

## **CHAPTER - 17**

### **WATER SUPPLY & SANITATION**

17.1 The state is poorly placed in terms of availability of water resources. It has only 1.16% of the surface water and 1.70% of the ground water resources of the country. Average rainfall in the state is 531 mm against national average of 1200 mm. This too is erratic in occurrence, resulting in frequent drought conditions. In absence of adequate surface water sources, there is over reliance on ground water. Gross annual draft of ground water in the state is 13 BCM against recharge of only 10.4 BCM.

17.2 Due to these conditions, Rajasthan is severely affected with drinking water supply problems. In south-eastern hilly region, ground water is available only in selected valley part and water table fluctuates rapidly due to rocky geographical formation of the area. In years of continuous drought reservoirs of the area dry up and create severe critical water crisis. The west Aravali area is desert having scanty and erratic rainfall and often faces drought conditions. There are only a few reservoirs in the area, soil strata is basically alluvial with limestone and allied sedimentary rocks, which are good aquifers. The increased demand of water for agriculture, industrial and domestic uses is fast depleting the ground water reserve and deteriorating the water quality. The available water has high TDS, salinity fluoride and nitrate contents. The Gang Bhakhra Canal system, Indira Gandhi Canal System in the north western part and now Narmada canal system in southern part are the only reliable drinking water sources in the region.

17.3 In addition to above geographical problems, high population growth rate, its sparse distribution has aggravated the task of providing safe drinking water. On account of these problems, about 70% habitations of the state are problematic from the point of view of potable drinking water.

#### **Rural Water Supply**

17.4 There are 37,889 main habitations and 56,057 other habitations as per CAP-99 in the state, out of which 37,859 main habitations and 54,575 other habitations are covered by water supply scheme up to March, 2007. Out of CAP- 99 habitations, 749 habitations are likely to be covered in the year 2007-08. A new survey was conducted in the State as per instructions of Government of India; status of habitations based on the survey is as under:-

Main habitations (2001 census villages)	39,617
Other habitations	82,633
<b>Total Habitations</b>	<b>1,22,250</b>

Details of which is follows:

Table No. 17.1

S. No.	Particulars	Total Number
1.	N.C. Habitations due to quality	34,183
2.	N.C. Habitations due to Source being more than 1.6 km away	31,030
3.	Slipped Back Habitations (to PC status)	17,159
4.	FC Habitations	39,878
	Total Habitations	1,22,250

17.5 Objective & priorities for the Eleventh Five Year Plan with special reference to the Millennium Development Goals, wherever relevant strategies and resources required to achieve the objectives as per latest survey are as follows:

- Providing safe water supply to 34,183 quality affected habitations.
- Providing safe water supply to 31,030 habitations having safe water source at more than 1.6 km away from habitations.
- Providing safe water supply to slipped back habitations as per norms i.e. up to 40 LPCD.

17.6 Although Bharat Nirman Programme envisages completion of above by 2008-09, but same appears not to be feasible on account of the followings

- Likely availability of funds and gap between requirement and availability.
- Fiscal absorption capacity of the department.

17.7 For improvement in fiscal absorption capacity, following measures appear fruitful.

- Reinforcing the existing administrative set-up by creating project units.
- Out sourcing of various activities.
- Taking up project on single responsibility turn key basis
- Streamlining and outsourcing O&M works
- Training the engineers in areas like project management and stress management
- Looking to above constraints, a tentative schedule for completion of Bharat Nirman up to 2012-13.

## **Urban Water Supply**

17.8 Supply of safe hygienic and potable drinking water to urban population is undoubtedly the top priority of the State Government. All the 222 towns of the State have been benefited with drinking water supply system. But the service level in different urban water supply systems and the quality of supplied drinking water still needs a lot of efforts in terms of improvement and consumer satisfaction. The main thrust in the XI Five Year Plan will be on providing reliable, self-sustaining drinking water supply with adequate service levels to the urban areas and as per prescribed norms.

17.9 The objectives of the Eleventh Plan toward providing safe drinking water are as follows:

- Benchmarking of all Urban Water Supply Systems
- 24x7 Drinking Water Supply System in all Towns
- Providing adequate service levels as per prescribed norms.
- Ensuring the reliability of water supply systems
- Ensuring consumer satisfaction from water supply system

17.10 In the XIth Five Year Plan, the emphasis will be on both demand as well as supply management of water system. Special efforts will be made on improving the existing water supply schemes. The efficiency of system will be evaluated and suitable measures will be undertaken. In the urban system, following measures will be introduced.

- Bulk metering will be introduced to assess the production and supply of water and also to assess the unaccounted water.
- Introducing consumer metering to assess consumption of water.
- Accurate mapping & GIS of each town will be prepared.
- Rehabilitation of existing water storage systems to reduce losses.
- Rehabilitation of pipeline network.
- Replacement of old and worn out service lines.
- Augmentation of sources and new transfer mains.
- Expansion of distribution network in outer/new colonies.
- Rehabilitation of old and worn out electro-mechanical installations.
- Re-cycling and re-use of waste water.
- Rain water harvesting and artificial recharge of ground water for ensuring sustainability of source.
- Tariff re-structuring and establishment of Tariff Regulatory Mechanism to ensure financial viability.
- IEC activities for demand management of water.

- Develop performance improvement plans through local private sector participation.
- Optimum utilization of funds for increasing reliability of services.
- Improving affordability of water supply services by reducing cost of implementation through adopting suitable design criteria and technology and reduce cost of operation and maintenance management. The design subsidies to be targeted to the poor.
- Capacity building programmes in urban water supply sector by strengthening the institutional needs and adopting modern capacity building programmes for emerging needs. Extending capacity building to all stake holders.
- Develop especial programme for consumer association and NGOs.
- Expand the role and scope of professional.
- Increase awareness and support of politicians and decision makers through targeted programme.
- Leveraging external funding and accessing capital market for general of funds for urban water supply schemes.
- Adopt integrated water resource management practices for addressing conflicts between competing claims.
- Promote differential use of water especially in water quality affected areas.
- Introduce BOT system as a strategy to ensure private sector participation on pilot basis.
- Strengthen a comprehensive water quality monitoring and surveillance mechanism.
- Mass transfer of water through road and rail transportation especially in drought affected areas.
- Introduce E-Governance and complete computerization of different functions of the department.
- Adopting suitable and modern water quality improvement techniques especially in quality affected towns.

17.11 An outlay of Rs. 5,085.93 crores has been kept for the sewerage & water supply sector in the Eleventh Five Year Plan, an expenditure of Rs. 705.88 crores is likely to be incurred during 2007-08 and a provision of Rs. 1001-05 crores is proposed in the Annual Plan 2008-09. The break-up of outlays kept for major schemes are as follows:

Table No. 17.2

(Rs. in crores)

S. No.	Scheme	XI Plan Outlay	Anti. Exp. 2007-08	Proposed Outlay 2008-09
1.	Urban Water Supply	2402.40	379.88	540.10
2.	Rural Water Supply	2670.58	325.00	460.45
3.	Low Cost Sanitation	9.50	0.50	0.00
4.	Training Institute for Engineering Subordinates	3.45	0.50	0.50
	Total	5085.93	705.88	1001.05

17.12 The details of major projects are as follows:

#### **Mansiwakal Water Supply Project for Udaipur**

17.13 The project envisaged to supply water to Udaipur city and Hindustan Zinc Ltd. The project consists two phases. In the first phase, dam is to be constructed at Mansi Wakal River and water is to be conveyed from this dam to Devas dam through pipeline. In the second phase, water will be supplied to Udaipur City and HZL through existing tunnel. The total cost of the project is Rs. 60.00 crores to be shared by the State government and HZL in the ratio of 70:30, accordingly water is also to be shared in the same ratio. Execution of the project is being done by the HZL. The work on the project is almost complete.

#### **Jaipur Water Supply Project from Bisalpur**

17.14 The project has been prepared for water supply for Jaipur city from the Bisalpur dam. The project consists two parts. First part of the project for transmission of water from Bisalpur to Balawala is being executed by RUIDP with loan assistance from ADB. The total cost of this part is Rs. 556.00 crores. Second phase of the project for transfer of water from Balawala to Jaipur city is being executed by the PHED from JBIC loan assistance. Total cost of the transfer system is Rs. 463.00 crores, out of which Rs. 343.00 crores is JBIC loan is being executed by PHED. Work order issued to M/s SPNL.

17.15 A provision of Rs. 200.00 crores has been kept for the Eleventh Five Year Plan, which is for the year 2007-08 and a provision of Rs. 225.00 crores is proposed for the Annual Plan 2008-09.

#### **Fluoride Control Project for Bhinay-Masooda**

17.16 The project envisaged to develop the infrastructure for providing drinking water to 232 villages of Bhinay & Masooda Tehsils and two

towns namely Vijaynagar & Gulabpura from Bisalpur Dam. Total revised cost of the project is Rs. 53.86 crores. All works upto Bandanwara has been completed and tested 115 KM of pipeline has been laid out of 115 KM. 90% scope of the work has been completed and the remaining 10% work is under progress and likely to be completed by March, 2008. A provision of Rs. 21.00 crores has been kept for the Eleventh Five Year Plan. An expenditure of Rs. 3.00 crores is likely to be incurred in the year 2007-08 and a provision of Rs. 5.00 crores is proposed for the year 2008-09.

### **Jawai-Pali Pipeline Project**

17.17 The project has been sanctioned to provide drinking water to 531 villages and 10 towns of Pali district by converting existing canal system into pipeline from Jawai dam. This will be achieved by conservation of water being lost in open canal flow through seepage, evaporation & pilferage. Revised cost of the project is Rs. 395.83 crores and is being implemented under NABARD assisted RIDF Project, loan amount is Rs. 86.75 crores.

17.18 A provision of Rs. 28.80 crores is proposed for this project in the Annual Plan 2008-09.

### **Jodhpur (RGLC) Phase II**

17.19 The project envisaged to supply drinking water to Jodhpur city, 729 villages of Jodhpur, Barmer, Jaisalmer districts and 3 towns namely Bilara, Samdari and Phalodi from Rajeev Gandhi Lift Canal. Revised cost of the project is Rs. 119.12 crores. An expenditure of Rs. 3.05 crores is likely to be incurred on this project during the Annual Plan 2007-08. A token provision is proposed in the Annual Plan 2008-09.

### **Barmer Lift Canal Water Supply Project**

17.20 The project has been taken up to provide drinking water to Barmer city 412 villages, 1684 Dhans of Barmer and 161 villages of Jaisalmer district. Total cost of the project is Rs. 652.68 crores. Source of water for the project is Indira Gandhi Main Canal. Topographical survey for pipeline completed. Detailed design and drawing under preparation and Technical Sanction is to be issued. Work is to be taken up in 7 packages. A provision of Rs. 28.00 crores has been kept for the Eleventh Five Year Plan 2007-12. An expenditure of Rs. 1.00 crores is anticipated to be incurred during the year 2007-08; a provision of Rs. 50.00 lakhs is proposed for the Annual Plan 2008-09.

### **Bisalpur Dudu Phulera Project (Phase-I)**

17.21 The project envisages supplying drinking water to 1,488 villages of Jaipur, Tonk & Nagaur districts and 7 towns namely Chaksu, Sambhar Lake, Phulera, Narena, Malpura, Niwai and Todaraisingh. Total cost of the project is Rs. 283.77 crores. Source of this project is Bisalpur dam.

The project is to be completed in two phases covering 694 and 794 villages respectively. The work of TM-I & TM-II transmission pipeline has been started and 67 KM and 66 KM PSCC pipeline manufactured respectively remaining works are in progress. A provision of Rs. 83.98 crores has been kept for the Eleventh Five Year Plan. An expenditure of Rs. 5.00 crores is anticipated to be incurred during the year 2007-08 and a provision of Rs. 10.00 crores is proposed for the Annual Plan 2008-09.

### **Chambal-Sawai Madhopur-Baler Water Supply Project**

17.22 The project envisages providing drinking water to Sawai Madhopur town and 636 villages. The source of water for the project is Chambal River at Pali Ghat. Estimated cost of the project is Rs. 478.91 crores. The work of RW pipeline has been started and work under progress. A provision of Rs. 137.00 crores has been kept for the Eleventh Five Year Plan 2007-12. An expenditure of Rs. 5.00 crores is anticipated to be incurred during the year 2007-08 and a provision of Rs. 10.00 crores is proposed for the Annual Plan 2008-09.

### **Churu-Jhunjhunu Water Supply Project Phase-II (Aapni Yojana)**

17.23 The project is aimed to supply drinking water to 428 villages of Sujangarh, Ratangarh, Rajgarh and Jhunjhunu tehsils and Chhaper, Bidasar, Rajaldesar, Sujangarh, Ratangarh and Rajgarh towns of Churu districts. Source of water for the project is Sahwa Lift Canal near Somsisar village. The project was sanctioned in June, 2002 for Rs. 405.08 crores. The work on this project is yet to start. A provision of Rs. 405.00 crores has been kept for the Eleventh Five Year Plan; Rs. 10.00 lakhs is proposed in the Annual Plan 2008-09.

### **Sarwar-Nasirabad Pipeline Project**

17.24 The project (Phase-II) has been prepared to meet the ultimate demand of Ajmer and 342 villages of Ajmer district. The project requires laying of pipeline for pumping water from Sarwar to Nasirabad. The total cost of the project is Rs. 99.75 crores and work on the project is in progress. A provision of Rs. 18.00 crores has been kept for this project in the Eleventh Five Year Plan 2007-12. An expenditure of Rs. 5.00 crores is anticipated to be incurred during the year 2007-08 and a provision of Rs. 2.50 crores is proposed for the Annual Plan 2008-09.

### **Ramganjmandi-Pachpahar Water Supply Project**

17.25 The project is envisaged to provide drinking water to 220 villages of Ramganjmandi, Pachpahar and Bhain sroadgarh tehsils and 4 towns. Estimated cost of the project is Rs. 149.41 crores and is being funded by NABARD under RIDF. The work of this project is under progress. A provision of Rs. 40.36 crores has been kept for the Eleventh Five Year Plan. An expenditure of Rs. 11.00 crores is anticipated to be incurred during the year 2007-08; Rs. 1.25 crores is proposed for the Annual Plan 2008-09.

### **Ajmer Bisalpur Water Supply Project Phase-II**

17.26 A project has been prepared and posed for JBIC loan for augmentation of water supply project phase-II for Ajmer for the year 2031. Total cost of the project is Rs. 834.36 cr. The project is yet to be sanctioned by JBIC. A provision of Rs. 764.32 crores has been kept for this project in the Eleventh Five Year Plan 2007-12. A provision of Rs. 0.10 crores is proposed in the Annual Plan 2008-09.

### **Nagaur Lift Water Supply Project**

17.27 The project has been proposed in three phases to provide water to 11 towns and 1229 villages of Nagaur district. Total cost of the project is Rs. 28.30 cr. At present I phase of the project costing Rs. 7.61 crores has been sanctioned which shall provide drinking water to Nagaur and Mundawa alongwith 63 enroute villages. The source of water for the project is IGNP near Nokha Dahiya. Proposal for funding this project under umbrella projects has been posed to Government of India. Public Private Partnership model has also been under consideration. The preliminary survey work has also been completed and detailed project report is under preparation. A provision of Rs. 85.00 crores has been kept for the project in the Eleventh Five Year Plan. An expenditure of Rs. 10.00 crores is anticipated to be incurred during the year 2007-08; provision of Rs. 15.00 crores is proposed for the Annual Plan 2008-09.

### **Pokran Phalsoond Balotra Lift Water Supply Project**

17.28 This project has been framed to provide drinking water to Pokran, Balotra and Siwana towns and 580 villages of Barmer & Jaisalmer districts. Total cost of the project is Rs. 1084.83 crores. 84.32 cusec water from Pokran Lift Canal has been reserved for this project. The project has been posed to Government of India for funding. Survey and preparation of Technical sanctions are under progress. A provision of Rs. 96.00 crores has been kept for the project in Eleventh Five Year Plan 2007-12. An expenditure of Rs. 1.00 crores is anticipated to be incurred during the year 2007-08 and a provision of Rs. 5.00 crores is proposed for the Annual Plan 2008-09.

### **Dewas Water Supply Scheme**

17.29 The project consist construction of 2 dams near Akodra and Madri villages of Jhadol & Girwa tehsils respectively of Udaipur district. The total cost of the project is Rs. 139.26 crores to be shared by PHED, Urban Development & Tourism Departments in the ratio of 40:30:30 respectively; this is now proposed to be revised to around Rs. 370 crores. Execution of the work on this project is in progress and it is being executed by the Water Resources Department. A provision of Rs. 38.08 crores has been kept for the the project in Eleventh Five Year Plan 2007-12. An expenditure of Rs. 9.52 crores is anticipated to be incurred



during the year 2007-08 and a provision of Rs. 10.00 crores is proposed for the Annual Plan 2008-09.

### **Chhapi Jhalawar-Jhalrapatan Water Supply Project**

17.30 The project has been prepared to provide drinking water to 2 towns & 164 villages of Jhalawar district from Chhapi dam. Total cost of the project is Rs. 108.44 crores. Survey work has been completed and geo-technical investigation is in progress. A provision of Rs. 55.00 crores has been kept for the project in the Eleventh Five Year Plan. An expenditure of Rs. 2.00 crores is anticipated to be incurred during the year 2007-08 and a provision of Rs. 12.00 crores is proposed for the Annual Plan 2008-09.

### **Tonk-Uniyara-Deoli Water Supply Project**

17.31 The project has been framed to provide drinking water supply to Tonk and Uniyara towns and 427 villages of Deoli, Tonk and Uniyara tehsils from Bisalpur dam. Total cost of the project is Rs. 85 crores. Survey work has been completed. An expenditure of Rs. 1.00 crore is anticipated to be incurred during the year 2007-08 and a provision of Rs. 2.00 crores is proposed for the Annual Plan 2008-09.

### **Fluoride Control Project for Arain-Kishangarh**

17.32 This project has been prepared for supplying drinking water to 164 vilages of Arain-Kishangarh sector from the three main pumping stations-Arain, Kishangarh and Roopangarh. Estimated cost of the project is Rs. 114.96 crores. Work of 13 Nos. OHSR are under progress. In Akodia cluster 09 Nos. RCC OHSR, 80% work in totality has been completed while in Kishangarh cluster 08 Nos. RCC OHSR, works are under progress. A provision of Rs. 31.17 crores has been kept for the project in the Eleventh Five Year Plan 2007-12. An expenditure of Rs. 5.00 crores is anticipated to be incurred on the project during the year 2007-08; provision of Rs. 7.00 crores is proposed in the Annual Plan 2008-09.

### **Churu-Bissau Project**

17.33 This project has been prepared to provide drinking water to 84 villages of Churu district 85 villages of Jhujhunu districts and three towns namely Churu, Ratangarh and Bissau. Source of water for the project is distributary of Indira Gandhi Canal. Total cost of the project is Rs. 119.04 crores. 52 villages have been benefited. All distribution works completed. Process of commissioning of remaining village is in progress. A provision of Rs. 4.50 crores has been kept for the project in the Eleventh Five Year Plan. An expenditure of Rs. 0.50 crores is anticipated to be incurred on the project during the year 2007-08; provision of Rs. 0.05 crores is proposed for the Annual Plan 2008-09.

### **Bageri Ka Naka Project**

17.34 This project envisages drinking water supply to 136 villages of Nathdwara tehsil, 46 villages of Rajasamand and 24 villages of Raj Magra Tehsil. Source of water for the project is Nand Samand Dam on river Banas. Total cost of the project is Rs. 128.40 crores. It was sanctioned in 2002. A provision of Rs. 21.03 crores has been kept for the project, for the Eleventh Five Year Plan. An expenditure of Rs. 4.00 crores is anticipated to be incurred on the project during the year 2007-08; provision of Rs. 42.45 crores is proposed for the Annual Plan 2008-09.

### **Deeg Water Suuply Project Phase- I & II**

17.35 The project has been framed to extend the main transmission system from Mallah to Deeg. The total cost of the project is Rs. 47.34 crores. Technical sanction is under consideration. A provision of Rs. 8.76 crores has been kept for this in the Eleventh Five Year Plan; provision of Rs. 1.00 crores is proposed for the Annual Plan 2008-09.

### **Narmada Water Supply Project Phase I & II**

17.36 This project has been prepared to provide safe drinking water to 441 villages & two towns of Jalore district. Total cost of the project is Rs. 321.18 crores consisting three phases for Sillu-Jaisala-Bhakti part costing to Rs. 1.61 crores, Sanchore-Raniwara Kalan-Jaswantpura part costing to Rs. 75.69 crores and Bagora-Jalore-Ahore part costing to Rs. 243.88 crores. Source of water for the project is Narmada canal. Work for Sillu-Jaisala Bhakti has been commenced and 30% work completed, and for Bagora-Jalore-Ahore project work awarded to M/s IVRCL. A provision of Rs. 79.00 crores has been kept for the project for the project in the Eleventh Five Year Plan 2007-12. An expenditure of Rs. 6.00 crores is anticipated to be incurred on the project during the year 2007-08; provision of Rs. 10.00 crores is proposed in the Annual Plan 2008-09.

### **Desalination Water Supply to Jayal tehsil of Nagaur from Matasukh Mines**

17.37 This project has been prepared to provide safe drinking water to residents of 120 other habitations of Jayal tehsil of Nagaur district. Total cost of the project is Rs. 124.37 crores. Technical sanction has been accorded. The project has been posed to NABARD. A provision of Rs. 10.00 crores is proposed for the Annual Plan 2008-09.

### **Fluoride Control Project Ajmer-Pisangan Sector**

17.38 The project has been prepared to provide safe drinking water to 113 main habitations & 174 other habitations of Ajmer-Pisangan sector. Total cost of the project is Rs. 183.94 crores. Technical sanction has been accorded. A provision of Rs. 2.00 crores is proposed for the Annual Plan 2008-09.

**Two day storage tanks at Ajmer city**

17.39 This project has been prepared to provide safe drinking water to Ajmer city by storage of water in tanks. The total cost of the project is Rs. 39.06 crores. A token provision of Rs. 0.01 lakhs is proposed in the Annual Plan 2008-09.

**Safety measure works for Ajmer Bisalpur**

17.40 This project has been prepared for safety of Ajmer-Bisalpur pipe line & other works. The total cost of the project is Rs. 26.52 crores. A token provision of Rs. 0.01 lakh is proposed in the Annual Plan 2008-09.

17.41 The following Projects are being funded by NABARD under RIDF. The progress of these projects is as under:-

Table No. 17.3

(Rs. in Crores)

S. no.	Name of the Project	Total Sanctioned Cost	Exp. up to March 2007	Likely exp. up to March 2008	Proposed Outlay 2008-09
1	Ramganj	150.29	33.75	51.00	-
2	Jawai	395.83	3.16	65.00	28.80
3	Dang Area	92.03	-	3.00	40.00
4	Chhapi	214.44	-	48.00	32.00
5	Matasukh Jayal	150.18	-	-	10.00
6	Bagheri Ka Naka	194.92	-	50.00	42.45