

Chapter 2 - Overall Audit Findings

2.1 Conduct of National Habitation Survey 2003

In 2003, DDWS decided to conduct a fresh survey to ascertain the exact position of drinking water supply in rural habitations; the results of the survey could form the basis for developing future strategies for the programme. DDWS issued detailed guidelines in February 2003 for conducting the National Habitation Survey 2003, according to which:

- The survey was to be completed by 31 March 2003; this deadline was subsequently extended to 30 September 2003;
- Comprehensive training on all aspects of the survey data collection was to be conducted for all staff involved in the survey;
- Maps on a scale of 1:40,000 were to be prepared in advance, and detailed maps after the survey were to be prepared and sent to the Chief Coordinator; these maps would be used for national planning and monitoring;
- The data collected was to be subject to 5 *per cent* test check at the sub-divisional and district levels, to ensure correctness of data.

Audit scrutiny revealed the following deficiencies in the conduct of the survey:

- Inconsistencies and discrepancies were noticed in the conduct of the survey in **Manipur** and **Haryana**. In **Manipur**, the survey was conducted through an NGO and a report submitted to the GoI in December 2006; however, due to inconsistencies in the survey report, the State Government was considering conduct of another survey. In **Haryana**, the survey was completed in 2005, but the survey results could not be finalized due to discrepancies between the figures with the State Government and GoI.
- Due to lack of documentation, audit could not verify the authenticity of conduct of the survey in **Chhattisgarh** (partly), **Jharkhand** and **Orissa**. In **Jharkhand**, filled-in survey forms were produced to audit in only one out of six test checked districts. In **Orissa**, filled-in survey forms were not produced to audit. In Korba District in **Chhattisgarh**, filled-in survey forms were not made available to audit.
- Detailed maps were not prepared in 130 out of 154 test-checked districts in Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Gujarat, Haryana, Himachal Pradesh, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Nagaland, Orissa, Punjab, Rajasthan, Sikkim, Tripura, Uttar Pradesh, Uttarakhand and West Bengal (22 States).
- The stipulated 5 *per cent* test check by the supervisory officers at State/District level was not conducted, or no documentation of such test check was produced to audit in 93 districts in **Andhra Pradesh, Bihar, Gujarat, Haryana, Himachal Pradesh, Jharkhand, Karnataka, Kerala, Manipur, Nagaland, Orissa, Punjab, Rajasthan, Sikkim, Tripura, Uttar Pradesh** and **West Bengal** (17 States).

- Training for the conduct of the survey was not conducted, or no documentary evidence of conduct of training was produced to audit in **Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Gujarat, Haryana, Jharkhand, Kerala, Manipur, Orissa, and Rajasthan** (12 States).

In response (May 2008), the Ministry stated that the survey of habitation was to be conducted every five years, but since the data became outdated because of the time gap, it had been made mandatory for the States to enter on-line data habitation-wise. This would ensure that the habitations, once covered, would not be eligible for funding again during the life span of the project.

Further, the Governments of **Andhra Pradesh, Assam, Haryana, Jharkhand, Maharashtra, Punjab, Rajasthan, Uttarakhand, Sikkim** and **West Bengal** accepted that there were delays and gave various reasons for the delays e.g. non-availability of census data, error in composition of data in some district centres, need for clarifications regarding data entry in upgraded software, the special nature of the survey, difficult geographical and topographical features, extreme climatic conditions etc. With regard to preparation of maps, most of the Governments accepted that the maps were not prepared and initiative was now being taken to prepare the maps.

Also, the Governments of **Andhra Pradesh, Bihar, Gujarat, Haryana, Karnataka, Nagaland, Orissa, Rajasthan, Sikkim** and **West Bengal** accepted that records in respect of test check by supervisory officer were not maintained or could not furnish such records. The Governments of **Andhra Pradesh, Jharkhand** and **Rajasthan** accepted that training was not conducted. The Government of **Haryana** stated that some discrepancies still persisted, as some of the habitations had not been depicted by the GoI.

In audit's view, reliable survey data provides the base data on current coverage of rural habitations, which is necessary for proper planning for rural water supply schemes. Non-conduct of test check of survey data, lack of training of survey staff, and non-preparation of detailed maps would adversely affect the quality and reliability of the survey data, and thus its usefulness for planning purposes.

2.2 Planning

As per the ARWSP guidelines, the States should prepare an Annual Action Plan (AAP) on the basis of a shelf of schemes, the likely size of the allocation under State Sector MNP, ARWSP, as well as likely carry over funds, if any, and submit them to DDWS by the beginning of October of the previous year for use at the Annual Plan discussions. This AAP should be reviewed and finalized by April, after the final outlay is decided.

The AAP should give priority to completion of the incomplete works over taking up of new works, and also ensure completion of works on schedule. The AAPs should also indicate:

- Target of coverage of NC/PC habitations with full details, and whether habitations would be covered fully or partially;
- Population to be benefited, indicating separately the SC/ST population;

- Activities to be taken up under sub-missions, magnitude of the problem, and steps to tackle it; and
- Provision for Dual Water Supply programme for rural habitations facing acute water quality problems.

Also, in order to ensure realistic bottom-up planning:

- The AAP at the State level should be supported by detailed plans at lower levels right down to the GP and habitation level, and ideally the State-level plan should be compiled from District proposals;
- The District AAPs should contain a review of the current position, and the status of Rural Water Supply Schemes (RWSSs) implemented in the past; identification of problem areas (in particular, the issue of sources running dry), investigation of causes and addressing these problems in the plan; and use of new sustainability methods and traditional water management systems to harvest rain water and ensure ground water recharge.

Audit scrutiny revealed that out of 26 States, two States (**Jammu & Kashmir** and **Jharkhand**) had not prepared the AAPs at all during the period 2002-03 to 2006-07, while seven States (**Andhra Pradesh, Assam, Gujarat, Karnataka, Madhya Pradesh¹, Punjab, and Uttar Pradesh**) had not submitted the AAPs, though prepared, to the DDWS. Further, even in respect of the 24 States which prepared the AAPs:

- In 15 States (**Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Haryana, Kerala, Manipur, Meghalaya, Nagaland, Orissa, Rajasthan, Sikkim, Uttar Pradesh, Uttarakhand and West Bengal**) the AAPs did not have habitation-wise details and were prepared at the State level *suo moto*, without having corresponding plans at the District and lower levels;
- In 9 States (**Himachal Pradesh, Karnataka, Maharashtra, Manipur, Punjab, Rajasthan, Uttar Pradesh, Uttarakhand and West Bengal**), the AAPs did not indicate the shelf of schemes and likely size of allocations.
- In 9 States (**Himachal Pradesh, Karnataka, Maharashtra, Rajasthan, Sikkim, Tripura, Uttar Pradesh, Uttarakhand and West Bengal**), the AAPs did not indicate the population to be benefited.
- In 9 States (**Arunachal Pradesh, Karnataka, Maharashtra, Manipur, Rajasthan, Sikkim, Tripura, Uttar Pradesh and West Bengal**), the AAPs did not contain a review of the current position, the status of Rural Water Supply Scheme (RWSS) implemented in the past, identification and resolution of problem areas, and use of new sustainability methods and traditional water harvesting methods.

¹ For the period 2005-07

- In 8 States (**Arunachal Pradesh, Maharashtra, Punjab, Rajasthan, Sikkim, Uttar Pradesh, Uttarakhand** and **West Bengal**), the AAPs did not indicate priority for completion of incomplete works over taking up new works.
- In 15 States (**Arunachal Pradesh, Himachal Pradesh, Karnataka, Madhya Pradesh, Maharashtra, Manipur, Nagaland, Punjab, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttar Pradesh, Uttarakhand** and **West Bengal**), the AAPs did not include the Dual Water Policy for habitations facing acute water quality problems.
- In 11 States (**Assam, Himachal Pradesh, Karnataka, Maharashtra, Manipur, Punjab, Rajasthan, Sikkim, Uttar Pradesh, Uttarakhand** and **West Bengal**) the AAPs did not indicate the activities to be taken up under the sub-mission on water quality and sustainability.

In response, the Government of **Andhra Pradesh, Jharkhand, Orissa** and **Punjab** accepted the deficiencies in planning, and stated that suitable action for preparation and submission of AAP was being taken. The Governments of **Assam, Bihar, Chhattisgarh, Haryana** and **Kerala** stated that targets were fixed on the basis of the availability and allocation of funds. The Government of **Meghalaya** stated that targets were fixed on the basis of the availability and allocation of funds, and AAPs would now be prepared at the grass root level. The Government of **Nagaland** stated that AAPs were prepared at State level after consultations with districts and lower levels, for which, however, no documentary evidence was available. The Government of **West Bengal** stated that AAPs were prepared on the basis of feedback from field level offices, but in the test-checked districts, the concerned offices confirmed that district level AAPs were not prepared. The Governments of **Karnataka** and **Rajasthan** accepted that the AAPs did not indicate the shelf of schemes.

While the Governments of **Arunachal Pradesh, Punjab** and **Rajasthan** indicated that generally priority was given to completion of incomplete works, audit scrutiny revealed this was not borne out in the actual progress in completion of incomplete works.

In audit's view, in the absence of adequate and detailed bottom-up planning there is a risk that works are taken up in an ad hoc fashion, without a clear prioritization of problem habitations.

Recommendation

DDWS should not only insist on preparation and submission of AAPs in time by the State Government, but also insist that these plans are habitation-wise.

2.3 Coverage of SC/ST Population

According to the ARWSP Guidelines, the States/ UTs are required to earmark and utilize at least 25 per cent and 10 per cent of ARWSP funds for drinking water supply to SCs and STs respectively. As a measure of flexibility, the State may utilize at least 35 per cent of the ARWSP funds for the benefit of the SC/STs, particularly in those States where SC/ST coverage is less than the coverage of the general population.

Audit scrutiny, however, revealed that in eight States (**Karnataka, Maharashtra, Rajasthan, Sikkim, Tripura, Uttar Pradesh, Uttarakhand** and **West Bengal**), the AAPs did not specifically indicate the SC/ST population to be benefited. In **Chhattisgarh**, a separate target for SC/ST population was provided in the five year plan 2002-07, but this was not reflected in the annual plans.

In **Jammu & Kashmir**, only 18 *per cent* of the total ARWSP expenditure was utilized on providing drinking water to SC/ST habitations, while the corresponding expenditure under MNP was only 17 *per cent*. Further, the SC/ST population to be benefited was not indicated in any of the test-checked projects or schemes. Nor were there records indicating expenditure incurred on providing drinking water to SC/ST population.

In response, the Governments of **Rajasthan** and **Sikkim** stated that SC/ST beneficiaries were indicated in the progress reports instead of the AAPs. The Government of **Haryana** stated that from November 2006, a new programme “Indira Gandhi Drinking Water Scheme” was launched for providing free private water connections to SC households.

In audit’s view, lack of focused planning for SC/ST population in the AAPs may compromise the objective of providing welfare to them.

Recommendation

Details of coverage of SC/ST populations should be specifically indicated in the AAPs, and implemented as per the plans.

2.4 Financial Control

2.4.1 Non-release of matching State share

As per the ARWSP Guidelines, the States were to match releases by the GoI on a 1:1 basis. However, audit scrutiny revealed significant cases² of short releases over the period 2002-07 by 10 States (**Andhra Pradesh, Arunachal Pradesh, Assam, Jammu & Kashmir, Jharkhand, Madhya Pradesh, Nagaland, Orissa, Rajasthan** and **West Bengal**) amounting to Rs. 2773.14 crore, which are detailed in **Annexure-A**. In response, the Governments of **Assam, Jharkhand, Madhya Pradesh** and **Orissa** accepted the facts and stated that adequate provisions would be ensured in future.

In audit’s view, non-release of matching State share indicated lack of seriousness on the part of the States for implementation of ARWSP.

2.4.2 Delay in release of funds by States to executing agencies

The ARWSP Guidelines stipulate that the States should release the entire amount of central assistance received, along with the matching MNP share, to the executing agency without any delay, and in any case not later than 15 days after its receipt.

² Exceeding Rs. 50 crore

Audit scrutiny, however, revealed delay in release of funds to the implementing agencies in 9 States. Overall, the amount of Central funds, released late, was Rs. 790.49 crore; details are indicated in **Annexure-B**. Further, in Maharashtra, scrutiny of records revealed that in Satara and Thane Districts, no scheme was implemented during 2002-07 and 2002-06 respectively due to non-receipt of funds.

In response (May 2008), the Ministry stated that despite the condition for transfer of funds to implementing agencies within 14 days, audit had pointed out that in some cases, this had not been followed and that the States had been asked to furnish instances of delays in transfer of funds.

2.4.3 Cases of Inadmissible Expenditure and Diversion of Funds

Audit scrutiny revealed cases of diversion of ARWSP funds in 12 States (**Assam, Himachal Pradesh, Jammu & Kashmir, Jharkhand, Karnataka, Madhya Pradesh, Manipur, Meghalaya, Nagaland, Uttar Pradesh, Uttarakhand and West Bengal**) amounting to Rs. 404 crore; details are given in Chapter-3 under the relevant State.

In response, the Governments of **Assam, Madhya Pradesh and Nagaland** accepted the facts, while the Government of **Meghalaya** stated that corrective action had been initiated.

Recommendation

GoI may take action for recovery in respect of cases of inadmissible expenditure/diversion of funds.

2.5 Slip-backs and Re-emergence of Problem Habitations

The following table depicts the status of habitations for the country as a whole as on 1 April 2000 (based on CAP – 99 Survey data), and as on 1 April 2003 (based on National Habitation Survey 2003 data) and 1 April 2007 (based on validated NHS Survey 2003).

Table 3: Status of Habitations

(Lakh Habitations)

Status as on	Total	FC	PC	NC
1 April 2000	14.23	11.84	2.13	0.26
1 April 2003	15.07	8.70	3.89	2.48
1 April 2007	15.05	10.30	3.13	1.62

Source: Data from DDWS

The 2003 Survey revealed a slip back of 3.14 lakh habitations from April 2000 and highlighted the problem of re-emergence of problem habitations, and slip back of FC habitations into PC and NC habitations. Despite the coverage of habitations during the period 2003-07, there was still a slip back of 1.54 lakh FC habitations between April

2000 and April 2007. The stated reasons for the alarming level of slippage were excessive drawal of ground water, inadequate/non-maintenance of tube wells, and lack of sustainability of water resources.

Audit collected state-wise status of habitations from the implementing agencies, which revealed substantial slip backs in **Andhra Pradesh, Assam, Bihar, Chhattisgarh, Gujarat, Himachal Pradesh, Jammu & Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Nagaland, Orissa, Rajasthan, Sikkim, Uttar Pradesh, Uttarakhand and West Bengal**; details are given in **Annexure – C**.

Further, audit scrutiny revealed significant deficiencies in the reliability of data. Two sets of data relating to status of habitations were collected by audit; one at the central level (from DDWS) and the other collated from data collected by field audit from the respective State implementing agencies. The reconciliation of the two sets of data revealed several discrepancies:

- Even the total number of habitations in a State as per GOI and as per State level figures did not tally. In eight states (**Chhattisgarh, Jharkhand, Madhya Pradesh, Orissa, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal**) the total figures of habitations as per the state level agencies was higher than the DDWS figures by more than 10,000 habitations.
- The total number of NC and PC habitations in a State as per GOI and as per the State level agencies did not tally. In 12 States (**Andhra Pradesh, Bihar, Chhattisgarh, Gujarat, Jharkhand, Madhya Pradesh, Orissa, Rajasthan, Tamil Nadu, Uttar Pradesh, Uttarakhand and West Bengal**), the figures of PC habitations as per the State level agencies was higher than the DDWS figures by more than 5,000 habitations. In 14 States (**Andhra Pradesh, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Tripura, Uttar Pradesh, Uttarakhand and West Bengal**), the figures of NC habitations as per the State level agencies was higher than the DDWS figures by more than 500 habitations.

Details of the discrepancies in terms of total habitations and NC/ PC habitations between the DDWS figures and State-level figures are given in **Annexure-D**.

In response (May 2008), the Ministry stated that slippage was unavoidable, and was a part of the water supply system. Slippage took place due to a number of factors e.g. lifespan of water supply scheme, sources running dry, lowering of water table, reduction in capacity due to poor maintenance, increase in population etc. Consequently, the Government had revised its strategy, which was now focused on sustainability in all drinking water schemes so that the phenomenon of slippage was reduced.

Further, the Governments of **Bihar, Gujarat, Orissa, Karnataka, Madhya Pradesh and Rajasthan** accepted the problem of slip-backs.

In audit's view, the acceptance of the Ministry's response that slip backs were unavoidable and would be tackled through the strategy of sustainability in all drinking water schemes should be read with the audit findings on sustainability (paragraph 2.7), which indicates low priority being accorded by States to sustainability measures.

2.6 Water Quality

The major water quality problems in India are fluorosis, brackishness/ salinity, excess arsenic, excess iron and nitrates. There are separate sub-mission components for fluorosis³, desalination, removal of excess iron, and other items. Under ARWSP, up to 15 *per cent* of funds could be utilised by the State Government for tackling water quality problems like fluorosis, arsenic, brackishness, excess iron and nitrates.

2.6.1 Establishment of Water Quality Laboratories and Institutions

According to the ARWSP Guidelines, establishing of water quality laboratories could be one of the components of the programme. Water quality laboratories may be implemented at three levels, consisting of a nodal unit at the top level, intermediary level units like district laboratories, and grass-root level units. State and region-specific IEC activities were to be taken up. Further, 100 *per cent* funding was to be provided to the States for strengthening water quality monitoring facilities with a view to networking the nodal unit (premier technical institution) with the State headquarters (PHED).

Audit scrutiny, however, revealed significant deficiencies in the development of infrastructure for water quality monitoring and testing. Ten States (**Arunachal Pradesh, Assam, Chhattisgarh, Haryana, Himachal Pradesh, Karnataka, Kerala, Meghalaya, Orissa and Uttar Pradesh**) had not assigned the task of checking water quality at the State level to premier institutes. Eleven States (**Arunachal Pradesh, Assam, Chattisgarh, Haryana, Jammu & Kashmir, Jharkhand, Maharashtra, Manipur, Meghalaya, Orissa and Sikkim**) did not take up region-specific IEC activities involving PRIs, cooperatives, women groups, Self Help Groups etc. There were also significant deficiencies in the district level laboratory infrastructure in several States, as detailed below:

- In **Arunachal Pradesh**, in six test checked districts, no qualified staff was appointed in the laboratories.
- In **Assam**, neither was any new laboratory for testing water quality established, nor were the facilities in the existing ones strengthened. No qualified staff was appointed in the laboratories and the departmental staffs like JEs, sectional assistants etc. were performing the tests.
- In **Bihar**, two out of nine test-checked districts did not have a laboratory.
- In **Chhattisgarh**, no funds were utilized for strengthening of laboratories. Further, no staff was appointed in the newly constructed Raipur District laboratory, which was being used as a guest house.
- In **Gujarat**, out of 25 districts, eight districts did not have laboratories.
- In **Haryana**, only seven chemists were posted for covering all the 19 laboratories in the State by rotation.

³ Although, according to the WHO, guinea worm has been eradicated from India in 2000, it still figures as a component under the ARWSP sub-mission on water quality.

- In **Himachal Pradesh**, technically qualified staff was not available in one out of three test checked district laboratories.
- In **Jammu & Kashmir**, out of a total of 14 districts, only four districts had water testing laboratories, of which one was not functional.
- In **Jharkhand**, district laboratories existed in four out of six districts; of these, facilities in only one laboratory were strengthened. Further, no qualified staff were appointed in three district laboratories.
- In **Karnataka**, one out of seven test-checked districts did not have a laboratory, while two district laboratories were not functioning.
- In **Madhya Pradesh**, in one district laboratory, no regular chemist was appointed.
- In **Manipur**, there were no laboratories in the Districts.
- In **Nagaland**, only one out of eleven District laboratories was functional.
- In **Orissa**, out of 30 district level laboratories, only 15 were made operational in 2006-07.
- In **Punjab**, in three test checked districts, no district level laboratories were established, and no water tests were conducted there.
- In **Uttar Pradesh**, none of the 16 test-checked district laboratories were having the recommended staffing pattern, and 14 laboratories were being run by non-qualified staff like work agents and fitters. Further, no district laboratories were strengthened or new laboratories set up.

In response, the Governments of **Haryana**, **Nagaland** and **Sikkim** accepted the facts. The Governments of **Kerala** and **Meghalaya** stated that now the Quality Lab at Aluva, Ernakulam and the laboratory at the Meghalaya Pollution Control Board had now been identified as the State Referral Institutes. The Government of **Maharashtra** stated that a comprehensive region-specific IEC programme would be implemented soon. The Government of **Arunachal Pradesh** stated that regular staff had now been engaged in each of the District Level laboratories. The Government of **Assam** accepted the facts and stated that steps for establishing new district level labs and appointment of staff had been initiated. The Government of **Gujarat** stated that a proposal for setting up of labs in another 8 districts had been approved recently. The Government of **Madhya Pradesh** stated that if a regular chemist was not available, other persons were trained; this is not tenable in audit considering the need for regular and qualified chemists in each laboratory. The Government of Orissa stated that at present, all 30 district laboratories were functional. The Government of **Punjab** stated that steps were now being taken to set up labs in all the districts in the State.

In audit's view, in the absence of adequate infrastructure for testing of water quality in the district and state levels compromised the testing of water for identification of microbiological or toxin contamination that may pose a threat to public health

Recommendation

DDWS may direct all State Governments to ensure adequate water testing facilities with adequate qualified manpower so that each district is properly catered.

2.6.2 Water Quality Testing

The ARWSP Guidelines stipulate testing of 10 *per cent* of all samples tested, including all positive tested samples by the district water quality testing laboratories, at the State level. Further, District laboratories/ PHED were to test at least 30 *per cent* of water samples tested by GPs, and all cases where possibility of contamination was reported by the community. Also, all water sources were required to be tested at least once a year initially.

Audit scrutiny, however, revealed that in 17 States (**Arunachal Pradesh, Assam, Bihar, Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Jharkhand, Karnataka, Maharashtra, Meghalaya, Nagaland, Orissa, Punjab, Rajasthan, Sikkim** and **Uttarakhand**) there was no system or practice of testing at the State level of a percentage of samples, including positive samples, tested by the District laboratories. Further, audit examination revealed that:

- In **Chattisgarh**, no water quality tests were conducted in any of four test checked districts.
- In **Gujarat**, the shortfall in conducting tests during 2003-07 ranged between 13 and 65 *per cent*.
- In **Haryana**, in four test checked laboratories, against the target of testing 94,000 samples during 2002-07, only 13,980 samples were tested. Of the 13,980 samples, water in 1,598 samples was found unfit for human consumption. Further, testing during 2002-06 by the Health Department in five Districts revealed that 29 *per cent* of samples were unfit for human consumption.
- In **Himachal Pradesh**, in six test-checked divisions, against the requirement of 941 tests during 2002-07, only 91 tests were conducted.
- In **Kerala**, in Thiruvananthapuram, out of 79 RWSSs, the required percentage of quality testing was done only in 12 schemes. In respect of 22 schemes, the shortfall ranged from 25 *per cent* to 75 *per cent*. 45 schemes were not tested at all.
- In **Manipur**, during 2003-07, the State laboratory tested only 83 samples, against the requirement of 1,260 samples; of these, 56 samples were found to be potable.
- In **Orissa**, no periodic tests were conducted. Only 36 *per cent* of functional rural water supply sources had been tested at least once. Departmental testing of 0.46 lakh rural habitations (out of 1.41 lakh habitations) up to March 2005 disclosed chemical contamination of ground water sources in 0.28 lakh habitations. Of these habitations, only 2 *per cent* of water quality affected habitations were provided with alternative PWS. Further, in eight test-checked districts, no testing was done, pending strengthening of laboratories.
- In **Punjab**, no periodic tests were conducted.

- In **West Bengal**, out of 174 PWSSs in 3 Districts, test results showed that 77 schemes were affected with bacteriological or chemical (excess arsenic/ iron) problems. Water from these 174 schemes was not being tested monthly, as required. Further, in Bankura District, although 10 blocks were fluoride affected, periodical chemical and bacteriological testing of water supplies from 29 PWSSs was not being conducted. Also, water quality testing was not conducted on 579 newly created tube wells sunk during 2005-07.

In response, the Government of **Punjab** stated that all samples found positive at district level were examined at State level Labs, which is not convincing as no supporting records were produced to audit. The Government of **Gujarat** accepted the facts and stated that the process of random sampling for checking of samples from positive samples had now been institutionalized. The Government of **Orissa** accepted the facts and stated that nearly 700 to 800 water samples were tested at present each month. The Government of **West Bengal** accepted the facts and stated that 32 departmental laboratories were assigned the task of looking after the quality of water.

Innovative Practices

In **Andhra Pradesh**, the sources of drinking water for Ayodhyanagar, Hasthinapuram and Vasavinagar colonies of Devangipuri GP of Chirala Mandal, Prakasam District were hand pumps and ring wells. Industries situated within a radius of 200m of these habitations had polluted these drinking water sources. After complaints by the community and action by the District authorities, the industries started treating its wastes before letting them out.

In **Gujarat**, Water Quality Monitoring through Multi District Assessment of Water Safety (M-DAWS) programme has been included to survey faecal contamination of water sources in order to contribute to a reduction in the burden of disease associated with poor water quality.

In audit's view, the periodical testing of water quality is essential to quickly identify cases of quality affected habitations and take appropriate corrective action in a timely manner.

Recommendation

State Governments should ensure testing of water samples, including positive water samples from GPs/ VWSCs, at the stipulated periodicity, and also maintain appropriate records of such testing. This may be structured as part of a comprehensive State-wide water quality monitoring programme.

2.6.3 Procurement and Distribution of Field Test Kits

ARWSP envisaged building capacity of Panchayats to own the Field Test Kits (FTKs) and take up full O&M responsibility for water quality monitoring of all drinking water sources in their respective PRI area. Further, 100 per cent testing of all sources at the village level was to be done by grass root level workers from Gram Panchayat (GP)/ Village Water and Sanitation Committee (VWSC).

Audit scrutiny, however, revealed that in 15 States (**Bihar, Haryana, Himachal Pradesh, Jammu & Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Nagaland, Orissa, Rajasthan, Sikkim, Uttarakhand** and **West Bengal**), no procurement of field testing kits for use by GPs, was undertaken as of March 2007. Further, even in the other States:

- In **Andhra Pradesh**, field test kits were not received in any of the six test-checked districts.
- In **Arunachal Pradesh**, out of 338 multiparameter test kits and 5642 bacteriological test kits procured in March 2007, only 192 multiparameter test kits and 42 bacteriological test kits were issued to the districts. Further, no requirement of field kits was called for from the divisions, village functionaries were not involved in the testing of samples, and no kits were issued to GP level functionaries.
- In **Chhattisgarh**, field test kits were procured in only one out of four test-checked districts; even here, only 48 kits were procured against a requirement of 367 kits, and these had not been distributed.
- In **Gujarat**, in six test-checked districts, only 332 kits were received, against 582 VWSCs.
- In **Jharkhand**, field test kits were received in only one district. Further, in two divisions, Tenughat and Jamshedpur, 8676 kits for bacteriological testing were lying unused for three to eight years.
- In **Uttar Pradesh**, the UP Jal Nigam purchased 400 field test kits and 700 refill packs for 12 physical and chemical parameters, without proper planning, in December 2004, which was rectified only in October 2006 to purchase of kits for only four parameters. Out of 9860 kits received as of January 2007, only 5626 kits were dispatched to the BDOs (for distribution to GPs) as of June 2007. Further, instead of ordering 15 lakh H₂S vials along with 15000 field testing kits for bacteriological testing, the Nigam ordered 25 lakh H₂S vials. Also, because of placing orders for the vials and kits on different suppliers, there was a delay in supply of kits, as a result of which 19.30 lakh vials were lying in stock as of October 2007.

In response, the Ministry stated that they were repeatedly emphasizing to the States to ensure faster implementation of the National Rural Drinking Water Quality Monitoring & Surveillance Programme so that, in addition to testing done by the State Government/its agencies, local communities/ PRIs also carried out regular tests to check the quality of drinking water.

Further, the Governments of **Bihar, Haryana, Karnataka, Kerala, Maharashtra, Orissa, Rajasthan, Sikkim** and **Uttarakhand** stated that FTKs had now been procured or were being procured. The Government of **Arunachal Pradesh** stated that issuance of multiple parameter based testing kits was need-based and would be done shortly. The Government of **Gujarat** stated that more FTKs were being purchased. The Government of **Jharkhand** stated that the FTKs were not utilized, as they were past the expiry date.

Recommendation

Requisite number of FTKs should be procured and distributed to GP level functionaries after adequate training, so that the objective of institutionalizing water quality testing at the grass root level is achieved.

2.7 Sustainability

Ground water is the principal source of drinking water in rural habitations in the country, and almost 85 *per cent* of rural water supply is dependent on ground water. In many such habitations, due to excess drawal of ground water, environmental degradation and poor recharge, sources are becoming dry and thus systems are becoming defunct. ARWSP has a separate component to ensure sustainability of water resources. Five *per cent* of ARWSP funds were to be kept aside for sustainability projects, including ground water recharge and rain water harvesting; different technological options could be explored, depending on the local requirement. Further, the State Governments were encouraged to adopt and implement the model bill to regulate and control development of ground water, especially in water stressed areas.

Audit scrutiny, however, revealed that the proportion of schemes relying on ground water sources was very high in most States, and ranged between 91 and 100 *per cent* in eight States (**Assam, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Punjab, Uttar Pradesh and West Bengal**), between 71 and 90 *per cent* in six States (**Karnataka, Maharashtra Orissa, Rajasthan, Sikkim and Tamil Nadu**), and between 41 and 70 *per cent* in four States (**Andhra Pradesh, Haryana, Kerala and Meghalaya**).

Further,

- 19 States (**Arunachal Pradesh, Bihar, Chhattisgarh, Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Jharkhand, Madhya Pradesh, Manipur, Meghalaya, Orissa, Punjab, Rajasthan, Sikkim, Tripura, Uttar Pradesh, Uttarakhand and West Bengal**) had not passed and implemented the model bill for controlling development of ground water in water-stressed areas.
- 14 States (**Arunachal Pradesh, Assam, Bihar, Gujarat, Jammu & Kashmir, Jharkhand, Karnataka, Manipur, Orissa, Punjab, Sikkim, Tripura, Uttar Pradesh and Uttarakhand**) had not conducted periodical assessments of ground water potential on a scientific basis.
- 20 States (**Andhra Pradesh, Arunachal Pradesh, Bihar, Chhattisgarh, Haryana, Jammu & Kashmir, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Punjab, Rajasthan, Sikkim, Tripura, Uttar Pradesh, Uttarakhand and West Bengal**) had not made ground water recharge compulsory in all ground water based supply schemes.
- 16 States (**Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Haryana, Jammu & Kashmir, Karnataka, Kerala, Manipur, Meghalaya, Orissa, Punjab, Rajasthan, Tripura, Uttar Pradesh and Uttarakhand**) had not fully utilized the amount of five *per cent* of ARWSP funds for sustainability projects.

In response, the Governments of **Punjab** and **Rajasthan** accepted their dependence on ground water sources, while the Government of **Bihar** stated that emphasis was being laid on a shift to surface sources. The Governments of **Gujarat, Haryana, Rajasthan** and **Meghalaya** stated that enactment of the model bill was under active consideration, or would be considered in future. The Governments of **Arunachal Pradesh, Haryana** and **Punjab** stated that directions had been or were being issued for making ground water recharge compulsory. While the Government of **Karnataka** stated that ground water recharge had been made mandatory, audit scrutiny revealed that proper implementation thereof was not done. The Government of **Madhya Pradesh** stated that recharging was being done for all piped water schemes; audit scrutiny, however, revealed that this was not provided for in any of the test-checked schemes. The Government of **Rajasthan** stated that provisions for recharge were made as per feasibility. The Governments of **Kerala** and **Punjab** stated that sustainability projects were now being planned.

Innovative Practices

Andhra Pradesh – Protection of Sources

Drinking water sources for the villages of Tadur and Thangellapally of Sircilla mandal, Karimnagar District, were designed and implemented on infiltration wells on river Maneru. The sources were affected due to illegal sand mining. After complaints, the illegal mining of sand was stopped, the drinking water sources of the above villages protected, and the sustainability element had also been introduced in these schemes.

Gujarat

Drinking Water Grid

Gujarat has a State-wide Drinking Water Supply Grid through a water transmission network. Implementation of a master plan to provide drinking water to 29 million people of 8215 villages and 135 urban centres of the State is moving under the Sardar Sarovar canal based drinking water supply project, of which 1343 kms of transmission pipeline connecting 1907 villages and 54 urban centres has been completed and commissioned.

IEC Campaign through school children

About 30 slogans were developed by school children on the issues of water conservation, drinking water, health and hygiene which had been painted at around 24000 locations in all the 1260 villages of the programme areas and along the roads and highways. Notebook labels with simple messages had also been specially designed for students.

Rain water harvesting

Rooftop rainwater harvesting had been taken up in 1858 schools on a priority basis to promote rainwater conservation and make drinking water readily available to the children. The rainwater that was collected was stored in an underground tank, fitted with a small, easy-to-operate hand pump to avoid wastage of water. To ensure drinking water security, this tank was further connected with the regional water supply system.

Meghalaya

In order to preserve and maintain the discharge from the spring source, the village authorities in Nongrah Village, under Myllem CD block of East Khasi Hills District of **Meghalaya** had issued a blanket ban on any form of drilling within a radius of 200 m from the water source.

Tamil Nadu

Tamil Nadu Water Supply and Drainage Board (TWAD Board) had taken up a project on "Identification of Recharge Structures using Remote Sensing and GIS" during 1999-2001, and the outcome of the project was the generation of Block wise Zonation maps for the entire State. With a view to enhancing the sustainability of the drinking water sources, recharge structures were being implemented by TWAD Board under various programmes, with priority accorded to allocations falling in over-exploited blocks. The assessments of the impact of recharge structures, for sustainability of the drinking water sources indicated an appreciable rise in the water levels ranging in the vicinity of the recharge structures.

In audit's view, the absence of adequate attention being paid to sustainability by many State Governments would lead to continuation of the trend of slip back of habitations from FC to PC and PC to NC, in addition to water quality problems. Thus, the long term future of rural water supply and ARWSP would be adversely affected.

Recommendations

DDWS should ensure that States accord due importance to the sustainability component as suited to their local environment. Further, State Governments should be encouraged to adopt measures for rainwater harvesting, controlling utilization of ground water, studying ground water levels and impact of recharge structures and use of remote sensing and related technologies for such studies, and promoting ground water recharge in WSSs.

State Governments may also consider launching localized Information, Education and Communication (IEC) campaigns to promote the urgency of, and need for adopting water conservation and sustainability measures amongst the local population.

2.8 Monitoring, Reporting and Inspections

2.8.1 Organisational Arrangements for Monitoring

The ARWSP Guidelines stipulated that:

- Vigilance and Monitoring Committees (VMCs) at the State, District and Village levels were to be set up, and regular meetings of these Committees held. This would be a pre-condition for release of funds.
- Health Department officials were to be increasingly involved in the surveillance activity.
- Special Monitoring and Investigation Units (SMIUs) were to be set up at the State Headquarters. These units would be responsible for collecting information from the executing agencies, maintenance of data and timely submission of returns to the GoI. They would also be responsible for monitoring the quality of water and adequacy of service at the field level, and maintain such water quality data. Further, they would be responsible for controlling/regulating the quality of construction works in water supply schemes. Also, SMIUs should have technical posts of hydrologists, geophysicists and computer specialists, with data entry operators.

Audit scrutiny, however, revealed significant deficiencies in the organizational arrangements for monitoring:

- In 13 States (**Arunachal Pradesh, Chhattisgarh, Himachal Pradesh, Jammu & Kashmir, Kerala, Maharashtra, Manipur, Meghalaya, Rajasthan, Tamil Nadu, Uttar Pradesh, Uttarakhand** and **West Bengal**), VMCs were not constituted at the State level, while in 6 States (**Assam, Bihar, Gujarat, Jharkhand, Karnataka** and **Punjab**), VMCs did not hold regular meetings.
- 17 States (**Andhra Pradesh, Arunachal Pradesh, Bihar, Chhattisgarh, Gujarat, Jammu & Kashmir, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Manipur, Meghalaya, Nagaland, Tamil Nadu, Uttarakhand, Uttar Pradesh** and **West Bengal**) did not nominate officials of the Health Department for surveillance activity.
- In 9 States (**Andhra Pradesh, Assam, Chhattisgarh, Jammu & Kashmir, Jharkhand, Maharashtra, Meghalaya, Manipur** and **Uttarakhand**), SMIUs were not established.
- SMIUs in seven States (**Himachal Pradesh, Karnataka, Nagaland, Punjab, Rajasthan, Tripura** and **Uttar Pradesh**) did not have qualified technical experts, and instead used engineers from the regular Line Departments, which would not adequately serve the purpose.

In response, the Government of **Meghalaya** stated that SMIU and VMCs would be constituted at the earliest, while the Government of **Gujarat** stated that VMC meetings were held as and when required. The Governments of **Arunachal Pradesh** and **Meghalaya** stated that involvement of officials of the Health Department was being taken up now. The Government of **Karnataka** proposed to strengthen the MIU by adding technical posts, while the Government of **Rajasthan** stated that engineers and other staff were being trained for tasks undertaken by the MIU, and the Government of **Punjab** stated that as per government policy, fresh recruitment was prohibited.

Recommendation

DDWS may direct States to ensure that VMCs are constituted and are functional. Further, States should also set up SMIUs with a adequate complement of technically qualified staff.

2.8.2 Timely Submission of Reports to GoI

The States were required to submit a large number of annual, quarterly and monthly reports to GoI, covering such aspects as progress in clearance of schemes, district-wise break-up of ARWSP and MNP provisions, status of functional/ non-functional schemes, quarterly and monthly progress reports, installation of drinking water schemes in rural schools etc. However, audit scrutiny revealed that many States were not submitting these returns in time. Details of non-submission of returns are given in **Annexure-E**.

In response, the Ministry stated that submission of these reports had been made online from April 2008. Most of the States also accepted delay/ non-submission of reports and agreed to ensure their timely submission.

Recommendation

State Governments may be directed to ensure full compliance with the requirements reporting. Also, DDWS may evaluate the necessity and periodicity of all returns and take appropriate action.

2.8.3 Inspections, Evaluations and Review

As per the ARWSP Guidelines, while the GoI would take up monitoring and evaluation studies from time to time, the State Governments may also take up similar studies.

However, audit scrutiny revealed that in 18 States (**Andhra Pradesh, Arunachal Pradesh, Chhattisgarh, Haryana, Himachal Pradesh, Jammu & Kashmir, Jharkhand, Kerala, Madhya Pradesh⁴, Maharashtra, Manipur, Meghalaya, Orissa, Punjab, Rajasthan, Tripura, Uttar Pradesh and Uttarakhand**), no evaluation studies were carried out by the State Governments. Further, in 16 States (**Assam, Chhattisgarh, Himachal Pradesh, Jammu & Kashmir, Jharkhand, Karnataka, Maharashtra, Manipur, Meghalaya, Orissa, Punjab, Sikkim, Tripura, Uttar Pradesh, Uttarakhand and West Bengal**), officers from the State Government Headquarters did not visit the districts, blocks and villages for inspection, or no such records of inspection were made available.

Innovative Practices

Gujarat – Independent Evaluations

⁴ An evaluation was stated to have been conducted on the basis of the progress reports themselves, which cannot be considered to be an evaluation study.

Performance evaluation of multi-village water supply schemes and community-managed programmes in several districts to study their efficiency and user satisfaction was conducted through independent professional organizations viz. ORG Centre for Social Research, WAPCOS, Gujarat Government's Directorate of Evaluation, Gujarat Institute of Development and Research, WES-Net etc.

Recommendation

State Governments may be encouraged to carry out independent third-party evaluations of a representative sample of water supply schemes to assess their effectiveness and the level of satisfaction of the local community.

2.9 Swajaldhara

Swajaldhara is a modified form of the Sector Reform Programme launched in December 2002, and is part of the transformation of ARWSP from a supply-driven model to a demand-driven approach. Under Swajaldhara, drinking water assets were to be fully owned by the appropriate levels of PRIs, which would have the powers to plan, implement, operate and maintain all water supply and sanitation schemes. Swajaldhara involved partial capital cost sharing in cash and/or kind (including labour), with 100 *per cent* responsibility of operation and maintenance by the users.

As per the Swajaldhara Programme, States were to prepare a State Vision Statement, spelling out the goals for 2007 and 2012, as also a comprehensive policy on water supply and sanitation. They were also required to set up Communication and Capacity Development Units (CCDUs). State Governments were also required to set up four separate funds for O&M, Institutional Restructuring, Quality Improvement and System and Source Sustainability, which would be financed primarily out of their own resources. Further, random inspections of Swajaldhara Projects were to be conducted by the State Governments, and the findings of such inspections were to be followed up properly.

Audit scrutiny, however, revealed that:

- 13 States⁵ (**Assam, Bihar, Chhattisgarh, Himachal Pradesh, Jammu & Kashmir, Karnataka, Kerala, Meghalaya, Nagaland, Rajasthan, Tamil Nadu, Tripura and West Bengal**) had neither prepared a State Vision Statement, spelling out the goals for 2007 and 2012, nor a comprehensive policy for drinking water and sanitation.
- 2 States (**Haryana and Karnataka**) had not set up Communication and Capacity Development Units (CCDUs).
- 18 States (**Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Gujarat, Himachal Pradesh, Jammu & Kashmir, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Orissa, Punjab, Rajasthan, Tamil Nadu, Tripura, Uttar Pradesh and Uttarakhand**) had not set up any of the four stipulated funds.

⁵ No details were made available by Jammu & Kashmir

- In 6 States (**Kerala, Nagaland, Tamil Nadu, Tripura, Uttarakhand and West Bengal**), the State Water and Sanitation Mission (SWSM) had not conducted any random inspection of Swajaldhara Projects by a team of experts. In **Gujarat, Jammu & Kashmir** and **Orissa**, random inspections were conducted, but follow-up action was not on record.

In response, the Governments of **Bihar, Karnataka, Kerala and Tamil Nadu** stated that a state vision plan was being prepared now. The Government of **Meghalaya** stated that after the sector status study was completed, the State Vision Statement would be prepared. The Government of **Rajasthan** stated that a draft policy had been prepared for seeking public opinion. The Governments of **Karnataka, Kerala, Meghalaya and Tamil Nadu** stated that a draft policy was under consideration.

Further, the Government of **Arunachal Pradesh** and **Gujarat** stated that the constitution of the funds was under consideration. The Government of **Madhya Pradesh** stated that the O&M fund was to be set up after the completion of schemes and since most of the Swajaldhara schemes were yet to be completed, it was not done. The Government of **Meghalaya** stated that funds for the relevant purposes were being/ would be provided as required. The Government of **Orissa, Punjab and Tamil Nadu** accepted that funds had not been constituted.