RURAL WATER SUPPLY SECTOR
BACKGROUND PAPER

History

The primary responsibility of providing drinking water facilities in the country rests with the State Governments. The Government of India supplements the efforts of State Governments by providing financial assistance under the centrally sponsored Accelerated Rural Water Supply Programme (ARWSP), now renamed as National Rural Drinking Water Programme (NRDWP). This Programme has been under implementation since 1972-73. In 1986, the National Drinking Water Mission (later named as the Rajiv Gandhi National Drinking Water Mission in 1991) was launched and, further in 1999, the Department of Drinking Water Supply was created, to provide a renewed focus with a mission approach to implement programmes for rural drinking water supply. About Rs.70,000 crore have been invested in the Rural Water Supply Sector since independence by the Central and State Governments.

With the 73rd and 74th amendments, drinking water and sanitation are included in the list of subjects to be devolved to Panchayats. In 1999, Government had considered and approved a proposal to bring about a package of reforms in the rural water supply sector to address major areas of concern namely, coverage of habitations, quality problems in drinking water and sustainability of sources and systems. The Government had also stipulated that 20% of the annual outlay under Accelerated Rural Water Supply Programme (ARWSP) be earmarked for implementing reform projects. The reforms initiative, so launched on a pilot basis as Sector Reform Projects in 67 districts of 26 States by the Government of India, was scaled up in December 2002 to cover the entire country as Swajaldhara.

In June 2002, Government approved relaxation of 'coverage' norms under ARWSP to provide for 55 lpcd with a source within 0.5 km in the plains and 50 metre elevation in the hills after coverage of all NC/PC rural habitations in that State is achieved as per the then existing norms of 40 lpcd with a source within 1.6 km. This relaxation was subject to the condition that beneficiaries of the relaxed norms were willing to share a part of the capital cost (which should not be less than 10%) and shoulder full responsibility for subsequent operation and maintenance. Further, in case of quality affected villages or in multi-village schemes where the capital cost was very high, the schemes could be executed and implemented by Government departments and water was to be supplied to individual villages at the periphery of each village. For drinking water distribution within the village, the beneficiaries would share a part of the capital cost (which should not be less than 10%) and shoulder full responsibility for subsequent operation and maintenance of the village water distribution network, while Government Department/Board would maintain the main water supply system upto the village. Government/Board could also collect water rates from the Panchayats/Village communities for bulk supply of water for drinking purposes. Such water charges and the village O&M cost would be fully met by the users/beneficiaries.

Infrastructure created

The focus of Government in the Ninth and Tenth Five Year Plan under the Rural Water Supply Programme was on coverage of habitations. Coverage in this context referred to providing water, at a specific norm of 40 litres per day per capita (lpcd) with a source available within a walking distance of 1.6 km. in the plains or elevation of 100 metres in hilly areas, with one source available for every 250 persons (50 families). The first coverage data generated was based on the Nation-wide habitation survey conducted through the State Governments in 1991, revalidated in 1994 and updated in 1999. The status was again surveyed in 2003, with the results validated in 2006 through the Indian Institute of Public Administration. These surveys classified all habitations in three categories – Not Covered (NC) getting less than 10 lpcd, Partially Covered (PC) getting between 10 and 40 lpcd, and Fully Covered (FC) getting more than 40 lpcd. A new category "Slipped Back", reflecting the habitations which had moved from FC to NC/PC came into usage. The status with regard to slippage of coverage is not reflected in the coverage,

as it is dynamic. The slippage in coverage of habitations with water supply facilities takes place due to many factors such as increase in population, increase in the number of habitations, drinking water supply systems having outlived their life spans or becoming defunct, poor maintenance of hand pumps and power pumps, drinking water sources becoming quality affected, water going dry or lowering of the ground water table, etc.

According to Census 1991, 55.54% of the population had access to an improved water source. The Census 2001 shows 86.77% of the rural population have access to safe drinking water. The Department's figures show that that in 2006, of the 14.23 lakh habitations, 13.80 lakh habitations (97%) have been provided with some drinking water source. At the end of 2008-09, the Department's database showed an increase in habitations to 16.61 lakhs, with 14.99 lakh (90%) in the FC or PC category. However, around 2.17 lakh habitations (14%) have water quality problems and do not have a safe source. There are over 41.55 lakh hand pumps, around 15.77 lakh public standposts, around 1.60 lakh mini-piped water supply schemes and 45000 multi village schemes in the country under the Rural Water Supply Programme. Of these systems, 88.21% handpumps, 93.49% standposts, 91.95% mini schemes and 96.26% multi village schemes are reported functional by the States.

Quality Problems faced in the Rural Water Supply Sector

As per the survey of quality affected habitations, based on 1% random sampling undertaken in 1991 and updated in 1999, a total of 2,16,794 habitations were found having water quality problems. A fresh survey was ordered in the year 2000 to be conducted in two phases by the States. The first phase required stratified random sampling of 10% of sources in Blocks, and in the second phase, testing of 100% sources in Blocks found affected during the first phase, was undertaken. As per the data received from the State Governments and consolidated in October 2004, 2,16,968 habitations are affected due to variety of water quality problems in their drinking water sources with following break-up:-

Nature of Quality problem	No. of affected habitations
Excess Fluoride	31306
Excess Arsenic	5029
Excess Salinity	23495
Excess Iron	118088
Excess Nitrate	13958
Multiple quality problems	25092
Total	216968

Exclusive Sub-Missions had earlier been constituted for initiating both preventive and remedial measures for tackling water quality problems and for ensuring safe drinking water to the rural population. Government of India used to provide 75% of the Sub-Mission project cost on quality problems with the balance (25%) being met by the State Governments. In 1998, powers to plan, sanction and implement Sub-Mission Projects were delegated to the States. This was again modified in 2006 to approve projects from GoI, as it was found that the States were not reporting any progress for such habitations. The Sub-Missions identified were on control of Arsenic, Fluoride, Brackishness and Iron, besides on sustainability.

Sustainability of Sources

Almost 85% of the drinking water needs are met from ground water. Only about 5% of the total groundwater extracted is used for domestic drinking water supply. Irrigation accounts for 85% of all groundwater extraction. The remaining 10% of the ground water extracted is utilised by other sectors including, industries. The rapid development of groundwater based irrigation in many States has caused ground water depletion. Studies have shown that the depletion is taking place at a very rapid pace and a recent NASA study has shown that in Rajasthan, Punjab and Haryana the water table is declining at the

rate of 1 foot every year. Attempts were also made to tackle the problem of sustainability through the Sub-Mission on Sustainability by taking up projects for conservation of water and rainwater harvesting.

Sustainability of systems - Sector Reforms and Swajaldhara

Recognizing that users of water are its best managers, the Government approved grant of incentives to States (upto 20% of Annual ARWSP allocation) for institutionalization of community participation in rural drinking water programme. Accordingly, Sector Reform Projects (SRPs) were introduced in 67 select districts in 1999 to address primarily issues of system and source sustainability. The funding in the experimental phase was 90:10 between the Central Government and Community. Under the Sector Reform Pilot Projects, 86,769 schemes were taken up. These schemes were spread in 29,956 habitations of 65 districts in 25 States (the project did not take off in 2 districts of Sikkim). The salient features of the reforms initiative were as under:-

- Adoption of a demand-responsive approach based on empowerment of villagers to ensure their full participation in the project through a decision making role in the choice of scheme design and management arrangement;
- Focus on village level capacity building (Gram Panchayat and Village Water and Sanitation Committees);
- Emphasis on awareness generation and training of all stakeholders.
- Ensuring an integrated service delivery mechanism by streamlining the functions of the agencies involved in the project implementation ;
- 10% (at least) capital cost sharing and 100% sharing of O&M cost by users. The community contribution could be in the form of cash or kind (labour, land or material) or a combination of these.
- Taking up of conservation measures for sustained supply of water through rainwater harvesting and ground water recharge structures.
- Process Projects not only aimed to implement a physical scheme, but equip the community to plan, implement and manage for themselves the Rural Water Supply schemes of their own choice.

Based on the experience gained, the Sector Reform Programme was expanded as the Swajaldhara Programme, under which the participation of the community in planning, implementation, operation and maintenance was a major factor. The projects also included taking up water conservation and recharge measures for source strengthening for drinking water. To enhance the sense of ownership and promote community participation, the scheme had an element of cost sharing by the community. However, the major constraints faced during implementation of Swajaldhara was that the Line department officials were slow to adopt reforms and Panchayats lacked finances and skills to take up the responsibility immediately.

Xth Plan and Bharat Nirman

To build rural infrastructure, Bharat Nirman was launched by the Government of India in 2005 to be implemented in a period of four years from 2005-06 to 2008-09. Rural drinking water was one of the six components of Bharat Nirman. During the Bharat Nirman period, 55,067 un-covered and about 3.31 lakh slipped-back habitations were to be covered with provisions of drinking water facilities and 2.17 lakh quality-affected habitations were to be addressed for water quality problem. An investment of Rs. 22,462 crore under Central sector has been made on rural drinking water component during this period. As per latest reports, about 4.64 lakh habitations have been actually covered. In case of the remaining habitations, work has been either approved or taken up, and are at different stages of implementation. It is expected that by March, 2011, this task will be complete. While the progress of coverage reported was very impressive, rural water supply continues to be found wanting due to many reasons.

Major concerns to be addressed now

There are still some uncovered habitations left, despite increased investments in the last Plan period. These are reportedly located in remote / difficult areas. Also, a large number of habitations slip back due to a number of factors like the sources going dry or lowering of the ground water table, systems outliving their lives, systems working below rated capacity due to poor operation and maintenance, increase in population resulting into lower per capita availability, and acute seasonal shortages. It is also recognized that there is poor community involvement in planning, operation, maintenance and overall lack of ownership of assets by the users.

Under Bharat Nirman, the quality affected habitations were sought to be addressed with approval of projects. These projects were taken up under the Sub-Mission Component of the Accelerated Rural Water Supply Programme (ARWSP), which was funded in the ratio of 75:25 (Center:State). These projects were approved by the respective States within the funds allocated to them each year. The achievements reported under Bharat Nirman are for approval of projects to tackle quality problems, which was taken to mean "addressal". However, actual number of projects completed is different from "addressal". This is because the projects approved and undertaken to tackle water quality have a longer implementation period of 2-3 years, as developing a safe alternate source and treatment plants and pipelines etc take longer.

States prefer to go in for coverage of quality affected habitations through alternate sources, which increases costs. The States go in for predominantly engineering solutions instead of exploring low cost options. Traditional systems are not utilized fully. Disposal of sludge in treatment plants set up for tackling harmful chemical contaminants such as arsenic and fluoride remains a problem.

The other issue is financial sustainability of the sector. In spite of the quantum jump in allocation both in the Central as well as State sectors, role and capacity of PHEDs/ Water Boards/ Jal Nigams have not changed much. In fact, it is well known that capacity in terms of quality and quantity of manpower has gone down without new people with modern skills to tackle new and more serious challenges in a professional manner. Water in spite of being a state subject and rural water supply having been put in the XIth Schedule of the Constitution, fund availability to discharge their responsibilities is in reverse order. PRIs do not have funds at their disposal to discharge their constitutional duty. With increased investments, traditional water supply sources/ systems have been disused and replaced by Government funded engineering solutions.

With right-based approaches taking roots in the sector, 'access to safe and clean drinking water' being treated almost as a fundamental right, a new set of challenges is emerging in the sector. Fixing the quality standards, independent laboratories for quality checks, it's enforcement, grievance redressal systems for quality problems, tariff, systems, source sustainability, equity, etc. are the new emerging challenges.

Approach in XIth Plan

The rural water supply programme guidelines have been modified and made effective from 01.04.2009, with an aim to address the concerns of the sector. The major changes in approach are as follows:

- Move away from over dependence on single source to multiple sources through conjunctive use of surface water, groundwater and rainwater harvesting.
- Focus on ensuring sustainability in drinking water schemes & prevent slip back.
- Encourage water conservation methods including revival of traditional water bodies
- Move forward towards achieving household level drinking water security through proper water demand and budgeting.
- Convergence of all water conservation programme at the village level ;

- Focus on ensuring household level drinking water security through preparation of village water security plans.
- Conscious move to get away from high cost treatment technologies for tackling Arsenic & Fluoride contamination to development of alternative sources in respect of arsenic and alternate sources/dilution of aquifers through rainwater harvesting in respect of tackling fluoride contamination.
- Convergence of all water conservation programme at the village level ;
- In respect of nitrate contamination, treatment of catchment area through simple measures such as fencing and effective implementation of TSC programme, prevention of sewage/animal waste leaching into the surface/ underground water sources, promoting ecological sanitation to reduce use of inorganic fertilizers should be our focus.
- For tackling salinity problem, solar desalination and dilution through rainwater harvesting to be adopted.
- Linkage of National Rural Drinking Water Quality Monitoring & Surveillance Programme with the recently approved Jalmani guidelines for implementation of Standalone drinking water purifications systems in rural schools.
- Apart from XII FC funds, GPs can utilize the untied funds available under NRHM for meeting O&M expenses of drinking water supply schemes.

To ensure proper reporting and transparency in working, all information is now proposed to be obtained on-line on the web-based Integrated Information Management System of the Department. Work has already been initiated and States have been asked to update their records. The first step was to link the present habitations to census villages with assigned codes. Thereafter, the existing habitation data was to be verified and disaggregated upto the household level, along with information of status of water supply. This work has already been completed for majority of the habitations. This basic data now forms the foundation for marking of the target habitations where drinking water projects would be taken up in the current year and also for perspective planning. The IMIS has been designed to actually list out habitations, schemes taken up, and physical and financial progress to be linked and information presented in the public domain.