Chapter – 7
CONCLUSIONS AND SUGGESTIONS

Chapter Contents

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This chapter presents the major findings of this study. The chapter also present the limitations of the study and suggestions and scope for future research in the related area. For the purpose of this study, both primary data as well as secondary data are used. To analyse the performance of RRWSS secondary data are used. To analyse the financial performance Indicators in terms of water charges, water connection charges as well as the affordability for the same, analysis is carried out based on primary data collected for four RRWSS. For the purpose of systematic presentation, the chapter is divided into six sections. Section 7.1 gives the Brief Note on Performance of RRWSS in India. Section 7.2 presents the Findings and Conclusions for Analysis of Secondary Data. Section 7.3 presents the Findings and Conclusions for Analysis of Primary Data. Section 7.4 presents Conclusions. Section 7.5 presents Suggestions Based on Secondary Data and Primary Data. Section 7.6 presents the Suggestions for Future Research.

7.1 PERFORMANCE OF RRWSS IN INDIA: A BRIEF NOTE

Drinking water supply is a State subject, and the Government of India (GoI) supplements efforts made by the States, by providing necessary financial and technical assistance. Investment has been made by the State and Central Governments in the rural water supply sector since the first five year plan.[1]

Historically, drinking water supply in the rural areas in India has been outside the government's sphere of influence. Community- managed open wells, private wells; ponds have often been the main traditional sources of rural drinking water. Government of India's effective role in rural drinking water supply sector started in 1972-73 with the launch of Accelerated Rural Water Supply Program (ARWSP). With the passage of time, the program was modified in 2009-10 and re-named as National Rural Drinking Water Programme with the national goal to provide every rural person with adequate safe water for drinking, cooking and other domestic basic needs on sustainable basis. The basic requirement should

meet minimum water quality standards and readily and conveniently be accessible at all times and in all situations. The program has now been modified with major emphasis on ensuring sustainability of water availability in terms of potability, adequacy, convenience, affordability and equity while also adopting decentralized approach involving *Panchayati* Raj Institutions (PRIs) and community organization[2].

As per the strategy plan of Ministry of Drinking Water and Sanitation, Government of India, at least 55% households shall be provided with service connection within their premises by 2017 and 90% households to be provided service connection by 2021. However the State Government may decide to provide more house hold connections depending on the feasibility[3].

As part of this research work, the researcher undertook a review of literature on Rural Water Supply Scheme on social and financial aspects. During the course of literature review, studies related to Water tariff, cost recovery and affordability of RRWSS are reviewed. The studies of Shah Binay[4], Azuma and Jayakaran[5], Mazumdar[6] Raghupati *et al*[7], Misra Smita[8-13], Landge Hemant C., *et.al.*[14], Karthic and Yohan[15], Dhanabalan M.[16] Ahuwalia[17] have concluded that the various tariff structures exist in different municipalities of India and abroad. The different studies offer suggestions on improvements required in the present tariff systems. An over view of the role of community or users related to the water supply services, is also given. As solutions to these studies of Tripathi and Lal[18], Mhaisalkar and Gawalpanchi[19], ORG Nielsen Report[20], WASMO report[21], Katpatal and Gupta[22] and Patel[23] have suggested that the scheme has undergone tremendous changes and is suffering from technical, management and financial problems. Problems in each RRWSS should be tackled differently on the grass root level. However, identification and development of the indicators of evaluation of overall performance is common management practice, in rural water sector, despite large involvement of community and expenses occurred worldwide. With solutions to that, the studies of Dwivedi and Bhadauria[24], The World Bank[25], Yadav, Singh, and Shah[26] have suggested that all the indicators coverage of water supply, cost recovery in water supply services has good performance while efficiency in redressal of customer complaints, quality of

water supplied and efficiency in collection of water supply related charges showed best performance.

Within the studies, financial aspects of RRWSS are a less ventured area. Based on literature review following remarks are made: The studies of Barot[27] addressed the challenges faced for water supply especially by rural India. By setting the example of Gujarat, he explained what the available systems are, which are emerging ones and the conditions that need to be addressed. Nath[28] reported that the failure to provide safe drinking water and adequate sanitation services to all people is, perhaps, the greatest development failure of 20th century. Providing safe drinking water and sanitation to one billion unserved people in the next decade would be the most critical challenge for humanity as a whole, and more specifically, for the government in the developing countries. Jimenez & Perez-Forguet[29] discussed number of weaknesses *viz,* low quality of water services, lack of sustainability of constructed infrastructure, difficulties for targeting the poor and inadequate internal information systems that continue undermining strategies for poverty eradication. He also recommended including new paradigms for the provision of rural water supply such as adoption of water supply as a service that is monitored and supported by the government and need-based allocation of projects at community level.

7.2 FINDINGS AND CONCLUSIONS FOR ANALYSIS OF SECONDARY DATA

Based on the secondary data collected from NRDWP, analysis is carried out in Chapter - 5. NRDWP releases details of total rural water supply schemes of States and Districts of India. The data were gathered from the point of commencement of NRDWP i.e. 2009-10, to 2014-15. The financial data related to the allocation of funds to various states, release of funds to various states and expenditure incurred by various states. The details related to central fund. The analysis is carried out for the data as well as the share of the state over the entire period of six years. The second set of data related to combination of operational and financial data. These data related to ongoing scheme, new scheme, achieved scheme, total habitations, total cost. From the data collected cost per scheme and

per habitation are derived for all states and for the entire period of the study. The findings for the same are summarised in the following para.

7.2.1 Findings: NRDWP: State Level Analysis (Allocation, Release and Expenditure)

Allocation and expenditure from 2009 to 2015 related findings

1. In the year 2009-10, 12 out of 28 states have release fund greater than the allocation. 8 out of 28 states have expenditure greater than release. It is noticed that Andhra Pradesh, Gujarat, Jammu & Kashmir, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan, Tamil Nadu, Uttar Pradesh, have allocation, release and expenditure higher than the average.

2. In the year 2010-11, 16 out of 30 states have release fund greater than the allocation. 6 out of 30 states have expenditure greater than release fund. It is found that Andhra Pradesh, Tamil Nadu, Uttar Pradesh and West Bengal have allocation, release and expenditure higher than the average.

3. In the year 2011-12, 11 out of 28 states have release fund greater than allocation and 15 out of 28 states have expenditure greater than release. It is noticed that Andhra Pradesh, Assam, Bihar, Gujarat, Jammu & Kashmir, Karnataka, Maharashtra, Rajasthan, Uttar Pradesh, West Bengal have allocation fund, release and expenditure higher than the average.

4. In the year 2012-13, 12 out of 30 states have release fund greater than allocation. It can be seen that 12 states have expenditure greater than release fund. It is observed that Andhra Pradesh, Assam, Gujarat, Jammu & Kashmir, Karnataka, Maharashtra, Rajasthan, Tamil Nadu, Uttar Pradesh, and West Bengal have allocation, release fund and expenditure higher than the average.

5. In the year 2013-14, 16 out of 30 states have release fund greater than allocation. It can be seen that 20 states have expenditure greater than release fund. It is observed that Andhra Pradesh, Assam, Gujarat, Jammu & Kashmir, Karnataka, Maharashtra, Madhya Pradesh, Rajasthan, Uttar

Pradesh, West Bengal have allocation, release of fund and expenditure higher than the average.

6. In the year 2014-15, 17 out of 31 states have release fund greater than allocation and 18 out of 31 states have expenditure greater than release fund. It is observed that Andhra Pradesh, Assam, Bihar, Gujarat, Jammu & Kashmir, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal have allocation, release of fund and expenditure higher than the average.

7. When year wise trend is examined for allocation, release and expenditure related to central funds, it is observed that over a period of time allocation and release have kept on increasing up to 2012-13 and it has declined during the year 2013-14 and 2014-15. It is noticed that the expenditure has kept on increasing each year up to 2013-14 and it has declined during 2014-15.

8. Examining over a period of six years, on an average it is found that release is about 96% of allocation and expenditure is about 94% of release of central funds.

State's share in Allocation, Release and Expenditure

1. For the year 2009-10, percentage of fund allocated and released are highest for Rajasthan at 12.98% and at 12.67%.When actual expenditure incurred is examined, Rajasthan does not remain at top. Instead, Uttar Pradesh is at the top at 13.90%. Only 5 out of 28 states have 46% allocation of funds, 47% release of funds and 47% of total expenditure out of central funds.

2. For the year 2010-11, percentage of fund allocated and release are highest for Rajasthan at 13.64% and at 12.30%.When actual expenditure incurred is examined, Rajasthan does not remain at the top. Instead, Uttar Pradesh is at the top at 11.65% expenditure out of central funds. Only top 5 states have 46% of allocation and about 45% of release and expenditure of the central funds.

3. For the year 2011-12, percentage of fund allocation, release and expenditure are highest for Rajasthan at 13.01%, 13.62% and 15.91%. Thus, for all three

aspects, Rajasthan is at the top. It is noticed that for Rajasthan release of funds was higher for 2011-12 as compared to 2010-11, both in absolute terms as well as percentage share. Only 5 out of 28 states have 46% of allocation and release of funds and 45% of total expenditure.

4. For the year 2012-13, percentages of central funds allocation, release and expenditure is highest for Rajasthan at 13.14%, 13.48% and 13.17%. For all three aspects, Rajasthan is consistently at the top. Only 5 out of 30 states have 46% of allocation and release of funds and 43% of expenditure of the central fund.

5. For the year 2013-14, percentage of fund allocation, release and expenditure are highest for Rajasthan at 13.71%, 13.88% and 13.51%. 5 out of 30 states have 47% allocation of funds, 42% of release of funds and 43% of total expenditure.

6. For the year 2014-15, percentage of central fund allocation, release and expenditure are highest for Rajasthan at 13.47%, 14.41% and 13.49%. The top 5 out of 31 states have 46% allocation and release of funds and 47% of total expenditure.

7. For the time period 2009- 10 to 2014-15, when the state wise status is examined, on an average, it is found that for all three aspects of allocation, release and expenditure, Rajasthan, Uttar Pradesh and Maharashtra are at the top.

Information of thirty one states of India is analysed for selected operational and financial indicators mentioned in above para. Table 7.1 presents detail of average of all states for the period 2009 -10 to 2014 – 2015. The details relate to average percentage of release to allocation and average percentage of expenditure to release over a stated time period. Release and expenditure sometimes have little time lag. Therefore in one year release may be high percentage of allocation or expenditure may be higher percentage of (Release +Deposit). To average out these fluctuations, average period 2009 to 2015 is also derived and this is presented in Table 7.1. It is observed that during last six years in certain states, percentage of expenditure was more as compared to fund release. Bihar, Jammu & Kashmir, Manipur, Nagaland, Uttar Pradesh,

Uttarakhand, West Bengal etc. had made more expenditure as compared to funds centrally released by the Government. However, major difference was found in case of Bihar where percentage of expenditure is 140% as compared to fund released. It is noticed that for certain states, percentage of release was more compared to allocation of fund. Meghalaya, Tripura, Punjab, Sikkim, Haryana, Kerala, Tamil Nadu and Assam etc. had more release as compared to allocation of funds centrally announced by the Government. However, major difference was found in case of Arunachal Pradesh where percentage of release is 142.84% as compared to allocation.

Table 7.1 Average Percentage of Release and Expenditure **(**2009 - 2015)

Sr. No	State	Percentage of Release Against the Allocation	Percentage of Expenditure Against the Release
1	Andaman & Nicobar	28.44	127.37
2	Andhra Pradesh	101.76	100.39
3	Arunachal Pradesh	142.84	102.88
4	Assam	113.25	97.66
5	Bihar	64.99	140.73
6	Chhattisgarh	97.19	101.57
7	Goa	25.95	6.37
8	Gujarat	105.28	104.80
9	Haryana	114.45	97.20
10	Himachal Pradesh	109.86	97.47
11	Jammu and Kashmir	96.79	107.30
12	Jharkhand	102.47	101.18
13	Karnataka	101.07	98.12
14	Kerala	110.18	101.06
15	Madhya Pradesh	104.68	96.42
16	Maharashtra	95.60	95.58
17	Manipur	89.19	97.04
18	Meghalaya	133.65	98.34
19	Mizoram	106.45	82.10
20	Nagaland	98.85	104.46
21	Odisha	114.29	103.36
22	Puducherry	9.01	0.00
23	Punjab	129.43	101.58
24	Rajasthan	103.38	95.08
25	Sikkim	129.98	124.74
26	Tamil Nadu	123.92	103.25
27	Telangana	17.63	14.86
28	Tripura	134.66	102.93
29	Uttar Pradesh	95.90	97.50
30	Uttarakhand	73.58	112.59
31	West Bengal	103.12	103.63
	Average	**96.06**	**94.11**

(Source: Percentage derived by own calculation)

Note: Chandigarh, Dadar & Nagar haveli, Daman & Diu, Delhi and Lakshadweep are not considered because they have not received allocation.

Findings: NRDWP: state level - operational and financial aspects

Analysis of Operational and Financial, details of schemes with reference to States.

For 4 operational aspects and one financial aspect data were collected, *viz*. ongoing schemes, new schemes, achieved schemes, habitations and total cost. From this, cost per scheme and cost per habitation are derived. Moreover, the percentage share of each state for ongoing schemes, new schemes, achieved schemes, habitations and total cost are also derived. Table 7.2 presents the findings in summarized form regarding highest share in ongoing schemes, highest share in new schemes, highest share in achieved scheme, highest share in habitations covered and highest share in total cost for all 6 years. Moreover, it also presents the state with highest cost per scheme and highest cost per habitation. From the table 7.2 it is observed that taking 2009-10 to 2014-15 on the whole, for all 6 years Karnataka has highest share in ongoing scheme. For new schemes and achieved schemes, for 3 years Karnataka has highest share and for 2 years Jharkhand has highest share. For highest share in habitations covered, it is Bihar (2), Karnataka (2), Jharkhand (1) and Odisha (1). For total cost Rajasthan has highest share in 4 out of 6 years. Cost per scheme is found to be highest for Kerala for 4 years out of 6 years.

Table 7.2 Analysis of Operational and Financial Details of Schemes with Reference to States

Year	Ongoing	New	Achieved	Habitations	Total Cost	Cost per Scheme (₹ Crores)	Cost per Habitation (₹ Crores)
2009-10	Karnataka 24.21%	Chhattisgarh 20.56%	Chhattisgarh 18.67%	Bihar 18.34%	Maharashtra 20.21%	Kerala ₹4.55	Haryana ₹0.89
2010-11	Karnataka 20.01%	Chhattisgarh 18.84%	Jharkhand 17.05%	Bihar 11.23%	Rajasthan 14.70%	Goa ₹26.59	Goa ₹3.13
2011-12	Karnataka 21.91%	Jharkhand 19.32%	Jharkhand 18.46%	Jharkhand 9.87%	Rajasthan 23.72%	Kerala ₹7.52	Kerala ₹17.14
2012-13	Karnataka 21.99%	Karnataka 23.42%	Karnataka 21.07%	Karnataka 11.53%	Karnataka 15.53%	Goa ₹79.75	Goa ₹3.39
2013-14	Karnataka 32.38%	Karnataka 30.87%	Karnataka 32.42%	Karnataka 13.23%	Rajasthan 24.67%	Kerala ₹8.90	Andaman & Nicobar ₹1.05
2014-15	Karnataka 38.51%	Karnataka 22.44%	Karnataka 30.20%	Odisha 12.31%	Rajasthan 42.02%	Kerala ₹13.49	Rajasthan ₹1.60

(Source: Compiled from Table 5.16 to 5.21)

Cost per habitation was found to be highest for different states for different years except that Goa had highest cost per habitation twice out of 6 years.

As part of analysis of the operational aspect, for a time span of six years, the percentage of ongoing schemes, new schemes, achieved schemes, habitations covered, cost per schemes and cost per habitation are derived for all states and union territories.

Table 7.3 presents the state wise details about percentage of ongoing schemes, new schemes, achieved schemes, total cost and habitations. From the Table it can be observed that percentage of ongoing schemes for Karnataka is highest (26.50%). For Maharashtra it is found to be about 14%. Thus, only two states have around 40% of the ongoing schemes. The remaining 60% are divided between remaining 29 states. It is further observed that eleven states have less than 1% (of total) ongoing schemes. They are Andaman & Nicobar, Arunachal Pradesh, Goa, Kerala, Manipur, Mizoram, Nagaland, Puducherry, Sikkim, Telangana and Uttar Pradesh. For the new schemes also, Karnataka is at the top having about 17.32% of the states followed by Chhattisgarh (15.46%), Jharkhand (14.45%), Madhya Pradesh (12.53%) and Odisha (10.76%). For the achieved scheme also, Karnataka is at the top having about 19% of state followed by Chhattisgarh (12.92%), Jharkhand (12.26%) and Madhya Pradesh (12.07%). It is noticed that percentage of habitations of Karnataka is 10.44% followed by Chhattisgarh (9.52%). It is observed that percentage of total cost in Rajasthan is highest (22.20%). It is noticed that cost per schemes of Goa is highest (₹17.72 crores). Similarly, cost per habitations of Kerala is highest (₹3.35 crores). The main issues in successful scheme implementation are institutional development, financial viability and protection of water sources apart from the leakages in distribution system.

Table 7.3 Average Percentage of Ongoing, New, Completion Schemes, Total Habitations, Total Cost and Cost per Scheme and Habitation

Sr. No	State	% of Ongoing Schemes	% of New Schemes	% of Achieved Schemes	% of Habitation	% Total Cost	Average Cost per Scheme (₹ Crores)	Average Cost per Habitation (₹ Crores)
1	Andaman & Nicobar	0.00	0.00	0.00	0.00	0.01	0.52	0.44
2	Andhra Pradesh	5.02	1.16	2.02	2.88	5.19	0.37	0.32
3	Arunachal Pradesh	0.35	0.34	0.32	0.28	0.47	0.17	0.26
4	Assam	4.85	4.74	4.50	5.84	2.44	0.07	0.08
5	Bihar	7.47	6.38	6.90	9.27	2.30	0.05	0.04
6	Chhattisgarh	5.79	15.46	12.92	9.52	1.77	0.02	0.03
7	Goa	0.00	0.00	0.00	0.01	0.13	17.72	1.09
8	Gujarat	1.61	0.81	1.01	1.35	3.16	0.41	0.50
9	Haryana	1.86	0.33	0.67	0.89	4.33	0.68	0.87
10	Himachal Pradesh	1.53	0.25	0.37	3.43	2.94	0.81	0.23
11	Jammu & Kashmir	2.76	0.43	0.53	2.09	5.13	0.91	0.75
12	Jharkhand	4.11	14.45	12.26	6.95	1.74	0.02	0.04
13	Karnataka	26.50	17.32	18.83	10.44	12.49	0.08	0.20
14	Kerala	0.26	0.01	0.04	0.69	2.39	7.43	3.35
15	Madhya Pradesh	1.89	12.53	12.07	6.37	1.57	0.02	0.10
16	Maharashtra	13.96	3.38	4.74	5.61	12.36	0.29	0.37
17	Manipur	0.82	0.05	0.18	0.19	0.20	0.13	0.19
18	Meghalaya	3.93	0.31	0.56	1.07	1.83	0.26	0.34
19	Mizoram	0.06	0.03	0.05	0.03	0.16	0.53	0.92
20	Nagaland	0.08	0.08	0.11	0.06	0.12	0.22	0.41
21	Odisha	5.89	10.76	9.72	9.01	3.26	0.04	0.07
22	Puducherry	0.00	0.00	0.01	0.01	0.01	0.13	0.17
23	Punjab	1.23	0.44	0.55	0.68	1.36	0.26	0.36
24	Rajasthan	3.29	4.56	4.72	6.43	22.20	1.67	0.70
25	Sikkim	0.46	0.09	0.17	0.12	0.14	0.10	0.21
26	Tamil Nadu	1.87	4.73	5.19	6.05	4.23	0.13	0.13
27	Telangana	0.13	0.04	0.07	0.12	0.16	0.10	0.07
28	Tripura	1.23	0.79	0.52	0.98	0.50	0.09	0.10
29	Uttar Pradesh	0.25	0.05	0.06	4.88	1.04	1.71	0.58
30	Uttarakhand	1.56	0.18	0.43	0.99	0.98	0.37	0.21
31	West Bengal	1.26	0.32	0.49	3.80	5.43	1.88	0.67
	Average	**100**	**100**	**100**	**100**	**100**	**1.20**	**0.44**

(Source: Percentage derived by own calculation)

Note: Chandigarh, Dadra & Nagar Haveli, Daman & Diu, Delhi, and Lakshadweep are not considered because they have not ongoing, new and achieved schemes

Note: Habitation: It is a term used to define a group of families living in proximity to each other, within a village. It could have either heterogeneous or homogenous demographic pattern. There can be more than one habitation in a village but not vice versa.

7.2.2 Findings: NRDWP at District Level of Gujarat for Operational and Financial Aspects

Analysis of operational and financial details of schemes with reference to districts

Table 5.26 to 5.31 presented year wise data and analysis for the ongoing schemes, new schemes, achieved schemes, habitations, total cost, cost per scheme and cost per habitation for each district of Gujarat. For the summary of important finding from these six Tables Table 7.4 is prepared that presents the details about the district having highest percentage share, for each year under study for all 7 aspects as narrated above. It can be noticed that for most of the aspects and for most of the years, Amreli, Banaskantha, Bhavnagar, Mahesana, Sabarkantha, Surendranagar, Tapi and Valsad are leading.

Table 7.4 Analysis of Operational and Financial Details of Schemes with Reference to Districts

Year	Ongoing	New	Achieved	Habitations	Total Cost	Cost per Scheme (₹ Crores)	Cost per Habitation (₹ Crores)
2009-10	Surendranagar 14.43%	Valsad 22.32%	Valsad 20.36%	Valsad 15.03%	Banaskantha 17.06%	Bhavnagar ₹32.91	Gandhinagar ₹10.79
2010-11	Tapi 27.62%	Sabarkantha 29.52%	Sabarkantha 24.54%	Sabarkantha 26.64%	Sabarkantha 29.73%	Amreli ₹22.06	Amreli ₹9.45
2011-12	Banaskantha 38.98%	Navsari 24.15%	Kutch 17.27%	Banaskantha 33.93%	Banaskantha 27.26%	Surat ₹92.49	Mahesana ₹45.00
2012-13	Sabarkantha 21.34%	Sabarkantha 34.20%	Sabarkantha 28.52%	Banaskantha 17.81%	Banaskantha 25.88%	Surat ₹14.30	Bhavnagar ₹15.15
2013-14	Mahesana 22.78%	Navsari 16.09%	Mahesana 14.70%	Banaskantha 15.03%	Banaskantha 37.38%	Junagadh ₹14.65	Porbandar ₹1.03
2014-15	Tapi 13.70%	Navsari 18.66%	Tapi 16.11%	Valsad 14.34%	Banaskantha 35.73%	Surendranagar ₹23.23	Banaskantha ₹0.85

(Source: Compiled from Table 5.26 to 5.31)

Table 7.5 presents the district wise details about percentage of ongoing schemes, new schemes, achieved schemes, habitation and total cost. From the Table it can be observed that percentage of ongoing schemes of Sabarkantha district is highest at about 11%. From the table it can be observed that Banaskantha, Dohad, Kutch, Narmada, Tapi and Valsad also it was found to be more than 5%. Similarly, for new schemes Navsari is highest at 16.27% followed by Sabarkantha 15.38% and Valsad at 13.18%.

Table 7.5 Average Percentage of the Ongoing, New, Achieved Schemes and Also Total Cost and Total Habitation

Sr. No	District	% of Ongoing Schemes	% of New Schemes	% of Achieve Schemes	% of Habitation	% of Total Cost	Average Cost per Scheme (₹ Crores)	Average Cost per Habitation (₹ Crores)
1	Ahmedabad	2.87	0.39	1.17	1.07	0.75	0.43	0.23
2	Amreli	0.40	0.10	0.22	0.34	3.21	7.54	3.35
3	Anand	2.86	4.93	5.16	3.40	2.02	0.18	0.19
4	Aravalli	1.51	1.16	2.32	1.07	1.81	0.06	0.09
5	Banaskntha	9.59	2.87	4.16	16.12	29.37	4.10	0.82
6	Bharuch	4.72	2.22	3.17	3.81	4.76	0.56	0.30
7	Bhavnagar	0.57	0.19	0.11	0.62	2.30	7.77	3.24
8	Botad	0.03	0.01	0.03	0.04	0.04	0.09	0.06
9	Chhotaudepur	0.19	0.33	0.46	0.16	0.05	0.01	0.02
10	Dang	0.21	3.77	1.49	1.37	0.66	0.09	0.14
11	Dwarka	0.10	0.00	0.05	0.04	0.03	0.03	0.05
12	Dohad	5.57	2.04	2.22	1.52	0.63	0.06	0.11
13	Gandhinagar	2.96	0.66	1.24	0.81	1.60	5.00	1.89
14	Jamnagar	1.14	0.87	1.00	0.74	0.52	0.39	0.26
15	Junagadh	0.46	0.44	0.15	2.07	4.02	11.27	0.84
16	Kutch	5.43	0.75	4.27	4.70	2.99	0.25	0.58
17	Kheda	1.76	7.57	4.62	4.68	0.94	0.05	0.09
18	Mahesana	4.32	0.32	4.46	1.18	0.98	0.15	7.54
19	Mahisagar	0.04	0.02	0.04	0.02	0.02	0.03	0.05
20	Morbi	0.00	0.18	0.01	0.24	0.00	0.00	0.00
21	Narmada	6.73	7.30	4.88	4.00	1.33	0.08	1.32
22	Navsari	1.28	16.27	8.87	6.89	0.98	0.03	0.06
23	Panch mahals	3.20	6.01	5.36	3.20	0.72	0.98	0.15
24	Patan	1.96	0.77	1.62	2.45	1.95	0.81	0.21
25	Porbandar	0.85	0.18	0.48	2.39	4.81	6.99	2.75
26	Rajkot	2.54	1.25	1.54	3.73	5.52	1.34	0.45
27	Sabarkantha	11.14	15.38	15.30	10.27	7.90	0.15	0.21
28	Surat	2.32	2.10	2.35	2.83	5.55	17.84	0.22
29	Surendranagar	4.55	1.32	1.74	2.77	4.33	4.77	1.34
30	Tapi	9.88	2.62	6.26	3.43	2.10	0.28	0.56
31	Vadodara	4.17	4.84	6.22	4.63	4.45	0.60	0.38
32	Valsad	6.63	13.18	9.03	9.44	3.68	0.21	0.19
	Average	**100**	**100**	**100**	**100**	**100**	**2.25**	**0.86**

(Source: http://indiawater.nic.in, & percentage derived by calculation)

Note: Habitation: It is a term used to define a group of families living in proximity to each other, within a village. It could have either heterogeneous or homogenous demographic pattern. There can be more than one habitation in a village but not vice versa.

Thus, out of 32 districts, these three districts have new schemes around 44%. Regarding achieved schemes, Sabarkantha is highest at 15.30% followed by Valsad at 9.03%. Out of total habitations Banaskantha is highest at 16.12%

followed by Sabarkantha at 10.27% and Valsad at 9.44%. It is observed that percentage of total cost for Banaskantha is highest (29.37%). It is noticed that cost per schemes for Surat is highest (₹17.84 Crores). Similarly, cost per habitations for Mahesana is highest (₹7.54 Crores), followed by Amreli and Bhavnagar as compared to other districts.

7.3 FINDINGS AND CONCLUSIONS FOR ANALYSIS OF PRIMARY DATA

For analysis of Financial Performance Indicators of selected schemes, primary data are collected. The analysis of various aspects is carried out for the same. This section presents the major findings from primary data analysis. This is preceded by coverage and sample selection.

7.3.1 Coverage and Sample Selection

To understand services provided by RRWSS and the satisfaction of respondents from RRWSS, the primary data are collected through Questionnaire. As mentioned in Chapter - 4 on Research Methodology for the purpose of study, four RRWSS are selected. Total numbers of respondents are 2,247 of which 472 respondents are from Iswariya scheme, 479 respondents are from Gadhada scheme, 433 respondents are from Mandvi scheme and 863 respondents are from Variyav scheme. The following para presents the major findings in brief based on detailed analysis carried out in Chapter - 6.

Table 7.6 Population Coverage Under Scheme

Sr. No	Name of Scheme	Total Talukas	Total Villages	Number of Villages Selected	Total Population
1	Iswariya Regional Rural Water Supply Scheme (Amreli)	11	49	11	79,665
2	Gadhada Regional Rural Water Supply Scheme (Bhavnagar)	11	67	12	1,27,516
3	Mandvi Regional Rural Water Supply Scheme (Kutch)	10	71	12	72,261
4	Variyav Regional Rural Water Supply Scheme (Surat)	10	156	20	6,11,795
	Total	**42**	**345**	**55**	**8,85,237**

The area selected for the purpose of study, Amreli, Bhavnagar, Kutch and Surat are the most popular districts in Gujarat state having total population of 8,85,237. The brief details of selected schemes and other relevant details are presented in Table 7.6.

Each scheme as mentioned above is a multi-village scheme. The representatives from among the residents of the head, middle and tail end of the water supply scheme were selected as respondents. The geographical coverage should be representative of the schemes. For this purpose for a given scheme the sample villages are selected on convenience basis. From the sample villages, households were selected with a predetermined sample size for each village which was arrived at on the basis of the village population discussed below. The details about selected Talukas, Villages and respondents for each selected schemes are presented in Table 7.7, with the percentage of Taluka, village and respondents selected to total of the same. Thus, a total of 7 Talukas, 55 villages and 2,247 respondents are selected. The number of respondents in each of the villages is based on the population of the selected village. The basis of selection was as follows.

For population of village ≤ 1000 = 30 respondents
For population of village between 1001 to 3000 = 40 respondents
For population of village >3000 = 50 respondents

Table: 7.7 Sample Selections: Critical Details

Sr. No.	Name of Scheme	No. of Sample Talukas	% of S.T to T.T	No. of Sample Village	% of S.V to T.V	Population of Selected Villages	% of S.P to T.P	Respondents	% of Total Scheme wise Responses
1	Iswariya Regional Rural Water Supply Scheme (Amreli)	3	27.30	11	22.45	24,499	30.80	472	21.00
2	Gadhada Regional Rural Water Supply Scheme (Bhavnagar)	1	9.10	12	16.42	24,781	19.40	479	21.32
3	Mandvi Regional Rural Water Supply Scheme (Kutch)	2	20.00	12	16.90	21,085	29.20	433	19.27
4	Variyav Regional Rural Water Supply Scheme (Surat)	1	10.00	20	12.82	58,560	9.60	863	38.41
	Total	**7**		**55**		**1,28,925**		**2,247**	

(S.T. = Sample Taluka, T.T= Total Taluka, S.V= Sample Village, T.V= Total Village, S.P = Sample Population, T.P = Total Population.)

7.3.2 Findings Based on Primary Data

The objective of the study is to understand the Performance of the selected Regional Rural Water Supply Schemes with sample of respondents. The analysis is focussed with reference to scheme, with reference to geographic region as well as with reference to economic activities. Table 7.8 and 7.9 presents the scheme wise classification of sample, according to geographic region and economic activities respectively.

Table 7.8 Sample Coverage

Schemes	Head		Middle		Tail		Total	Total	
	f	%	*f*	%	*f*	%	%	*f*	%
Iswariya	70	14.83	210	44.49	192	40.68	100	472	21.00
Gadhada	90	18.79	159	33.19	230	48.02	100	479	21.32
Mandvi	210	48.50	100	23.09	123	28.41	100	433	19.27
Variyav	300	34.76	433	50.17	130	15.06	100	863	38.41
Total	**670**	**29.82**	**902**	**40.14**	**675**	**30.04**	**100**	**2,247**	**100**

(Source: Prepared from responses)

Table 7.9 Economic Activities wise Distribution of Sample Respondents

Schemes	Businessmen		Regular Services		Daily Wagers		Farmers		Total
	f	%	*f*	%	*f*	%	*f*	%	
Iswariya	23	4.87	26	5.51	96	20.34	327	69.28	472
Gadhada	22	4.59	28	5.85	128	26.72	301	62.84	479
Mandvi	37	8.55	16	3.70	136	31.41	244	56.35	433
Variyav	36	4.17	241	27.93	123	14.25	463	53.65	863
Total	**118**	**5.25**	**311**	**13.84**	**483**	**21.50**	**1,335**	**59.41**	**2,247**

(Source: Prepared from responses)

From the table 7.8 it can observe that a total of 2,247 respondents were selected for the study with almost 30% of the respondents at the head region of the scheme, 40% in the middle region and 30% at the tail end of the scheme. The proportion of coverage of 4 schemes was 21%, 21.32%, 19.27% and 38.41% for Iswariya scheme, Gadhada scheme, Mandvi scheme, and Variyav scheme respectively. As is apparent for Variyav scheme the proportion of sample was highest, where as for other 3 schemes the sample size was almost same.

Table 7.9 presents the details about the sample respondents according to scheme and according to economic activities. From the table it can be observed that out of the total sample 5.25% were businessmen, 13.84% were engaged in regular services, 21.50% were daily wager and 59.41% were farmers. Businessmen were highest for Mandvi scheme, for regular services it was found highest in Variyav scheme, daily wagers were found for Gadhada scheme, farmers were found highest for the Iswariya scheme.

As the analysis is divided in two parts, (A) Classification, tabulation, frequency distribution and percentage analysis and (B) Hypotheses testing, the major findings are also grouped accordingly.

(A) Based on percentage analysis

1. The mean size of the family for all the schemes was six even though there were variations in the maximum size.
2. The respondents from general caste were highest in proportion for Iswariya and Gadhada schemes, whereas the respondents from Baxi panch were having highest proportion for Mandvi and Variyav schemes.
3. On the whole about 75% of respondents were having education less than 7^{th} standard.
4. Over all, Variyav scheme of Surat district is found economically sound containing almost 90% of the respondents having status APL followed by Iswariya scheme of Amreli district with nearly 83% APL further followed by Gadhada scheme of Bhavnagar district and Mandvi scheme of Kutch district having around 75% of respondents APL.
5. Iswariya scheme of Amreli district had almost 70% of the respondents as farmers followed by Gadhada scheme having 62% farmers, Mandvi scheme having 56% farmers and Variyav scheme having around 54% of farmers.
6. There are certain variations observed in the water source used by the respondents of the respective scheme. For Iswariya scheme, Step Well, Well and Tanker are not used at all as water source. Hand Pump is used as a

minor source by Mandvi and Variyav scheme. Tap is used by highest proportion of respondents on an average.

7. Majority of the respondents, scheme wise as well as overall are using both the sources *viz.* Government and village. Exceptionally, for Variyav scheme, for middle region response is very high for using only government source of water.

8. It is observed that the proportion of respondents satisfied is higher than those of not satisfied on the whole as well as for each scheme individually. For Mandvi scheme proportion of satisfied respondents is marginally lower than those not satisfied. The highest percentage of satisfied respondents is for head region of Gadhada and the highest percentage of non-satisfied respondents are for tail region of Mandvi scheme.

9. On the whole 'water available as per requirement', 'water available regularly' and 'clean water available' are the major reasons attributed for satisfaction from RRWSS.

10. On the whole 'no house connection' and 'insufficient water availability' are attributed as the major reasons for dissatisfaction from RRWSS.

11. Water collection and storage includes quantity of water used other than domestic use. Animal husbandry is found to be the main other use of water. This is indicated by 99% of respondents in Kutch district, 95% of respondents of Bhavnagar district and 92% of respondents in Amreli district used the water for animal husbandry in addition to domestic use.

12. For Iswariya, Mandvi and Variyav scheme change in time of supply of water, seems to have more effect on routine life. For Gadhada scheme compared to routine life, business is found to be little more affected.

13. Majority of respondents are not required to purchase water, when RRWSS is not able to supply sufficient quantity of water. In middle region of Gadhada scheme more percentage of respondents has opined that they need to buy water. It is interesting to observe that very high percentage of tail end region respondents of Iswariya, Mandvi and Variyav schemes are not required to purchase water.

14. It is found that effect of water shortages is most significant and acute on agricultural and animal husbandry. Labour work and traditional professions are least affected by the water shortages. For all 4 schemes, agriculture is the highest affected on account of water shortages.

15. When respondent households were asked about the water charges, 83.47%, 82.46%, 77.52% and 85.40% reported that they are paying water charges to the *Panchayat* or the Water committee in case of Iswariya Scheme, Gadhada Scheme, Mandvi Scheme and Variyav Scheme respectively.

16. The average amount paid is found to be highest for Gadhada scheme, where for tail region the mean was as high as ₹222 per annum per capita. The maximum amount paid is also found to be highest for Gadhada scheme for middle region at ₹750 per annum per capita.

17. It can be observed that for all the schemes the highest numbers of respondents are paying water charges in the range of ₹101 to ₹200.

18. It can be observed that for all the economic activities, highest numbers of respondents are paying water charges in the range of ₹101 to ₹200, except for regular services respondents, who are paying between nil to ₹100. Hardly 3% of the respondents are paying charges beyond ₹300 where mainly they are the farmers.

19. It can be observed that for all regions, highest proportions of respondents are paying water charges in the range of ₹101 to ₹200.

20. It can be observed that amongst all economic activities, highest mean is observed for farmers paying water charges of ₹172 on an average.

21. It is observed that highest percentage (78.08%) of respondents of Gadhada Scheme have paid water connection charges followed by Iswariya (77.75%), Mandvi (66.74%) and Variyav (59.68%). Highest percentage of Head region respondents (79.25%) has paid water connection charges followed by middle region (70.50%) and tail region (56%).

22. Over all, it was analyzed that highest percentage of respondents paying water connection charges were observed for daily wager (71.04%) followed

by farmer (71.01%), business men (66.95%) and respondents with regular service at 56.27%.

23. It is found that significant percentage of respondents of Variyav (82.04%) considered water charges as affordable followed by Gadhada (56.58%) and Iswariya (55.93%). Maximum proportions of non-responses are observed in the Iswariya scheme compared to other three schemes studied. In case of Variyav scheme proportionately greater percentages of farmers (82.50%) believe that the water charges are affordable.

24. It is seen in general that majority of the respondents in head, middle and tail regions are satisfied with the level of water supply and water charges they have to pay for the same. Highest proportion of respondents of Variyav scheme and highest proportion of respondents of head region have revealed satisfaction. It is seen in general that majority of the businessmen, respondents with regular services, daily wagers and farmers are satisfied with level of water supply and water charges they have to pay for the same.

25. Over all, the level of disagreement was very low. Accordingly 17.58%, 19.42%, 17.55% and 27% respondents disagreed with payment of water charges for Iswariya, Gadhada, Mandvi and Variyav scheme, respectively. In case of Iswariya scheme 21.88% of daily wagers, in case of Gadhada and Mandvi schemes 22.73% and 21.62% of business men and in case of Variyav scheme 27.80% of regular services respondents disagreed with the payment of water charges.

(B) Findings from testing of hypotheses

Reasons for satisfaction or dissatisfaction:

1. On examining whether the reasons for satisfaction are similar between different schemes or not, on applying Rank Correlation coefficient and *t - test*, for 4 situations out of 6, RCC was found to be significant between different schemes and a strong positive correlation was observed at 1% of significance and 5% of significance **(H_{01})**.

2. When the RCCs for reasons for satisfaction are examined between geographical regions, strong positive correlation is observed at 1% level of significance between reasons on account of which the respondents are satisfied with use of Government water sources between the geographical regions **(H_{02}).**

3. When RCC for reasons for dissatisfaction for use of government water source is examined between the schemes for 2 situations out of 6, significant correlations is observed **(H_{03})**.

4. On examining the RCC for reasons for dissatisfaction between the geographical regions, significant RCC was observed for all 3 situations **(H_{04}).**

Payment of water charges:

5. Significant difference was found in the proportions of respondents paying the water charges between the schemes for 3 situations out of 6 situations at 1% level of significance **(H_{05})**.

6. Significant difference was found in the proportions of respondents paying water charges located at different geographical regions irrespective of schemes. The calculated value of Z is higher than the table value at 1% level of significance or 5% level of significant **(H_{06}).**

7. No significant difference was found in the proportions of respondents paying water charges depending upon their economic activities irrespective of scheme for 5 situations out of 6 situations **(H_{07}).**

8. Significant difference was found in the proportions of respondents paying the water charges located at two different geographical regions of the same scheme for 9 situations out of 12 situations **(H_{08}).**

9. Significant difference was found in the proportions of respondents paying water charges between two schemes having similar geographical regions for 14 situations out of 18 situations at 1% level of significant **(H_{09}).**

Payment of Water connection charges:

10. Significant difference was found for 5 out of 6 situations in the proportion of respondents paying water connection charges between the schemes **(H_{010}).**

11. Significant difference was found in the proportion of respondents paying water connection charges between different geographical regions for all 3 situations **(H_{011}).**

12. Significant difference was found in the proportion of respondents paying water connection charges depending upon economic activities for 3 situations out of 6 situations **(H_{012})**.

13. Significant difference was found in the proportion of respondents paying water connection charges for the different geographical region within the scheme for 11 situations out of 12 situations **(H_{013})**.

14. Significant difference was found in the proportion of respondents paying water connection charges for the similar geographical region for two different schemes for 13 situations out of 18 situations **(H_{014})**.

Affordability of water charges:

15. Significant difference was found in the proportion of respondents about affordability for water charges between the schemes for 5 situations out of 6 situations **(H_{015})**.

16. Significant difference was found for all 3 situations in the proportion of respondents about affordability for water charges between geographical regions **(H_{016})**.

17. Significant difference was found in the proportion of respondents about affordability for water charges depending upon economic activities for 3 situations out of 6 situations **(H_{017})**.

18. Significant difference was found in the proportion of respondents about affordability for water charges between two geographical regions within a given scheme for 9 situations out of 12 situations **(H_{018}).**

19. Significant difference was found in the proportion of respondents about affordability for water charges between two schemes for similar geographical regions for 11 situations out of 18 situations **(H_{019})**.

Satisfaction about 'Water Supply' and 'Water Charges':

20. Significant difference was found in the proportion of respondents satisfied about the 'water supply' and 'water charges' payment between the schemes for all 6 situations **(H_{020})**.

21. Significant difference was found in the proportion of respondents satisfied about the 'water supply' and 'water charges' payment between all 3 geographical regions **(H_{021})**.

22. No significant difference was found in the proportion of respondents satisfied about the 'water supply' and 'water charges' payment between 4 situations of economic activities out of 6 situations **(H_{022})**.

23. Significant difference was found in the proportion of respondents satisfied about the 'water supply' and 'water charges' payment between two geographical regions of given scheme for 11 situations out of 12 situations **(H_{023})**.

24. Significant difference was found in the proportion of respondents satisfied about the 'water supply' and 'water charges' payment between two schemes for similar geographical regions for 15 situations out of 18 situations **(H_{024})**.

7.3.3 Consolidated Result Based on Testing of Hypotheses

The objectives of the study are to examine the extent of satisfaction of respondents to performance of Regional Rural Water Supply Scheme and to reduce the problems related to water supply. For the discrete statistics the collected data are classified based on geographic region, for the scheme, i.e. Head, Middle, Tail and the frequency and percentage analysis is applied to the same. Moreover the data are also classified according to the economic activities and the frequency and percentage analysis is applied to the same. In the second part of the analysis hypotheses testing is carried out.

Table 7.10 presents the consolidated results of hypotheses related with difference in proportion between the scheme, regarding water charges, water connection charges, affordability and satisfaction. From the table it can be observed that for difference in proportion for satisfaction. Significant difference is found between all schemes, regarding affordability it is found significant for 5 situations except between Iswariya and Gadhada and regarding payment of water charges, it is found significant for 3 situations out of 6.

Table: 7.10 Difference in Proportion Between Schemes

Between the Schemes	Water Charges	Water Connection Charges	Affordability	Satisfaction
Iswariya and Gadhada	-	-	-	**
Iswariya and Variyav	-	*	*	**
Iswariya and Mandvi	*	*	**	*
Gadhada and Variyav	-	*	*	*
Gadhada and Mandvi	*	*	**	**
Mandvi and Variyav	*	*	*	*

Table 7.11 presents the consolidated results of hypotheses related with difference in proportion between the geographic regions. For all 4 aspects of analysis it is observed that there is a significant difference in proportion between geographical regions.

Table: 7.11 Difference in Proportion Between Geographical Regions

Regions	Water Charges	Water Connection Charges	Affordability	Satisfaction
All Head and all Middle	*	*	*	*
All Head and all Tail	**	*	*	*
All Middle and all Tail	**	*	*	*

Table 7.12 presents the consolidated results of hypotheses related with difference in proportion between the economic activities. From the table it can be observed that for majority of situations (15 out of 24) there is no significant difference in proportion of respondents with reference to water charges, water connection charges, affordability or satisfaction on account of economic activities.

Table: 7.12 Difference in Proportion Between Economic Activities

Economic activities	Water Charges	Water Connection Charges	Affordability	Satisfaction
All Business Men and all Regular Services	-	**	*	-
All Business Men and all Daily Wagers	-	-	-	-
All Business Men and all Farmers	-	-	-	**
All Regular Services and all Daily Wagers	-	*	*	-
All Regular Services and all Farmers	-	*	*	-
All Daily Wagers and all Farmers	*	-	-	*

Table 7.13 presents the consolidated results of hypotheses related with difference in proportion between geographic regions within the scheme. From the table it can be observed that for most of the situations (40 out of 48), there is a significant difference in proportion with reference to water charges (9 out of 12), water connection charges (11 out of 12), affordability (9 out of 12) and satisfaction (11 out of 12).

Table: 7.13 Difference in Proportion Between Geographical Region within Scheme

Regions	Water Charges	Water Connection Charges	Affordability	Satisfaction
Iswariya RRWSS				
Head and Middle	*	*	*	*
Head and Tail	*	*	*	*
Middle and Tail	-	*	-	**
Gadhada RRWSS				
Head and Middle	-	-	**	-
Head and Tail	*	*	*	*
Middle and Tail	*	*	-	*
Mandvi RRWSS				
Head and Middle	*	*	-	*
Head and Tail	*	*	*	*
Middle and Tail	*	*	*	*
Variyav RRWSS				
Head and Middle	*	*	*	*
Head and Tail	-	*	**	*
Middle and Tail	*	*	*	*

Table 7.14 presents the consolidated results of hypotheses related with difference in proportion between schemes for similar geographic region. From the table it can be observed that for majority situations there is a significant

difference in proportion for tail region between the schemes with reference to all aspects examined (21 out of 24) followed by head region (19 out of 24) and middle region (13 out of 24).

Table: 7.14 Difference in Proportion Between the Schemes for Similar Geographical Region

Between the Schemes	Water Charges	Water Connection Charges	Affordability	Satisfaction
Head Region				
Iswariya and Gadhada	*	*	*	*
Iswariya and Variyav	*	*	*	*
Iswariya and Mandvi	*	*	*	*
Mandvi and Gadhada	-	*	-	-
Mandvi and Variyav	*	*	*	*
Gadhada and Variyav	-	-	*	*
Middle Region				
Iswariya and Gadhada	-	-	-	-
Iswariya and Variyav	*	*	-	*
Iswariya and Mandvi	*	*	-	*
Mandvi and Gadhada	*	*	-	*
Mandvi and Variyav	-	-	-	-
Gadhada and Variyav	*	*	**	*
Tail Region				
Iswariya and Gadhada	*	-	-	*
Iswariya and Variyav	*	*	*	*
Iswariya and Mandvi	*	*	*	*
Mandvi and Gadhada	*	*	*	*
Mandvi and Variyav	*	-	*	*
Gadhada and Variyav	*	*	*	*

* 1% level of significance ** 5% level of significance

7.4 CONCLUSIONS

The present study is a blend of secondary data and primary data analysis. The review of 5 year plans over a period of time indicates that good attempts are made at National level to improve the availability of the water to each corner of India. The initiative to convert ARWSP into NRDWP in 2009 is appreciable and NRDWP started publication of data from the year 2009-10 onwards itself, detailing operational and financial aspects. It is noticed from analysis of data that number of schemes taken up is increasing over a period of time. The study of 4 selected schemes of Gujarat through primary data reveals the ground realities

about the payment of water charges, water connection charges, affordability and satisfaction for 'water supply' and 'water charges'. Thus, the study is topical and it is felt that it will be useful to the policy framers.

7.5 SUGGESTIONS

Based on analysis carried out for primary and secondary data following suggestions are made:

7.5.1 Suggestions Based on Secondary Data

NRDWP has started publication of data from the year 2009-10. Within the short span the kind of data bank published is really detailed one. However, the details of the achieved schemes are not available for the year end. Hence, one of the suggestion is that is achieved scheme details are given for the year ended. It will be really useful for carrying out detailed analysis. The details about the schemes commenced but dropped at later date will also be useful to carry out detailed analysis. The meaning of habitation does not help to understand the number of household covered under the habitation. Under the circumstances, even though cost per habitation has been derived, it constraints the comparison between the states, hence if the number of household covered for the schemes are also published it will lead to meaningful comparison between the states.

7.5.2 Suggestions based on Primary Data

As the study relates to the analysis of the financial performance indicators, based on the hypotheses testing it is observed that each scheme has its own characteristics. Also, the distance from the main point of the scheme matters which is terms as head, middle and tail regions. The testing of hypotheses indicates that the there exists a significant difference between the schemes as well as regions regarding the status of payment of water charges, water connection charges, affordability for payment of water charges as well as the satisfaction with reference to water supply and water charges. Hence, based on

this finding water charges may be linked to the scheme characteristics and the geographical region.

7.6 SUGGESTIONS FOR FUTURE RESEARCH

The Present study relates to only four selected schemes situated in Gujarat. More number of schemes can be taken up for the purpose of analysis. The nationwide study can also be taken up for the schemes implemented in water rich states and water scarce states. This study focuses mainly financial aspects. Another study can be taken up including quality and other aspects.

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