# Drinking Water in Tribal Areas: A Policy Analysis

**Sunkari Satyam***

**Abstract**

The present paper analyses the existing situation of drinking water supply under National Rural Drinking Water (NRDWP) programme which was initiated in 2008 under the Eleventh Plan strategy. Whether the programme ensured safe drinking water to tribal habitation is the central research question probed in the present study. The reason to formulate such a research question was that the programme was targeted to ensure availability of potable drinking water on sustainable basis in SCs/STs dominant habitations. In this context, the study focused on tribal areas of Telangana state to identify hurdles of such stipulated policy. But, in contrast to plan's goals, it was found that small clusters and habitations were not able to access water from the common water supply schemes located in rural and tribal areas.

**Keywords:** Rural Water Policy, Drinking Water, Tribal Habitation, Gram Panchayats

## Policy Context

The present research is based completely on empirical invistigation. The study was based on extensive field visits in tribal habitations of Utnoor, Narnoor, and Sirpur-U mandals of Utnoor ITDA areas of Adilabad district to understand the severity of drinking water scarcity, irrigation and livelihoods of respective local people. It was held during the summer season (April and May) of 2016. Simulteneously, the study covered all issues which documented all the social and economic issues including drinking water sources. While the study was taking place, issues on 'what are the policies in India concerning rural drinking water?', 'what are those policies?', 'how are they being implemented?', 'whether they are really in opertaions or not?' were addressed by having interactions with the people. Further, it was also tried to locate international polices or frameworks in the present context as they also have some degree of influence to ensure potable drinking water to both rural and urban areas. It is to be noted that all the frameworks or policies or laws may not apply directly in India but may ensure or contribute in various ways to the development of water laws or policies at the international as well as national levels. Then, it was also tried to understand the severity of drinking water scarcity in tribal habitations.

Having safe drinking water is a birth right of every individual, water supply and sanitation were given due priority in the national agenda during the First Five-Year Plan (1951-1956). Consequently, increasing investments have been made in subsequent plans. More importantly, a new National Water Policy was adopted in 2002 and some states like Karnataka, Madhya Pradesh, Orissa, Rajasthan, and Tamil Nadu have also drafted state policies based on the national policy. The major flagship programme of the Government of India is the Accelerated Rural Water Supply Programme (ARWSP) which was initially launched in 1972-73. The entire programme was operated on mission mode. Later, the Technology Mission of Drinking Water and Related Water Management, also called the National Drinking Water Mission (NDWM) came into force in 1986. It was one of efficient policies launched by the Government of India during the late 80s. The NDWM was renamed as the Rajiv Gandhi National Drinking Water Mission (RGNDWM) in 1991 (Planning Commission, 2002) and the present union government (NDA-II) mentioned it as National Drinking Water Mission in the official website of the Ministry of Drinking Water and Sanitation.

Further, the study was tried to understand larger scenario on drinking water by reviewing some important national and

* Assistant Professor, Council for Social Development, Hyderabad, Telangana, India. Email: satyamvvm@gmail.com

international reports. It was understood that the situation was worst on rural water scenario as the condition on rural diversified ecological habitations were in severe state. For instance, the study by Khurana and Sen (2008) presents that the rural population of India comprises more than 700 million people residing in about 1.42 million habitations spread over 15 diverse ecological regions. It is true that providing drinking water to such a large population is an enormous challenge. Our country is also characterised by non-uniformity in level of awareness, socio-economic development, education, poverty, practices, and rituals which add to the complexity of providing water. The health burden of poor water quality is enormous. It is estimated that around 37.7 million Indians are affected by waterborne diseases annually, 1.5 million children are estimated to die of diarrhoea alone and 73 million working days are lost due to waterborne disease each year. The resulting economic burden is estimated at $600 million a year.

It was also reported that the problems of chemical contamination was prevalent in India with large amount of Indian habitations as these were connected by poor water quality. The major chemical parameters of concern are fluoride and arsenic. Iron is also emerging as a major problem with many habitations showing excess iron in the water samples (Khurana & Sen, 2008). As it was mentioned by Khurana and Sen (2008), the provision of clean drinking water has been given priority in the Constitution of India, with Article 47 conferring the duty of providing clean drinking water and improving public health standards to the State, accordingly spent nearly Rs.1,105 billion till the Tenth Five Year Plan, but the situation was unchanged.

Further, data available with the Department of Drinking Water Supply shows that of the 1.42 million rural habitations in the country, 1.27 million are fully covered, 0.13 million are partially covered and 15,917 are not covered. However, coverage refers to installed capacity, and not average actual supply over a sustained period or the quality of water being supplied which is the most essential part. While accessing drinking water continues to be a problem, assuring that it is safe is a challenge by itself (Khurana & Sen, 2008).

It was observed in rural India spread over different regions including plains, hills, deserts, and dense forests, providing drinking water in such different and diversified areas and sometimes remote areas is very difficult. But considering intensity of waterborne diseases, it is essential to create alternative sources to provide potable drinking to all the habitation. It is evident that excess fluoride in groundwater-based drinking water supply is a growing concern in semi-arid tropical (SAT) regions of India. More than 16 states[1] in India are facing the fluorosis problem (Muralidharan, Rangarajan, & Shankar, 2011). Thus, recently produced research, further, reported that of the total 842.54 million of people from 16 states, 739.08 millions are affected by fluoride (Muralidharan et al., 2011; Khurana & Sen, 2008). Thus, it could be understood the severity of fluoride in some parts of India.

According to the India's Tenth Five Year Plan document, it is estimated that 80% of domestic needs in rural areas and 50% in urban areas is met by ground water, moreover it may not be changed as the exploitation of the source has been in increasing mode. India, geographically, has strong and tremendous potential in recharging and recycling groundwater. As it estimated by the Central Statistical Organisation, India's total replenishable groundwater has been estimated at 431.8 km. The average level of groundwater development in India is 32%, although some states have exploited their resources to a much greater extent. For instance, greater exploitation is evident in Punjab (94%) followed by Haryana (84%), Lakshadweep (64%), Tamil Nadu (60%), and Rajasthan (51%) (Central Statistical Organisation 1997). Further, in terms of sector-wise exploitation, irrigation is the major sector in exploitation of ground water resources (85%), as 70 to 80% of India's agricultural output is dependent on groundwater, followed by industrial exploitation (15%). Though industrial exploitation in ground water usage may be much lower than agriculture but pollution concentration is very high with industrial usage (Panda, 2003).

In addition, Grail Research report (2009) states that traditionally, India has been well endowed with large freshwater reserves, but the increasing population and overexploitation of surface and groundwater over the past few decades have resulted in water scarcity in

[1] The states are as follows: Uttar Pradesh, Andhra Pradesh, Rajasthan, Maharashtra, Madhya Pradesh, Karnataka, Punjab, Haryana, Delhi, Orissa, Bihar, Tamil Nadu, Gujarat, West Bengal, Kerala, Jammu and Kashmir, Himachal Pradesh and North Eastern States, see for more details in Muralidharan *et al*., 2011).

some regions; growth of the Indian economy is driving increased water usage across sectors. Wastewater is increasing significantly and in absence of proper measures for treatment and management, the existing freshwater reserves are being polluted and increased urbanisation is driving an increase in per capita water consumption in towns and cities. Urbanisation is also driving a change in consumption patterns and increased demand for water-intensive agricultural crops and industrial products. Intergovernmental Panel on Climate Change's report of 2007 also substantiated with the view of the Grail Research report, while presenting that due to heavy polluted components from expanding urban, industrial and agricultural uses, traditional freshwater bodies and reserves have a limited capacity to process the pollution stemming. Gradual degradation process of water quality can be a major source of water scarcity. A decline in water quality can result from the increase in runoff and precipitation- and while the water will carry higher levels of nutrients, it will also contain more pathogens and pollutants. These contaminants were originally stored in the groundwater reserves but the increase in precipitation will flush them out in the discharged water (Climate Institute, 2007).

Consequential issues relating to degradation of natural freshwater bodies like increasing population, overexploitation of surface and groundwater, increased urbanisation, increased demand for water-intensive agricultural crops, and industrial products are speedily affecting on major sources of fresh water resources. Thus, gradual degradation of traditional water resources highly impacted on the lives of rural people, consequently, the policies of drinking water have emerged as important area for concern and consideration. In this backdrop of situation, the study intended to understand the existing situation of drinking water supply under the programme of National Rural Drinking Water (NRDWP) which was initiated in 2008 under the Eleventh Five Year Plan strategy.

## Situational Analysis - A Methodological Issue

Another question raised in the researcher's mind was how to analyse the situations of the present problem. At that moment, the study was structured through some existing literature. The researcher reviewd some important literature to analyse the contemporary issues. Further, while reviewing existing important litertaure on how to contextuaise the issues relating to situations of remote tribal areas in social science research domian, the researcher was attarcted to Hedstrom, Swedberg, and Udehn's (1990) work on 'Poppers's Situational Analysis and Contemporary Sociology' and adopted the value of Karl Popper's situational analysis for constructing contemporary sociology locating this specific problem. The study has maintained that Popper's social science methodology has been largely neglected by sociologists and further notes that this is because it is borrowed from economics. As such, situational analysis has much in common with recent attempts to introduce rational choice in sociology. It was presented here based on the main question of what the contribution of situational analysis is to the current debate about rational choice in sociology. While the analysis by Hedstrom relates to their main idea of whether Popper's debate is really a guide to research, my idea of taking Popper's interpretation is to present lucidly existing situations on this specific issues of water policy. In his interpretation, Popper's idea brought that situational analysis has to pay due attention to interests and to social interaction in the explanation of social phenomena, especially, social institutions as the most important element in individuals' situations.

## Nature of Village Settings

The study is conducted in a Gram Panchayat named Shettihadpanur in which there are 23 small and medium size habitations in the mandal of Sirpur –U of Adilabad District. In this study, the achievements, shortcomings, and challenges in implementation of the programme are analysed. The research is based on field observations, interactions with communities, especially women and also interactions held with the concerned officials in the Integrated Tribal Development Agency (ITDA) of Utnoor. The filed survey was done during summer season in the month of April, 2011.

The surveyed villages in ITDA Utnoor are Bimangutta, Chapri, Kallurguda, Kohinur B, Kohinur K, Pataguda, Patelguda, Rajulaguda, Samuguda, SC Guda, Shettihadpanur, Shivaguda, Sidimguda, Somuguda, Soyamguda, Thatiguda K, and Wadiguda of Utnoor, Narnoor and Sirpur U mandals. Physical appearances of all the villages are similar and primarily, all the habitations comprise with tribal community of Gonds, Kolams and in some habitations, Lambadas and Mathuras. Most of them

are dependent on agriculture and agricultural labour and some of them are also dependent on non-timber forest produce (NTFP). The major crops sown by them are cotton, jowar, and soybean with intercrops of different pulse and other seasonal vegetables in rainy season. Most of agricultural fields are dependent on monsoon rains. Very few of fields have submersible pumps and some of these pump sets are distributed by the government.

Thus, it can be said that the area is completely under rain-fed agriculture. It is clearly visible and also observed through field visits and interactions with local people that there is lack of constructive irrigation resource for agricultural purposes. As a result, most of them depend on other wage labour works. Some of them are forced to leave for seasonal migration to nearby urban centres in addition to individual farming activities and labour works under MGNREGA, even though it cannot provide regular work. Some of them are dependent on seasonal NTFPs which involve collection of mahua flowers and tamarind. Some of them involve in post-harvest land development activities. But these are all labour works which substitute only meagerly, and not for adequate or profitable incomes. The major challenge in this area is inadequate irrigational sources for sustainable agriculture. Almost all habitations have been dependent on hand pumps for regular water consumption. Water occupies a prominent place in livelihoods and health in these remote tribal forest villages. In addition to that, even though there are rich natural resources, there is severe problem of drinking water availability. It is observed that there are very few submersible pumps and hand pump sets for drinking water purposes which are really inadequate for nearly 17 habitations.

## Issues on Drinking Water in Selected Tribal Habitations

Shettihadpanur as a major Gram Panchayat is divided into four revenue villages for better and speedy governance, viz. Shettihadpanur, Kohinoor K, Chapri, and Kohinoor B. Further each revenue village has different habitations under its jurisdiction. The habitations under the Gram Panchayat of Shettihadpanur are Shettihadpanur, SC Guda, Patelguda, Pataguda, Kallurguda, Rajulaguda, Bimangutta, Shivaguda, Sidimguda, Somuguda, Kohinur K, Wadiguda, Thatiguda K, Samuguda, Chapri, Soyamguda, Kohinur B, Sidimguda, Kohinur K, and Thatiguda K. As part of understanding issues on drinking water in tribal habitations, the study covered all the habitations which are mentioned in this paragraph and observed physically. Interactions were held with community, local level elected Gram Panchayat leaders including Sarpanch, ward members and village secretary, community leaders, local NGO's personnel, women, and school going children. As presented in previous paragraphs, the Gram Panchayat of the present study is divided in four revenue villages. Initially, existing drinking water resources of revenue village of Shettihadpanur are analysed here.

**Table 1: Revenue Village - Shettihadpanur**

| *S. No.* | *Name of Habitation* | *Water Resources* | *Total Households* |
|---|---|---|---|
| 1 | Shettihadpanur | • Well – 1 & Hand pump - 1 | 36 |
| 2 | SC Guda | • Well – 1 & Hand pump - 1 | 43 |
| 3 | Patelguda | • Well – 1 & Hand pump – 1 (not working) Submersible pump set (only works in rainy season) | 87 |
| 4 | Pataguda | • Well – 1 (Kunta) | 23 |
| 5 | Kallurguda | • Well – 1 & Hand pump – 1(not working) | 36 |
| 6 | Rajulaguda | • Well – 1 & Hand pump – 1(not working) | 187 |
| 7 | Bimangutta | • Well – 1 & Hand pump – 2 | 210 |
| 8 | Shivaguda | • Hand pump - 1 | 21 |

Source: Based on the inputs from head man of the respective habitations (April 2016)

The data presented in Table 1 reveals that all habitations are dependent on traditional wells along with hand pumps. It is also observed that of the total 8 hand pumps, 4 are not working, reason for which is lack of technical personnel. Pataguda is still depending on traditional wells, but it is not exactly well, it is just a kunta. It is local name of a small lake which has high chances of contamination of drinking water. If we look at household wise drinking water resources, in Shettihadpanur habitation, there are 36 households with only one hand pump and one traditional

well for their regular water consumption. Likewise, in SC Guda, for 43 households, there are only one hand pump and one well. Similar situation is observed in all habitations.

**Table 2: Revenue Village - Chapri**

| *S. No.* | *Name of Habitation* | *Water Resources* | *Total Households* |
|---|---|---|---|
| 1. | Chapri | • Well – 1 & Hand pump – 1 | 156 |
| 2. | Samaguda | • Well-1 | 36 |
| 3. | Somuguda | • Well – 1 & Hand pump – 1 | 44 |

Source: Based on the inputs from head man of the respective habitations (April 2016)

In the revenue village of Chapri, alike situation is seen as in Shettihadpanur. But, in Chapri habitation, there are 156 households, the total population may be around 624, assuming 4 members from each household. It is observed that a habitation with a population of more than 600 does not have sufficient drinking water resources. As explained, people of Chapri as well as of Samuguda and Somuguda need more drinking water facilities.

**Table 3: Revenue Village - Kohinur K**

| *S. No.* | *Name of Habitation* | *Water Resources* | *Total Households* |
|---|---|---|---|
| 1. | Kohinur - K | • Well – 1 & Hand pump – 2 | 166 |
| 2. | Somuguda | • Well – 1& Hand pump – 2(not working) | 145 |
| 3. | Thatiguda | • Well – 1 & Hand pump – 1(not working) | 67 |
| 4. | Wadiguda | • Well – 1 & Hand pump – 1 (not working) | 12 |
| 5. | Sidimguda | • Well – 1 | 48 |
| 6. | Kohinur B | • Well -2 (1 working) & Hand Pump- 3(only 1 working)<br>Mini water tank (connection with submersible pump set) | 312 |
| 7. | Soyamguda | • Well-1& Hand pump – 1 Mini water tank (not working)<br>Street taps (not working) | 234 |

Source: Information is based on field visits (as on April 2016)

Similar condition is prevalent in Kohinur K and its allied habitations. But, Kohinur B, a habitation of Kohinur K has two traditional wells, of which one is working and the other one works only in rainy season. There are three hand pumps, but only one is in working condition. There is a mini water tank which has connection with submersible pump set for water distribution. It is observed in Soyamguda that there is a mini water tank constructed, but it is not working due to lack of source of continuous water supply.

**Table 4: Revenue Village - Kohinur B**

| *S. No.* | *Name of Habitation* | *Water Resources* | *Total Households* |
|---|---|---|---|
| 1. | Soyamguda | • Well – 1& Hand pump – 1 | 5 |
| 2. | Kohinur B | • Well – 2 & Hand pump – 3 (only 1is working) | 75 |
| 3. | Sidimguda | • Well – 1 & Hand pump – 1 | 5 |
| 4. | Somuguda | • Well – 1 & Hand pump – 1 | 6 |
| 5. | Kohinur K | • Well – 1and Hand pump – 1 | 5 |
| 6. | Wadiguda | • Well -1 & Hand Pump- 1 | 5 |
| 7. | Thatiguda K | • Well-1& Hand pump – 1 | 6 |

Source: Information is based on field visits (as on April 2016)

The data presented in Table 4 reveal that like other three revenue villages, all habitations of Kohinur B are still dependent on traditional wells along with hand pumps. It has been physically observed in all habitations that all

hand pumps are in very hard conditions and not even a single hand pump is in a smooth condition. Local NGO named COFA has been working in these habitations on the theme of watershed. The NGO has also been trying to develop infrastructural facilities and to provide safe drinking water facilities under entry point activity.

Along with physical observation, interviews were held with community members, local leaders and elected representatives including sarpanch. The elected sarpanch of Gram Panchayat is a woman named Parwati Bai, elected from habitation of Bimangutta. She said that the officials of concerning departments like Panchayati Raj, Irrigation and Rural Water Supply do not respond immediately to salve the problems. She further said that they generally cite the reason for delay to be shortage of adequate technical and other administrative staff.

In her opinion, "There should be efficient mechanism to handle problems in our habitations because we are just dependent on hand pumps. Also, our habitations are located at distances. In addition, in our mandal, settings of all habitations are similar. So we need exclusively one technical person to handle and solve repairable problems of our hand pumps because we are completely dependent on them. During summer season, we bring drinking water from natural streams. We are aware that many human and animal disposals of wastes including feces contaminate the water resources. Many ignorant people dispose of urine, feces, and kitchen wastes close to our streams. Even then, we have to use such water because we do not have any alternatives."

Another woman, named, Rupa Bai, aged 26, shared her regular experiences with relation to water need in her home. She said that she does wake up early morning at 4 am to bring water for drinking and cooking purposes from at least 200 meters distance and again at 6 am, she goes to fetch water for bathing and washing. She has to do this routine regularly and has to later go for labour works after completing all domestic works. Another woman, named Rukma, aged 42 from the same habitation, expressed her problems regarding water for household needs. In her words, "We have been thinking to construct a bathroom with the help of government's scheme, but there is not any option to get water connectivity. Even in midnight, we (women) go to answer nature calls far away from our houses. My daughter has also got some health problem of urinal infection due to lack of space for proper bathroom and toilets. If we can get individual taps, we will construct the bathroom and our long awaited problems may be solved." This is her opinion and expression which portrays severity of need for water for household consumption.

## Summary and Conclusion

Based on interactions with respondents and physical observation in the field, it can be said that there is a need to develop community-based infrastructure schools, drinking water resources, health and other livelihood resources. The locals, who have involved in the watershed project, have shared their experiences that work under watershed project is provided to them to some extent but drinking water sources are neither facilitated nor developed through schemes of government.

Observations, based on the field study, are that earlier local people were dependent on traditional and natural water streams and flows available around their surroundings. At present, they are dependent on traditional resources as well as semi-modern resources of governments like hand pumps and supplied drinking water through structured tanks. The sources of drinking water are not at all adequate and hygienic. Consequently, water related diseases such as anemia, cholera, dengue, diarrhoea, fluorosis, and malaria are prevalent. It can be understood that due to lack of water supply for domestic and drinking purposes, local women are highly vulnerable to waterborne diseases. Not only women, children specifically girls are affected too. For instance, children forcing themselves to stop from urinating during night time and girls forcibly stopping urine even at day times, especially during school, due to lack of proper sanitation facilities has caused urine related health problems in them.

The purpose of supplying drinking water facilities under the programme of National Rural Drinking Water (NRDWP) which was initiated in 2008, is yet to achieve its desired results. Though it is targeted to ensure availability of potable drinking water on sustainable basis in SCs/STs dominant habitations, the policy has to focus on and needs rigorously trained and committed personalities to work with remote tribal habitations. The policy, in nature, has exclusive focus on tribal habitations and also allotted substantial financial resources. But it lacks committed bureaucratic personnel at grass-root and intermediary levels. It is observed, based on interactions with local leaders, that skilled and trained machinery is lacking and

moreover, intermediary level bureaucracy has not given much importance to strengthen the required technicians. Most of the residents of habitations go to irrigation bore wells and traditional wells to fetch drinking water due to failure of domestic bore wells. But, it is not an easy task to get water from irrigation bore wells or submersible pumps as the power supply is available in night time and sometimes these people particularly women get snubbed by farmers. It is also seen in these habitations that in a few villages, women go to traditional water bodies like small lakes, ponds and village tanks to get water for consumption.

The situation gives assurance that there are many traditional water sources. But, water needs to be brought in a sustainable way from the water sources to habitations so as to reduce the risks of contamination and ensure safe drinking water. This can be done by encouraging people's participation in managing water sources and helping them learn efficient water management skills to avoid wastage of water since water, as a natural resource, is getting more importance day by day. Although this paper is based on primary data, it still lacks in some important data sources from schools, offices of Gram panchayats and other rural facility centres. This needs to be addressed in other research papers, to estimate the policy effectiveness in a rational view. The government of Telangana has launched a programme popularly known as 'Mission Bhagiratha' for supplying safe drinking water to all the habitations of the state. The government has already started supplying drinking water to some of areas of the state. Hopefully, the tribal areas discussed in this study too will be covered under the popular scheme very soon.

## References

Climate Institute/ Water. Retrieved from http://www.climate.org/topics/water.html, access date: 14/10/2011, quoted from, IPCC 2007.

Deb, K. (2004). *Reforms in drinking water and sanitation* (pp. 1-9). New Delhi: Teri Press.

Grail Research. (2009). Water: The India Story. Retrieved from http://grailresearch.com/pdf/ContenPodsPdf/Water-The_India_Story.pdf, access date: 10/10/2011

Hedstrom, P., Swedberg, R., & Udehn, L. (1990). Poppers's situational analysis and contemporary sociology. *Online Journal of Philosophy of the Social Sciences*, 28(3), 339-364.

Khurana, I., & Sen, R. (2008). Drinking water quality in rural India: Issues and approaches. Retrieved from www.wateraid.org/~/media/Publications/drinking-water-quality-rural-india.pdf, Access Date:1/10/2011.

Ministry of Planning and Programme implementation (Department of Statistics). (1997). *Compendium of Environment Statistics*. New Delhi: Government of India.

Ministry of Rural Development (Department of Drinking Water Supply). (2010). Rajiv Gandhi National Drinking Water Mission, National Rural Drinking Water Programme: Movement towards Ensuring People's Drinking Water Security in Rural India: Framework for Implementation, New Delhi: Government of India. Retrieved from http://www.ddws.gov.in/sites/upload_files/ddws/files/pdf/RuralDrinkingWater_2ndApril_0.pdf, access date: 15/09/2011.

Muralidharan, D., Rangarajan, R., & Shankar, G. B. K. (2011). Scientific Correspondence - Vicious cycle of fluoride in semi-arid India: A health concern. *Current Science, 100*(5), 638-640.

Planning Commission, (2002). India Assessment. Retrieved from planningcommission.nic.in/reports/genrep/wtrsani.pdf, access date: 4/9/2011, New Delhi: Government of India.

Panda, R. C. (2003). Mission Director, Rajiv Gandhi National "Drinking Water Mission. Drinking Water Quality and Related Health Impact in Rural India" Presented in the 3rd World Water Forum, Kyoto. Retrieved from www.cerna.ensmp.fr/Documents/cerna_globalisation/maria-delhi.pdf, access date: 9/9/2011.