

## THE STATUS OF DRINKING WATER ARRANGEMENTS IN RAJASTHAN

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### ABSTRACT

*The State of Rajasthan is the largest state in the country covering an area of 34.271 million hectares, which is more than 10% of the total geographical areas of the country. About 5% of the total population of the country resides in the state and it has more than 15.7 million hectares of land suitable for agriculture. The state of Rajasthan is one of the driest states of the country and the total surface water resources in the state are only about 1% of the total surface water resources of the country. The rivers of the state are rain fed and identified by 14 major basins divided into 59 sub-basins. The surface water resources in the state are mainly confined to south and south-eastern part of the state. There is a large area in western part of the state, which does not have any defined drainage basin. Thus, the water resources in the state are not only scarce but have highly uneven distribution both in time and space.*

**KEYWORDS:** Surface Water Resources, Rain Fed, Basins, Sub-basins, Drainage basin, Surface Irrigation.

### Introduction

The ground water also plays an important role especially in agriculture and drinking water supply. The situation of ground water exploitation is also not satisfactory as in areas where surface irrigation is provided there is a tendency of not using ground water for agriculture, which creates problem of water table rise and even water lodging on the contrary in large areas of the state ground water is being over exploited and the water table in some areas is going down even at the rate of 3 metre per year.

### Objectives of the Paper

The paper seeks to provide more information about:

- Status of potable water supply in rural areas of various districts of Rajasthan
- Understanding the concept of Swajaldhara
- Status of urban water supply in Rajasthan

### Research Methodology

The present paper is based on secondary data. The results have been derived from average, percentage, time series and correlation methods. The state is facing, both, the quality and the quantity problems of ground water sources. The ground water condition has become quite alarming also due to over exploitation in the last two decades. The state government is implementing a number of schemes for providing potable water, both in rural and urban areas, as the problem of clean and safe water in the state is very complex, due to geographical diversities and limited availability of both ground and surface water. This background shows that there is a wide scarcity of water resources in the state of Rajasthan. Therefore, there is a chronic problem of drinking water supply in rural areas of the state.

### The Status of Potable Water Supply in Rural Areas of the State

The district wise position of villages served by potable water may be seen through the following table 1.

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**Table 1: District-Wise Distribution of Villages Served by Potable Water Schemes up to December, 2011**

S. N.	District	No of Village as per population of 2011	No of villages served by Potable water scheme					Total No. of Served villages	% of Served Villages to no. of villages
			Piped & Pumps and Tank schemes	Hand Pump schemes	Regi-onal sche-mes	T.S. S.	Diggi & Others		
1	Ajmer	1111	95	524	358	13	35	1025	0.922592
2	Alwar	2054	270	1389	110	38	147	1954	0.951315
3	Banswara	1513	47	1264	32	32	0	1375	0.908790
4	Baran	1221	120	949	20	0	0	1089	0.891892
5	Barmer	2460	339	0	1567	27	0	1933	0.785772
6	Bharatpur	1524	262	735	367	0	0	1364	0.895013
7	Bhilwara	1834	253	1091	280	36	33	1693	0.923119
8	Bikaner	919	355	9	279	23	138	804	0.874864
9	Bundi	873	71	730	38	0	0	839	0.961054
10	Chittorgarh	1730	148	1378	26	0	0	1552	0.897110
11	Churu	899	126	0	655	27	46	854	0.949944
12	Dausa	1109	111	805	109	0	0	1025	0.924256
13	Dholpura	819	51	694	41	0	0	786	0.959707
14	Dungarpur	976	97	648	98	11	0	854	0.875000
15	Ganganagar	3018	71	177	2322	0	260	2830	0.937707
16	Hanumangarh	1907	175	420	1014	0	164	1773	0.929733
17	Jaipur	2180	628	974	273	2	200	2077	0.952752
18	Jaisalmer	799	86	105	396	0	13	600	0.750939
19	Jalore	801	114	16	567	0	0	697	0.870162
20	Jhalawar	1606	135	858	484	0	0	1477	0.919676
21	Jhunjhunu	927	118	38	35	665	0	856	0.923409
22	Jodhpur	1838	474	9	566	9	0	1050	0.571273
23	Karauli	888	201	445	109	0	0	755	0.850225
24	Kota	874	60	566	186	0	238	812	0.929062
25	Nagaur	1589	572	48	559	63	151	1480	0.931403
26	Pali	1030	168	236	352	29	0	936	0.908738
27	Rajsamand	1050	140	764	69	0	0	973	0.926667
28	Swai Madhopur	814	116	531	72	0	0	719	0.883292
29	Sikar	1167	101	204	24	656	12	985	0.844045
30	Sirohi	477	65	223	85	70	1	455	0.953878
31	Tonk	1183	57	677	292	5	0	1032	0.872358
32	Udaipur	2479	202	1872	99	5	0	2178	0.878580
33	Pratapgarh	1003	50	835	26	0	0	911	0.908275
	<b>Rajasthan</b>	<b>44672</b>	<b>5878</b>	<b>19214</b>	<b>11510</b>	<b>1711</b>	<b>1438</b>	<b>39743</b>	<b>0.889662</b>

Source: Annual Progress Report, 2016-17, published by Department of public Health & Engineering, Government of Rajasthan, Jaipur.

(Here, the Green coloured cells indicate values above State Average and Red cells indicate values below it)

The above table shows the overall State level picture of rural drinking water supply. The table also reveals that 89.4% villages have been covered under the rural water supply programme. Piped, Pump tank, regional sources, hand pumps, TSS and deggis are the drinking water schemes under which villages have been covered. Hand pumps scheme has more than 43% share and near about 26% shared by regional sources in covering of rural potable water schemes. There is only 13.2% share of the schemes, covered by the piped and pump & tank schemes. The districts where the villages still remain to be covered along with the number of villages still to be served by potable water scheme are as under:

**Table 2 : Districts With Number of Villages Still to be Served by Potable Water Scheme**

S. No.	District	No of Village as per population of 2011	S. No.	District	No of Village as per population of 2011
1	Ajmer	86	18	Jaisalmer	199
2	Alwar	100	19	Jalore	104
3	Banswara	138	20	Jhalawar	129
4	Baran	132	21	Jhunjhunu	71
5	Barmer	527	22	Jodhpur	780
6	Bharatpur	160	23	Karauli	133
7	Bhilwara	141	24	Kota	62
8	Bikaner	115	25	Nagaur	109
9	Bundi	34	26	Pali	94
10	Chittorgarh	178	27	Rajsamand	77
11	Churu	45	28	Swai Madhopur	95
12	Dausa	84	29	Sikar	182
13	Dholpura	33	30	Sirohi	22
14	Dungarpur	122	31	Tonk	151
15	Ganganagar	188	32	Udaipur	301
16	Hanumangarh	134	33	Pratapgarh	92
17	Jaipur	103		<b>Rajasthan</b>	<b>4921</b>

Source: Annual Progress Report, 2016-17, PHED and Statistical abstract, Deptt. of Economics & statistics, Govt. of Rajasthan.

The above table presents that 4921 villages still to be served by potable water scheme in various 7 districts of the State. It may, however, be pointed out that apart from main habitations there are a number of hamlets (Dhanis, etc.) that are spread for wide and have still to be covered under the scheme of supply of potable water. Besides this, there is a chronic problem of hand pumps going out of order resulting in a lot of hardship. It is true that with periodic repair campaigns, these are set right but still a system of keeping all hand pumps functioning all the year round regularly has yet to emerge. According to the paper published by Urukram Sharma in Rajasthan Patrika, April 25, 2006 Pg. 18, presents the actual status of drinking water arrangements in the rural areas of Rajasthan which is as under- 1800 villages still to be served by potable water scheme, there is a chronic and painful scarcity of drinking water supply in 9500 villages of the State, more than 80% villages have not clear and safe water for drinking. The districts where is an acute problem of drinking water, are Jalore, Jaipur, Jodhpur, Nagaur, Jhunjhunu, Bharatpur, Barmer, Karauli and Sawai Madhopur districts. To solve the problem of rural drinking water supply, the Central Government announced a participatory demand driven approach scheme in the year 1999-2000, as Swajaldhara.

#### **Principles of Swajaldhara**

Swajaldhara has certain fundamental reform principles, which need to be adhered to by the State Governments and the Implementing Agencies. The Principles are as follows:

- Adoption of a demand-responsive, adaptable approach along with community participation based on empowerment of villagers to ensure their full participation in the project through a decision making role in the choice of the drinking water scheme, planning, design, implementation, control of finances and management arrangements.
- Full ownership of drinking water assets with appropriate levels of Panchayats.
- Panchayats/Communities to have the powers to plan, implement, operate, maintain and manage all Water Supply and Sanitation schemes.
- Partial capital cost sharing either in cash or kind including labour or both, 100% responsibility of operation and maintenance (O&M) by the users.
- An integrated service delivery mechanism;

- Taking up of conservation measures through rain water harvesting and ground water recharge systems for sustained drinking water supply; and
- Shifting the role of Government from direct service delivery to that of planning, policy formulation, monitoring an evaluation and partial financial support.

Swajaldhara will have two Dharas (streams). First Dhara (Swajaldhara-I) will be for a Gram Panchayat (GP) or a group of GPs or an intermediate Panchayat (at Block/Tehsil level) and the Second Dhara (Swajaldhara-II) will have a District as the Project area.

#### **Status of Urban Water Supply**

There are 222 towns including 33 district headquarters in the state. All the 222 urban towns of the state of Rajasthan are covered by Piped drinking water supply system (having household water connections). Out of these towns, about 20% are based on surface sources and 60% towns depend on groundwater sources. Remaining 20% towns have mixed source of both surface and groundwater. All seven major towns in state, i.e., Jaipur, Ajmer, Jodhpur, Bikaner, Bharatpur, Kota and Udaipur are getting water from various sustainable surface water sources. Some other towns are also facing shortage of water due to failure of the local sources on account of excess drawl and poor recharge of groundwater sources. The government has taken a policy decision to shift the water supply schemes from groundwater to surface water sources. Following this, major projects being executed based on surface water sources will also benefit more towns in the state with sustainable surface water sources. Apart from the major water supply projects, a number of schemes are sanctioned, executed or proposed for long – term solution of the drinking water problem.

#### **Tube well, Hand Pump Construction in Urban Sector**

Water supply is dependent on ground water. The following table shows tube wells and hand pumps installed in the last 5 years.

**Table 3: Installation of Tube Wells and Hand Pumps in Urban Areas of Rajasthan**

Years	No. of Tube Wells	No. of Hand Pumps
2011-12	2683	8603
2012-13	4072	8861
2013-14	3004	15547
2014-15	1989	5525
2015-16	1402	3146

Source: Economic Review 2016-17, Directorate of Economics and Statistics, Department of Planning, Rajasthan, Jaipur

The above table presents that 2683 tube wells and 8603 hand pumps were installed in the year 2011-12 and 1402 tube wells and 3146 hand pumps were installed in the year 2015-16. But these installations are quite less as Rajasthan still suffers safe drinking water scarcity.

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