding from NRDWP and the National Clean Energy Fund is under implementation.

A Pilot project on Drinking Water Security Planning through Integrated Water Resource Management and source sustainability measures on a participative basis is under implementation in 15 over-exploited Blocks.

Focus is on piped water supply rather than on hand pumps in order to reduce the pressure on ground water extraction and ensure quality of water; Enhancing the services for rural water supply from the norm of 40 to 55 litres /capita/day for 24 hours and seven days. Waste water

treatment and recycling to be an integral part of every water supply plan or project bringing the concept of Renovation and Modernization into the planning process;

## 6. Strategic Action Plan

The European Union's vision in its 2000 *Water Framework Directive* with the goal of achieving sustainable management of water states in its preamble, '*Water is not a commercial product like any other but, rather, a heritage which must be protected, defended and treated as such*'. Some voluntary organizations perceive that *Water is an endowment of nature to mankind and is not a property of the State or any individual and is never a private asset*. India should, therefore, consider guaranteeing all households and livestock easy and reliable access to safe and adequate drinking water as the basic constitutional right.

The Government has an ambitious plan to achieve specific goals by the end of 2022 and assist the States in meeting the rising expectations of the rural people for better service delivery standards in rural drinking water supply, viz. [i] At least 90% of rural households are provided with piped water supply [ii] At least 80% of rural households have piped water supply with a household connection; less than 10% use public taps and less than 10% use hand pumps or other safe and adequate private water sources [iii] Provide enabling support and environment for all Panchayat Raj Institutions and local communities to manage 100% of rural drinking water sources and systems. This calls for formulating strategic action plan as under.

- Annual Action Plans for five years from 2017-2022 detailing block-wise in each district within the state must be formulated to cover uncovered 5,31,233 habitations along with already slipped back/partially covered habitations and address ameliorating the current hazardous state of drinking water in 2,32,146 habitations. In fact, AAP should be formulated based on Program Evaluation & Review Technique or Critical Path Method focusing sharply who should do what and when to yield expected results. Adopting already tested management techniques, good governance and proven technologies should help achieve the goals set to be achieved by the end of 2022. Progress must be monitored on a quarterly/half yearly/annual basis at block/district/state and national level and publicized in print and electronic media and Ministry's website for public and academic consumption.
- Though provision of safe and adequate drinking water in rural areas primarily falls within the jurisdiction of the State Governments PRIs must be trained and fully involved in the day-to-day management of rural drinking water supply system since it is included in the Eleventh Schedule of the Constitution among the subjects that may be entrusted to Panchayats by the States. For this PRIs, must be trained for their capacity building and exposure visits organized to share experiences and learn best practices adopted by others.
- Adequate care has to be exercised to ensure that habitations already covered do not get slipped back in any case. If so, immediately it must be remedied.
- All cautions and precautions need to be exercised to ensure that sources of drinking water along with its supply system in any case does not get contaminated
- Based on worldwide experiences it should be the endeavours to improve the water use efficiency through innovative management approaches, water conservation and watershed management initiatives.

- Sustainability of drinking water sources and systems should be the concern to ensure that habitations once provided with drinking water supply do not slip back and face drinking water problem.
- Conjunctive use of water i.e. judicious use of rainwater, surface water and groundwater should be encouraged in order to achieve drinking water security at village/ habitation level.
- To invest adequately in research and development that can identify and develop new sources of potable water and augment water availability.
- Water should be responsibly delivered to all without discrimination, prioritizing vulnerable groups, such as weaker sections and low income groups.
- Affordable price, delivery with dignity, convenience, reliability, flexibility and continuity determine the quality of services.
- All out efforts and scientific/judicious management techniques can help eliminate wastage and bring down the cost of delivery.

## 7. Conclusion

Over the years, there has been a manifested lack of attention to water legislation, water conservation, water use efficiency, water harvesting and recycling. Studies reveal that the country at the aggregate level receives fairly a good rainfall at about 1170 mm [46.8 inches] per annum and almost 50 per cent of it is received in a span of 15 days and 90 per cent of the rainwater is lost due to run-off in just four months. Thus, water through adoption of scientific techniques must be properly stored and efficiently used and in any case not wasted to sustainably meet the growing demand of drinking water.

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