

Issues of Water Supply in Urban Society of Shekhawati Region of Rajasthan

Abstract

Water is a basic human need and a free gift to humans from nature but clean and fresh water is limited in quantity making it the most precious natural resource. In recent times, scarcity of water has prompted the challenge of providing adequate drinking water to all citizens towards the government utilities, especially in urban areas. The rapid pace of urbanization and population growth poses serious challenge to water supply provision in developing world. Urban water demand is increasing due to increase in population, industrialization and rise in living standards as well as increasing consumerism. The lack of long term planning and inefficient management of urban water usage are the basic causes of the growing problems in providing adequate drinking water to urban population. It is more serious problem in the areas which are owing to their location in dry and low rainfall climate and depend only on abstraction of ground water, like Shekhawati region of Rajasthan. Keeping this in view, the present paper seeks to highlight the issues regarding water supply in the Shekhawati region of Rajasthan and throws light on the present scenario of urbanisation and water supply provisions in this area.

Keywords: Water Supply, Urbanisation, Government Utilities.

Introduction

“Urbanisation brings opportunities for more efficient water management and improved access to drinking water and sanitation. At the same time problems are often magnified in cities and are currently outpacing our ability to devise solutions.”

-Ban Ki Moon

Former UN Secretary General

Globally, over 50% of the population lives in urban areas today and within two decades, nearly 60% of the world population will be urban dwellers (World Bank 2016). This rapid growth of urbanisation coupled with the lack of appropriate urban development policies causes various problems including inadequate sanitation and waste disposal facilities, inadequate water supply, slums, worsening water quality, excessive air pollution, noise, dust and heat, among which provision of water and sanitation have been the most pressing and painfully felt when lacking. The urban dwellers suffering the most from these problems are the urban poor. They often live in the slums or informal settlements following rapid urban growth, lacking many basic services such as safe drinking water, adequate sanitation and durable housing (UN 2014). Rapid urbanization is also having a detrimental effect on water resources both in term of quality (pollution of surface and underground water) and quantity (as increasing demands for water). Among the social consumption items supply of safe drinking water in urban areas is one of the most strident problems. So it needs to be top priority in development policies. Only growing population of urban areas is not responsible for increasing shortage in urban water supply, but the inefficient management and lack of long term planning are also the reasons behind this problem. It is, in this context important to examine various issues related to water sector in order to formulate appropriate policies.

The provision of safe drinking water is considered as a fundamental to governance; to promote good health and welfare of people (Ramachandran 2001, Verma 2009). In India, 85% of urban population has access to drinking water but only 20% of available drinking water meets the health and quality standards set by the World Health Organisation (Singh 2000, Basu and Main 2001). Rapid increase in population and urbanisation poses serious threat to the supply of safe and adequate water to urban population (Rathore et al 1994, Vajpeyi 1998). Water in most Indian cities and towns is under-priced, with ruining long-run consequences for



Vishwmaitri Shekhawat

Research Scholar,
Deptt.of Geography,
University of Rajasthan,
Jaipur, Rajasthan

Households who have limited and poor quality water services and for water supplying entities that are unable to invest and expand water coverage (Mathur and Thakur 2003, Aijaz 2010).

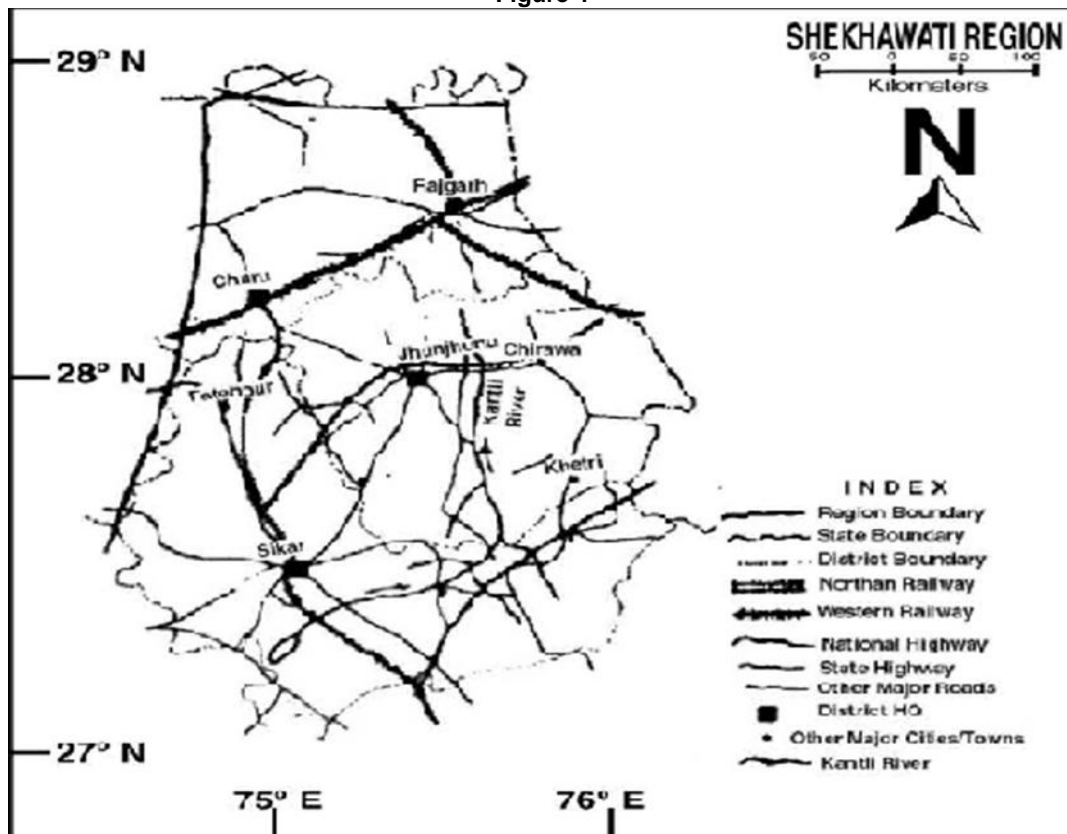
Aim of the Study

The aim of this study is to investigate the problems regarding provisions of water supply services in urban areas of Shekhawati region with highlighting the present scenario of urbanization in this area.

Study Area

Shekhawati region is located in the north-eastern part of Rajasthan state and the region has geographical extension from 26°26' to 29°20' N and 74°44' to 76°34' E. The study area falls in the three districts namely Sikar, Churu, and Jhunjhunu. Out of 7 tehsils of Churu district, only three tehsils (Churu, Rajgarh, and Taranagar) falls under Shekhawati region and Jhunjhunu and Sikar districts as whole.

Figure-1



Methodology

The present paper depends mainly on secondary data sources collected from various census volumes, master plans, reports of town planning department and PHED and official websites of various institutes.

Discussion

Shekhawati region is often portrayed as a land of villages and hamlets. Urbanisation is relatively a new phenomenon here. It may be still be a land of villages but we cannot avoid urban areas, as they are driving force in economic and social development. Basically Shekhawati is a region of small and medium towns. The census 2011 reveals that 13, 34,975

people accounting to 23.42% of the total population of region lives in the 36 towns/cities. The urban population is growing fast in recent decades and more and more people tend to concentrate mainly in 3 cities i.e. Sikar, Churu, and Jhunjhunu. The main causes of growing urbanization are: natural increase in urban population, reclassification of rural areas as urban areas and rural to urban migration. The growth rate of urbanisation in this area is region is not much high but due to lack of appropriate planning and inefficient management the urban local bodies are finding it difficult to cater to needs of urban population.

Table-1
Trend of Urbanisation in Shekhawati Region

Town/ city	1991	2001	2011
Ajeetgarh	-	12,808	15,414
Bay	-	-	5,936
Danta	-	14,572	15,594
Fatehpur	66,387	78,426	92,595
Guhala	-	5,833	6,343
Kanwat	-	6,822	7,903
Khandela	20,495	26,015	29,044
Lacchmangarh	44,566	47,345	53,392
Losal	19,283	25,361	28,504
Neem-ka-thana	22,274	29,548	36,231
Ramgarh shekhawati	24,706	28,458	33,024
Ramgarh	-	7,231	7,924
Reengus	17,653	22,932	26,139
Sikar	1,48,272	1,85,925	2,44,497
Shrimadhapur	23,891	28,492	31,366
Babai	-	9,805	10,620
Baggar	12,088	14,658	14,238
Bissau	17,413	21,133	23,227
Chirawa	27,487	32,227	43,953
Gothra	23,465	21,820	16,933
Islampur	-	8,738	10,247
Jhunjunu	72,187	1,00,485	1,18,473
Khetri	17,725	17,382	18,209
Malsisar	-	11,990	13,719
Mandawa	16,490	20,830	23,335
Mukundgarh	15,073	17,792	18,469
Nawalgarh	51,190	56,491	63,948
Noan	-	5,379	6,049
Pilani	21,430	26,224	29,741
Singhana	-	10,681	11,372
Surajgarh	16,534	18,865	21,666
Udaipurwati	21,982	27,843	29,226
Vidhyavihar	11,680	14,366	15,644
Churu	82,464	1,01,874	1,20,157
Rajgarh	43,696	51,640	59,193
Taranagar	21,477	27,066	32,640
Total	8,60,208	11,37,093	13,34,975

Source- District Census Handbook 1991, 2001, 2011

Table-2
Class Wise Number of Towns and Cities in Shekhawati Region (1991-2011)

Class	Population Size	1991		2001		2011	
		No.	% of Total Urban Population	No.	% of Total Urban Population	No.	% of Total Urban Population
I	1,00,000 and more	1	17.36	3	34.14	3	36.18
II	50000- 99,999	4	31.64	3	16.40	4	20.15
III	20,000- 49,999	11	34.39	14	33.86	13	29.07
IV	10,000- 19,999	9	16.73	9	11.70	11	12.01
V	5000- 9,999	-	-	6	3.85	5	2.55
VI	Less than 5000	-	-	-	-	-	-

Shekhawati: A Land Thirsting For Water

Owing to its location in eastern part of Thar Desert with semi-arid to arid climate and scanty rainfall, this region faces a vulnerable situation towards water scarcity. There is no as such prominent surface water body and no perennial river in this region. All the rivers/nalas are ephemeral in nature and flow only in response to heavy precipitation during monsoon. So this region depends only on the

abstraction of ground water which is continuously decreasing.

Water Supply in Urban Areas

The Public Health and Engineering Department (PHED) carries the primary responsibility for operating and maintaining urban drinking water supply, through piped network system. In most of the region water supply is presently depending only on abstraction of ground water from well fields, only

Churu, Taranagar, Rajgarh gets surface water from IGNP scheme.

Table-3
Status of Water Supply in Municipality Towns of Shekhawati Region

City/town	Total connections	Total water production (MLD)	Service level (lpcd)	Supply interval (in hours)	tube wells	Open wells	Surface water source
Sikar	32,247	35.70	137	24	227	8	-
Lacchmangarh	8,366	5.20	95	24	52	8	-
Fatehpur	15,200	9.10	95	24	76	9	-
Losal	3,449	2.48	85	24	27	-	-
Ramgarh	5,416	2.90	85	24	29	1	-
Neem – ka –thana	6,794	1.50	40	24	25	-	-
Khandela	4,362	1.40	47	48	20	-	-
Shrimadhapur	5,036	1.50	47	24	32	-	-
Reengus	3,482	2.08	77	24	22	-	-
Chidawa	8,510	4.43	92	24	55	-	-
Baggar	2,621	1.60	103	24	15	-	-
Mandawa	5,145	2.00	79	12	24	-	-
Bissau	3,569	2.25	89	12	12	-	-
Jhunjhunu	21,241	14.28	111	24	130	-	-
Nawalgarh	9,763	7.44	107	24	62	-	-
Mukandgarh	4,095	1.90	94	24	23	-	-
Udaipurwati	3,004	2.88	90	24	31	-	-
Gothra	1,128	1.36	74	48	10	1	-
Surajgarh	3,493	2.10	89	24	23	5	-
Khetri	3,540	1.40	71	72	12	1	-
Pilani	6,468	3.70	114	24	43	4	-
Taranagar	7,229	3.20	96	24	0	0	Canal
Rajgarh	10,686	2.53	40	96	3	5	Canal
Churu	21,035	13.50	105	24	83	25	Canal

Source: Pragati Vivarinika PHED 2016

Insufficient Water Quantity

According to the Manual on Water Supply and Treatment (CPHEEO, 1999) urban areas with existing or proposed sewer lines should receive 135 lpcd water but towns/cities of Shekhawati are rarely able to meet these standards. Only Sikar provides the quantum of water according to existing per capita norms. Service level of Neem-ka-thana, Khandela, Rajgarh is quite questionable (less than 50 lpcd).

No town receives piped water 24 hours a day, 7 day a week. Piped water is never distributes for more than a few hours per day, the duration of water supply varies from 20 minutes to over one hour every day. The provision is also unequal with un-served areas being mainly the slums and newly developed areas. As a cumulative effect of the failure of PHED to fulfil the urban water demands, private sources has emerged as a major source of urban water needs. Private water tankers and vendors supply untreated water usually at a price higher than that charged by the public utility.

Poor Water Quality

The focus is generally placed on quantitative dimension of providing enough water but the qualitative aspects of supply are also fundamentally important. 'The water we receive is dirty' and 'water from network is much polluted' are the general comments can be heard. The water is generally over treated with chlorine and because of the presence of dirt and sediments; water cannot be used without filtering. There are no water treatment plants in many towns, like Jhunjhunu, at present. The raw water is being extracting from tube well and supplied without

treatment. As far as ground water condition is concerned, according to Central Ground Water Board report (2013) in Churu district it is too brackish and in Sikar and Jhunjhunu alkaline in nature. Fluoride and nitrate concentration is more than permissible limits. So lack of water treatment facilities is affecting the health of urban dwellers.

Old and Leaking Distribution Lines

The water transmission and distribution network consisting AC pipes is old, profusely leaking and is badly in need of rehabilitation and replacement. Leaks and illegal connections lower water pressure in the distribution system. Leaking distribution lines increase the risk of contaminants from surrounding water source areas (ground water sewerage line) entering the drinking water pipeline through leaks.

Mismanagement

There is mismanagement through leakage because of lack of maintenance, inefficient billing and poor meter charges, resulting in high unaccounted for water. Due to this huge non-revenue water, operation and maintenance cost recovery through user charges is hardly 30-40%. It leads PHED to heavy losses. The revenue from water does not even cover the working expenses. Attempts to meter the water supply has often met with public resentments because the public construe water as nature's gift to human beings and should not be paid.

Conclusion and Recommendations

Water is one of the important components for survival of life on earth. Today when the world is facing the problem of water scarcity, adequate

management for water supply has become a topic of global significance, not just an issue with local importance. The provisions of adequate water supply service to urban centres in Shekhawati region are insufficient and remain one of the greatest challenges today.

Replacing old/damaged pipe lines, laying some new pipelines, overhead service reservoirs and sumps and pumps for organizing better distribution should be main components in government policies for improving the water distribution system. Even greater attention is now needed to collect and treat wastewater, and to manage finite water resources more effectively. PPP model should be encouraged in planning development and management of water supply projects to recover the costs and to make management more effective. People should be educated and motivated for water conservation and rain water harvesting.

Not only government but also the society has to play an important role to take action now, to shape the future of over development, to create opportunities for all.

References

1. Aijaz, R. (2010). *Water for Indian Cities: Government Practices and Policy Concerns. Issues Brief # 25 Observer Research Foundation.*
2. *District Census Handbook Churu (1991, 2001, 2011). Census of India.*
3. *District Census Handbook Jhunjhunu (1991, 2001, 2011). Census of India.*
4. *District Census Handbook Sikar (1991, 2001, 2011). Census of India.*
5. *Ground Water Scenario Churu District (2013). Central Ground Water Board, Govt. of India. www.cgwb.gov.in/District_Profile/Rajasthan/churu.pdf*
6. *Ground Water Scenario Jhunjhunu District (2013). Central Ground Water Board, Govt. of India. www.cgwb.gov.in/District_Profile/Rajasthan/Jhunjhunu.pdf*
7. *Ground Water Scenario Sikar District (2013). Central Ground Water Board, Govt. of India.*
8. *Improving Urban Water Supply and Sanitation Services (2012). Ministry of Urban Development, Govt. of India. http://urbanindia.nic.in*
9. *IND: Rajasthan Urban Sector Development Investment Program- Churu (2010). http://www.adb.org/sites/default/files/project-document/63885/40031-053-inc-iee-01.pdf*
10. *IND: Rajasthan Urban Sector Development Investment Program- Water Supply and Sewerage in Jhunjhunu (2014). http://www.adb.org/sites/default/files/linked_documents/4226-026-ieeab-03.pdf*
11. *India: Rajasthan Urban Sector Development Investment Program- Sikar Water Supply Subproject (2012). ruidp.rajasthan.gov.in/IEE PDF/Water Supply Project of Sikar(Enhanced Scope).pdf*
12. Mathur, O.P., Thakur, S.(2003). *Urban Water Pricing: Setting the Stage for Reform. National Institute of Public Finance and Policy, New Delhi.*
13. Potter, R.B., Darmame, K., Northcliff, S. (2010). *Issues of Water Supply and Contemporary Urban Society: The Case of Amman City, Jordan. Philosophical Transactions of the Royal Society A 368, PP 5299-5313*
14. Pragati Vivaranika (2015-16). *Public Health and Engineering Department, Rajasthan. www.rajwater.gov.in/rit.htm*
15. Ramchandran, R. (1989). *Urbanization and Urban Systems in India. Oxford University Press, Delhi.*
16. Ramchandraiah, C. (2000). *Drinking Water as a Fundamental Right. EPW, February,24, Mumbai.*
17. Rathore, M.S., Reddy, V.R., Ramanathan, S. (1994). *Urban Water Supply In Rajasthan: Problems and Prospects. Economic and Political Weekly. Vol.29, No.35 PP 2272-2274*
18. Verma, M. (2009). *Rural Drinking Water Supply Ensuring Safe Source For All. Water Resource Management, Pentagon Press, New Delhi.*

www.cgwb.gov.in/District_Profile/Rajasthan/Sikar.pdf