CHAPTER 7

CONCLUSIONS & RECOMMENDATIONS

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Based on a study carried out for the critical evaluation of various RRWSS in Gujarat mainly two groups of performance indicators namely Service Performance Indicators and Financial Management Performance Indicators are identified.

Service Performance Indicators:

- Sustainability of Source
- Adequacy of Water
- Water supply Reliability
- Acceptable Water Quality

Financial Management Performance Indicators:

- Capital cost of Water
- Operations & Maintenance cost of Water
- Cost Recovery & Water Tariff
- Participation of Community at planning & Operation levels

From the studies it is concluded that the developed PIs for evaluation of service performance and financial management performance may be used separately. To quantify the overall performance in each group of indicators, Service Performance Index (SPI) and Financial Management Performance Index (FPI) may be calculated as per following equations.

$$SPI = \frac{\sum_{i=1}^{4} Ii\,Wi}{Wmax\,x\sum_{i=1}^{4} Ii}\ x\ 100$$

$$and\ FPI = \frac{\sum_{i=1}^{43} Ii\,Wi}{Wmax\,x\sum_{i=1}^{3} Ii}\ x\ 100$$

Where, Where, W= Weights assigned to each of the indicators based on their ratings; and I= Importance factor for each of the indicators based on their impact on overall service/financial management

performance and its interrelation to other group indicators. Value of Weights for each of the group indicators is suggested based on its ranking such Excellent, Medium to High, Low to Medium and Poor performance. Importance factor is also suggested for each of the group indicators for the quantification of overall service and financial management performance of an RRWSS.

Further, from the findings, it is determined that it is not necessary that the RRWSS which are performing in a better way from service point of view are also performing well from the financial management point of view. Further, the benchmarking values used for each PI may differ with site conditions. Therefore, benchmarking may be adopted within the group of schemes only and such PIs may be monitored continuously for the monitoring improvements in its performance. However, the same PIs may be used to set targets and policy guidelines. Based on the studies following policy guidelines can be set:

1. A district level (regional) planning is essential to identify areas where RRWSS would be more cost effective and sustainable. The bottom-up demand from the society for the scheme and top-down planning results in least cost option. Further watershed and aquifer information are important for the 'source' sustainability. Surface water based RRWSS justified mostly in areas marked by over exploited aquifers or by serious ground water quality problems with no alternate safe and sustainable source available locally (for eg. North Gujarat, Saurashtra and Kachchh region of Gujarat).
2. The present study reveals that the large scale RRWSS which usually serve urban population & industrial water demands in addition to rural domestic water demands often results in water scarcity to tail-end rural population due to continuous growing demands from urban population and rapid industrial growths, as

the case observed in RRWSS, Variav group, Surat.. Adequate measures may be taken in decentralizing such schemes for rural and urban & industrial and other needs of water supply.

3. The analysis of survey data and analysis made on quantity of water supplied in various RRWSS determined that the actual water supplied is often less than the actual water demand. Therefore, household typically depends on multiple water source including private bore & tanker water supplies. This raises the overall cost burden & less reliability of RRWSS with ultimate result of poor tariff recovery.
4. As per the norm of 250 persons per stand post which is based on assumption of output of 12 litres per minute. But, under study area at several villages, it was determined that the water pressure at stand post was low and the flow of only 3-10 litres per minute was available. This would not make possible for households to get 40 lpcd of water even if half of the persons have to share the stand post.
5. The findings of the survey determined that a large section of the rural people would like the convenience of a piped water supply connection in the house. This may lead in conflict with the norm of 55 or 70 lpcd of water in rural water supply. Such is the very common case with the most villages of Gujarat due to good agricultural & industrial growths taken place in last one or two decades, which lead the significant rise in per capita income of villagers.
6. The O & M cost needs to be properly assessed on regional basis and fully recoverable through tariff recoveries, except for high cost schemes. However, a transparent criteria needs to be developed based on local conditions to determine 'affordable' tariffs including

criteria for socially disadvantaged groups. The O & M cost requirements in excess to affordable contributions may be provided through a subsidy scheme.

7. For better Operation & Maintenance of RRWSS, the bulk water supply and village level distribution may be unbundled. This may results in improved service delivery with feeling of own management for villagers. In such cases, GWSSB of state agency may control bulk water supply and Gram Panchayat or Pani Samitis may responsible for equity water distribution & other M & R issues with tariff recoveries.
8. The low recovery of cost is often not due to non affordability or unwillingness to pay, but to do with the inadequate water supply services, the reluctance to pay of the household and the inability of the scheme management to collect the water charges. It is also found out that the stand post users are not charged at all in many piped or multi water distribution schemes (existence of private bore, pipe water supply by GWSSB & ESR with Stand post all together in the village) is also responsible for low cost recovery. On the contrary, there is strong demand from villagers for higher grade of services like piped water and more quantities with will to pay higher water charges also an encouraging to rural water supply sector of Gujarat.
9. Local watershed management plays an important role in catering the needs of water for drinking in most water scarce areas. Encouraging the construction of water recharging structures and adopting improved agricultural practices significantly changes the ground water quality and improves the water table in over-exploited aquifer zones.

SCOPE FOR FURTHER STUDY

Financial aspects such as cost of investments, Operations and Maintenance cost in Regional Water Supply Schemes along with the role of direct subsidies and cross subsidies involved need separate study for the long term financial sustainability of the water supply sector in rural areas, especially.