

**Computerized MIS for RWS Programme in India**

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**Abstract**

The Rajiv Gandhi National Drinking Water Mission (RGNDWM), Ministry of Rural Development, Government of India, supplements the efforts of the States in providing safe drinking water to the rural population through various programmes like Accelerated Rural Water Supply Programme (ARWSP), Minimum Needs Programme (MNP), Five Submission Programmes to tackle Water Quality Issues, Prime Minister's Gramodaya Yojana (PMGY) - Rural Drinking Water, Sector Reform Pilot Projects and support activities viz. Information Education and Communication (IEC), Human Resource Development (HRD), Water Quality Monitoring and Surveillance, Rig Monitoring, Research and Development, and the Computerization project. All these programmes have been developed to deal with the different aspects of Rural Water Supply (RWS) Programme in India. The objectives of the programmes and the criteria for fund release are different; as such the parameters to be monitored, measured and analysed are also different for each of these programmes. Manual monitoring of all the programmes at the district level, compilation at the state level and transfer of the information generated at the habitation (more than 1,42 million) level to the RGNDWM is not only tedious and time consuming but difficult to analyse, at the central level. Hence a Computerized MIS project needs to be developed to support the Centre as well as all the states up to the district level.

**Introduction**

A national water supply and sanitation programme was introduced in the social sector in the year 1954. Later, the Government of India provided assistance to the states to establish a special investigation division in the Fourth Five Year Plan (1969-74) to carry out identification of the problem villages. Taking into account the magnitude of the problem and to accelerate the pace of coverage of problem villages, the Central Government introduced the Accelerated Rural Water Supply Programme (ARWSP) in 1972 to assist the States/Union Territories (UTs) with 100% grants-in-aid to implement the water supply schemes in problem villages. The entire programme was given a Mission

approach when the Technology Mission on Drinking Water Management, called National Drinking Water Mission (NDWM) was introduced as one of the five Societal Missions in 1986. NDWM was rechristened as Rajiv Gandhi National Drinking Water Mission (RGNDWM) in the year 1991. Since then large numbers of programmes to tackle various issues on rural water supply have been formulated viz. Accelerated Rural Water Supply Programme (ARWSP), Minimum Needs Programme (MNP), Five Submission Programmes to tackle Water Quality Issues, Prime Minister's Gramodaya Yojana (PMGY)-Rural Drinking Water. Sector Reform Pilot Projects and support activities viz., Information Education and Communication (IEC), Human Resource Development (HRD), Water Quality Monitoring and Surveillance, Rig Monitoring Research and Development, and the RGNDWM Computerization project. This paper essentially brings forth some of the issues involved in implementing a nation wide computerization project in this sector.

**Management Information System (MIS)**

Informatics, characterised in the long term, by an extensive nation wide computer and communication network, is necessary for decentralised scientific economic and social development. A colossal task involving large investments and extensive coverage of "No Source" (NC), "Partially Covered" (PC) and "Quality Effected" Villages spread over the whole country, especially in remote, hilly and difficult terrains, calls for close monitoring of targets to be achieved. The management of information of a programme of this magnitude is essentially based on three major components.

- Information System
- Information Processing and Communication System
- Decision Support System

**The Problem Areas**

Analysis of the monitoring system, existing in the states covered in the Pilot Study undertaken by National Industrial Development Corporation (NIDC) in 1991 on behalf of RGNDWN, brings into sharp focus, the fact, that the process of progress reporting and effective

monitoring has been rather slow, attributed mainly to the slow pace of information flow from District level to the State and ultimately to the Central Level. The problem areas that emerged, and some of the major weakness inherent in the systems, which need urgent attention include.

- Non standardized data collection formats.
- Irregular reporting of progress by the States/UTs.
- Non availability of information on village level status of drinking water supply.
- Irregular monitoring and maintenance of schemes at the state level.
- Non-existence of the monitoring system at the regional level.
- Inadequate trained staff to generate proper documentation on available information.

To sum up, the functions of the State Monitoring Cells need to be redefined together with elaboration of exact roles of the functionaries at the State and Division level Rural Water Supply Implementing Agencies viz, the Public Health Engineering Departments (PHEDs) and the Water Supply and Sanitation (WS&S) Boards, for planning and implementation of Rural Water Supply Schemes. This would entail streamlining of the district level information system, the focal point of the RGNDWM, because all the vital grass root activities are performed at this level. These include information collection pertaining to the following:

- physical progress of the programmes vis-a-vis number of habitations covered, population covered, status of coverage, sources of water quality, etc.
- maintenance schedule of the water supply systems/plants, treatment units, power pumps etc.
- resources viz. fund, material, personnel, equipment, inventory etc., utilized
- compilation of data collected;
- review and reporting of progress

#### **Development of a management Information System (MIS)**

The Internet has been in existence since the early 1970s but since 1992, the expansion and growth of the Internet has changed the face of computers and communication. Having such a powerful technology available in any organisation today has profound effects on management and flow of information. By using the collaborative and communication tools of the Internet we have the potential of leveraging technology for better management of the functions of an organization. In mid 1991, National Informatics Center (NIC), then under

the aegis of Planning Commission, Government of India, was consulted for assistance to RGNDWM in software development for effective monitoring of the progress of water supply schemes as well as the status of coverage of the villages and the population benefited. The information flow from the elementary level upto the apex level i.e. from the District offices to the State offices and further up to the Central level was proposed to be carried out through NICNET, NIC's nationwide satellite based computer and communication network. A software which would capture the information at the division level and transmit this upward to the State level requires to be built and implemented. This would also cater to information processing needs at the division level. Similarly at the State level there will have to be a software which will amalgamate the information received from the division levels and transmit further to the Central level. At the RGNDWM headquarters, an Integrated MIS can be developed for monitoring and decision support.

#### **Monitoring Systems Required**

##### **i) Habitation Monitoring System (HMS)**

A nation wide survey was conducted by the Rural Water Supply Implementing Agencies in 1991 to ascertain the status of drinking water supply in all the habitations in the country, which was revalidated in 1994 by external agencies in all the states. It was identified that out of total 1.32 million habitations in the country, 0.75 million were fully covered (FC), 0.43 million were partially covered (PC) and 0.14 million were yet to be covered (NC) as on 1.4.1994. Subsequently, re-survey carried out by the State Governments in 1996-97, reveals that the total number of habitations is 1.42 million. The status of the coverage of habitations keeps on changing due to many factors at different points of time. All these information need to be collated and compiled at the district level. For planning and monitoring purpose, this information should be made available at the states as well as the centre. A Web based software would be the most appropriate for quick and easy dissemination of this information to all functional levels of this sector.

##### **ii) Rig Monitoring System (RIMS)**

Mechanized drilling rigs are being used for drilling bore wells all over the country for the purpose of rural water supply. Water supply through bore wells constitute a very significant part of the total water supply programme. Since the rigs are highly expensive equipments, each rig is utilized to cover a large area for drilling bores. The achievements in the water supply programme depend vastly on the performance of these

rigs. The Rigs Information Monitoring Systems (RIMS), a Web based software has been developed by NIC, to assist the State PHEDs and the Ministry of Rural Development, at Delhi, in this monitoring the performance of these rigs. The data has to be entered every month and reports giving details of the number of bores drilled, availability and performance of the rigs, etc. can be generated as when required.

### iii) Scheme Monitoring Systems (SMS)

An SMS has to be developed to monitor different schemes sanctioned by the Government of India to provide drinking water in the rural and the status of their financial progress. Details of the villages/habitations to be covered, population proposed to be benefited, target date for starting and completing the scheme, funds to be allocated, etc. can be stored in a database. When a proposal for a new scheme is submitted, reports showing the status details of any scheme previously sanctioned by the RGNDWM, can be generated, thus helping the decision making machinery to take optimal decisions.

### Present Approach

As cited above, for effective planning, monitoring and implementation of various projects/schemes under different RWS programmes, Information Technology (IT) based Management Information System with 100% Central support needs to be provided to the states for the following :-

- maintenance of micro-level status of water to ensure planning and monitoring based on micro-level data.
- assistance for computer facilities up to division level in phases to ensure latest technology for processing and storing data and its communication from one level to another through NICNET.

- Tools for developing customized software for enabling states to fully utilize computer systems for planning and monitoring.
- Necessary design software for design of water supply projects.
- Support for conducting intensive social mobilization and training programmes, both at the policy-and operational levels.

### Conclusion

The objective of the Computerized MIS under the RGNDWM, is to provide information to the management for planning, financing, executing and monitoring various RWS programmes. It should also provide an effective tool for taking corrective measures both in terms of policy decisions and implementation. A MIS can be declared successful if meets the user's requirements with simple, operational tools, easy to scale up, having the flexibility for future modification and expansion. It can be said, that all the steps initiated by RGNDWM under the guidance of NIC for establishment of a network across all PHEDs in the country from the Division level upwards, supported by an appropriate MIS will go a long way in providing useful information to different levels of administrators and planners for assisting them in universal coverage of rural water supply, by the year 2004, as per the national agenda of the government.

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