



**REPORT OF THE EXPERT COMMITTEE
ON
RURAL WATER SUPPLY PROGRAMME
(with special reference to the Mini-Missions
and Sub-Missions)**



**RAJIV GANDHI NATIONAL DRINKING WATER MISSION
MINISTRY OF RURAL DEVELOPMENT
GOVERNMENT OF INDIA
April 1994**



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Preface

The Ministry of Rural Development, Government of India constituted a six member Expert Committee to evaluate Rural Water Supply with special reference to Mini-Missions and Sub-Missions. This evaluation is the first since Rural Water Supply was brought under the Ministry of Rural Development and the Drinking Water Mission was launched, and as such, is a landmark event.

Coinciding as it does with the stage when an impressive physical coverage of villages with handpumps and other systems has been achieved and when there is a significant step-up of resources for the sector, this study would provide further insight into rural water supply programme to reformulate policies and focus on the new priorities. The areas where immediate attention should be given relate to the 'Software' aspects like community participation, better management of Operation and Maintenance, greater thrust on R&D to make the technologies more appropriate to the rural situation, convergence of related services and resources, and a special emphasis on the environmental aspects of water supply.

The recommendations of this study have come out of extensive field visits and detailed discussions with the beneficiaries as well as officials at different levels. The Expert Committee, sincerely thanks the Secretary (RD), Addl. Secretary (RD), Joint Secretary (TM) and the Mission officials as well as the State PHED officials for the whole-hearted support which helped the committee to formulate its observations and recommendations in the proper perspective.

I do hope that the Ministry of Rural Development would take suitable follow-up action on the recommendation and I thank them for the confidence reposed on us.

-sd-
(Dr. B.B.Sundaresan)
Chairman
Expert Committee

MEMBERS OF THE EXPERT COMMITTEE

1. Dr. B B Sundaresan,
former Vice Chancellor
Madras University
Madras Chairman
2. Dr. K R Karanth
retired Director
Central Ground Water Board
Bangalore Member
3. Shri S S Chakraborty
Secretary
Rama Krishna Mission
Calcutta Member
4. Prof. Shekhar Singh
Professor
Indian Institute of Public Admn.
New Delhi Member
5. Shri R Kondala Rao
Engineer in Chief
Panchayati Raj Engineering Deptt.
Government of Andhra Pradesh Member
6. Shri S M Vijayanand
Deputy Secretary
RGNDWM
Ministry of Rural Development Member Secretary

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SECTION A

**EXECUTIVE SUMMARY
OF THE SALIENT RECOMMENDATIONS**

EXECUTIVE SUMMARY

1.0 INTRODUCTION

1.1 An Expert Committee was constituted to evaluate the rural water supply programme with special reference to the Mini Missions and Sub Missions. The Committee visited five states and held elaborate discussions with senior officials at policy planning and implementing levels, besides interacting with field-level officials and people's representatives as well as Non-Government Organisations and the beneficiary public. Several reports were perused and detailed information was collected through a questionnaire from the states.

1.2 The Mission mode, though strategically well conceived at the apex level, revealed several tactical shortcomings and failures at the implementation level. The strategy followed was adhoc and has not been institutionalised. The programmes could not achieve the integration of services and resources from different sectoral agencies to ensure sustainability. Several committees constituted to achieve integrated functioning failed and attempts at networking did not strike root. Also the Mission mode of functioning has not provided the desired level of flexibility to enable quick decision making. Right from the sanctioning stage of the scheme, important software aspects, like training, awareness building, community participation, micro-level ecological planning were not accorded due priority. The scientific source finding method alone appears to have succeeded and all other aspects of sustainability relating to water conservation and water recharging have been neglected. The traditional technologies and systems have not been well integrated into rural water supply systems though they have been tried out sporadically.

1.3 The Mini Missions and Sub Missions have not attempted to develop appropriate operation and maintenance models to suit varied hydro-geological, agro-climatic, techno-economic conditions and societal perceptions in the rural areas. The operation and maintenance of rural water supply systems continues to be weak. Community participation has not been given the importance it deserves and the involvement of NGOs has only been marginal. The pioneering experiment of district level water quality testing labs has succeeded in bringing out the relevance of the quality aspects of rural water supply. However, the establishment and functioning of the labs have not been instrumental in evolving a functional water quality surveillance programme.

1.4 The Sub Missions have not succeeded in tackling the quality problems in a systematic manner except in the case of Guineaworm Eradication which stands out as an example of a well-coordinated programme. In Defluoridation, the Fill and Draw type of plants appear to have been acceptable at the community level. However, the Handpump Attached Defluoridation and Iron Removal plants have been failures due to inappropriate technology, unsuited to community perceptions and community involvement. The Desalination plants have been a costly failure mainly due to lapses at different levels, such as poor planning and implementation, technology inappropriate to the rural setting and high cost of O&M. A large number of administrative problems have also cropped up in this Sub Mission on Control of Brackishness.

1.5 The Sub Mission on Conservation of Water and Recharging of Groundwater Acquifers has not been given any prominence. Among the coordinating agencies for Sub Missions, the National Institute of

Communicable Diseases (NICD) has done well in Guinea worm Eradication, whereas the National Industrial Development Corporation (NIDC) and the Central Mechanical Engineering Research Institute, Durgapur (CMERI) have both failed to implement the Iron Removal, Defluoridation and Desalination programmes as originally planned and targeted.

1.6 The Research and Development programmes which got off to a good start, soon came to a stand still. Even in the approved projects, large scale dissemination of results has not been possible. The Human Resource Development activities which again came to a stand still have now been revived. The monitoring and evaluation of the whole programme have been routine. Adequate collection, collation and analysis of information and data from the field level have not been made to suggest any mid-course correction. The holistic approach envisaged has been more on paper as an academic exercise.

1.7 In spite of several shortcomings and failures in planning and implementation, both the Mini Mission and Sub Mission approaches have relevance in the present context; where after having achieved good physical coverage, the focus should naturally shift to the sustainability of the systems.

1.8 The recommendations of the committee in the light of its observations are given under various heads covering the issues involved and also separately for the future programmes. The recommendations on the issues apply not only to the Mini Missions and Sub Missions but to the entire rural water supply sector.

2.0 SALIENT RECOMMENDATIONS

2.1.0 ADMINISTRATIVE SET-UP

2.1.1 The Empowered Committee should be reactivated and given the specific mandate of laying down policy guidelines and facilitating integration of schemes; services and resources by coordinating the activities of various departments and agencies.

2.1.2 A high powered multi-disciplinary Apex Committee of experts should be created at the national level to advise, guide and monitor the rural water supply programme in its totality.

2.1.3 Greater delegation and flexibility in sanctioning of schemes should be ensured through a Working Group in the Ministry of Rural Development.

2.1.4 The existing vacancies in the RGNDWM should be filled up without further delay. The RGNDWM needs to be further strengthened with professional expertise in IEC/ Community Participation, HRD, Economic/ Financial aspects, MIS, coordination of R&D and S&T inputs and Micro-level Planning. The Mission personnel should be given adequate incentives.

2.2.0 SECTORAL COORDINATION AND INTEGRATION

2.2.1 A committee should be set up under the Planning Commission to identify Programme areas and Services which have an impact on water supply and to prepare guidelines for their integration at the

implementation level.

2.2.2 In sectors having an impact on water supply, allocations should be earmarked for drinking water concerns and the extent of integration at all levels should be monitored specially.

2.2.3 At the state and district levels, the Coordination Committees should be revitalised.

2.3.4 Adequate training in integration of schemes and convergence of services should be given, especially to the Panchayati Raj functionaries and field level officers.

2.3.0 MICRO LEVEL PLANNING

2.3.1 The participatory resource appraisal methodology adapted for water supply by the BGVS may be tried out on a wider scale after assessing the experience of the pilot project.

2.4.0 SUSTAINABILITY

2.4.1 The Sub Mission on Conservation of Water and Recharging of Groundwater Acquifers should be converted into the Sub Mission on Sustainability with higher funding and clear guidelines.

2.4.2 Micro-watershed-based master plans for ensuring sustainability by taking care of both the demand and supply sides should be taken up for implementation with the involvement of professional institutions and NGOs.

2.4.3 In the 'dark' and 'grey' blocks, as classified by the CGWB, legislative measures need to be introduced to regulate withdrawal of groundwater.

2.5.0 RE-EMERGENCE OF 'N' CATEGORY VILLAGES

2.5.1 No recommendation is being given in the light of the decision of the RGNDWM to go in for a detailed Validation Study in the newly detected 'N' category habitations.

2.6.0 OPERATION AND MAINTENANCE

2.6.1 Recognising the "live" nature of water supply systems, O&M needs should be rationally assessed and adequate resources provided without going into the niceties of the distinction between Plan and Non-Plan resources.

2.6.2 At least one O&M model project with total community involvement may be taken up in each state, fully funded by Government of India.

2.7.0 COMMUNITY PARTICIPATION

2.7.1 Community participation should be full participation of the community from the pre-planning stage itself and the community should be actively involved in monitoring as well as O&M; Water Committees are recommended for each spot source or a group of sources.

2.7.2 Orientation training should be given to officials to facilitate community participation.

2.7.3 NGOs should be helped by supporting model integrated projects involving the local community. The mode of selection of the NGO and the scale of assistance should be transparent.

2.7.4 Cost sharing with at least 10% of the capital cost and 50% of the O&M cost must be a basic element of people's participation.

2.7.5 Each state has to prepare a clear procedure for community involvement and finalise it within six months.

2.7.6 IEC cells should be made compulsory in all State PHEDs.

2.7.7 At least half a per cent of the investment in rural water supply should be earmarked for approved IEC activities.

2.7.8 Social audit should be introduced in rural water supply.

2.8.0 SANITATION

2.8.1 The water supply programme should be organically linked with the sanitation programme.

2.8.2 A national project for sanitation and water supply in rural schools should be taken up on top priority to cover all the schools in the country before the end of the VIII Plan.

2.9.0 WATER QUALITY

2.9.1 A fundamental policy change in water quality surveillance, calling for an independent agency to monitor water quality, is required. Each state should come out with clear cut water quality surveillance policy, which would include monitoring of quality at the source, supply point as well as at the user's end.

2.9.2 The entire activity of water quality surveillance should continue as a Plan scheme in which schools, professional institutions, Pollution Control Boards, and NGOs are involved.

2.9.3 The Regional Centre network must be strengthened with a five-year perspective plan and annual action plans with special emphasis on training activities.

2.9.4 A computerised data base has to be built up and water quality maps prepared.

2.10.0 MINI MISSIONS

2.10.1 Phase II Mini Missions may be taken up in watersheds covering representative hydro-geological and socio-economic zones of the country based on sharp guidelines including every aspect of the holistic approach to water supply.

2.11.0 SUB MISSIONS

2.11.1 Sub Missions on quality problems should be transferred to state governments as the first priority item under ARWSP. Government of India should restrict its role to the development of cost-effective models in dealing with quality problems.

2.11.2 Rain water harvesting should be given priority in water quality problem areas as well as in scarcity areas.

2.11.3 An immediate action plan has to be prepared for rehabilitation of the non-functional treatment plants under various Sub Missions.

2.12.0 RESEARCH AND DEVELOPMENT

2.12.1 A clear procedure for sanctioning of R&D projects with the help of a Task Force and subject matter specialists should be evolved. The Apex Committee would coordinate this activity.

2.12.2 The Mission should coordinate with professional institutions to accord priority to water supply in the research activities which are part of their academic courses.

2.12.3 State PHEDs must be encouraged to take up field-oriented R&D projects.

2.12.4 Not less than two per cent of the Government of India investment in Rural Water Supply Sector should be earmarked for R&D with a matching grant from state funds.

2.12.5 Traditional technologies and systems should be encouraged and 5% of the Government of India provision for Rural Water Supply should be set apart for adoption and adaptation of traditional technologies and systems with equal contribution from state funds.

2.13.0 HUMAN RESOURCE DEVELOPMENT

2.13.1 The policy evolved in 1993 by RGNDWM may be implemented straight-away.

2.13.2 At least one per cent of the central plan assistance in Rural Water Supply and Sanitation should be set apart for HRD.

2.13.3 The first priority should be to utilise established and reputed institutions and the existing network could be expanded.

2.13.4 A cascading type of training programme after proper training needs assessment is required.

2.13.5 Distance education to upgrade skills of practising engineers should be encouraged.

2.13.6 Postgraduate courses with a rural bias for serving engineers could be supported by the Government of India in selected institutions.

2.14.0 MONITORING AND EVALUATION

2.14.1 Extensive computerised monitoring using NICNET should be introduced.

2.14.2 A monitoring cell at the Mission headquarters should be created for compilation and analysis of data to support policy decisions.

2.14.3 Field missions should be introduced for direct field level assessment of performance.

2.14.4 Concurrent evaluation studies need to be conducted by expert institutions; state governments must be encouraged to conduct their own evaluation studies.

2.14.5 The data generated may be made freely available for professional institutions for scientific analysis and interpretation.

2.15.0 ARWSP

2.15.1 ARWSP guidelines need to be modified in the light of the recommendations made above.

2.15.2 O&M allotment for the states should be distributed based on a formula taking into account the assets in position and there should be insistence on developing a suitable O&M model for each region in a state.

2.15.3 The funds earmarked for SC/ST should be monitored separately and the coverage reckoned on the basis of identified SC/ST habitations.

2.15.4 Integration of funds and services of related departments starting with those under the direct control of the Rural Development Ministry is necessary.

2.15.5 Coverage norms may be liberalised in phases after a particular level is fully reached.

SECTION B

THE BACKGROUND

CHAPTER 1

THE PREAMBLE

1.1.0 FORMATION OF THE EXPERT COMMITTEE

1.1.1 The Technology Mission on Drinking Water in Villages and Related Water Management (later called the National Drinking Water Mission, and from 1991, called the Rajiv Gandhi National Drinking Water Mission) was introduced as a societal mission in 1986 with the primary objective of covering the remaining 'No Source' problem villages before the end of the VII Plan Period in the most cost-effective manner. The Mission sought to develop replicable models for rural water supply through 55 intensive area-based projects called Mini Missions and five programmes called Sub Missions to tackle problems of excess fluoride, excess iron, excess brackishness, eradication of guineaworm infestation as well as to promote conservation of water and recharging of aquifers. Though close monitoring and concurrent evaluation was envisaged at the conception stage of the project itself, but for an evaluation study in the first year of the programme, no detailed appraisal of the programme was made.

1.1.2 At present, an impressive coverage of 'No Source' problem villages has been achieved, with only about 275 villages remaining to be covered as on 1st April, 1994. The 55 Mini Missions which were to be completed within two to three years spilled over to the succeeding years and have been closed by March, 1994. The Sub Missions, especially the technology application experiments in the cases of iron removal, defluoridation and desalination are nearing the end of their experimental phase; the Sub Mission on guineaworm eradication has done remarkably well and complete eradication of the problem is in sight. A total survey of the status of water supply in rural habitations has been completed and results have started flowing in. Thus, a water-shed phase has been reached in the rural water supply programme.

1.1.3 At the beginning of the VIII Plan period itself, it was realised that the Mini Missions and Sub Missions need to be evaluated thoroughly before future strategies for these schemes could be finalised. In order to conduct a rapid study, a multi-disciplinary team of experts was constituted (Annexure 1). The constitution of the study team at this juncture is particularly significant, as there is bound to be a shift of focus from the hardware aspects of physical coverage to the software aspects of sustainability. It has become necessary to analyse in depth the successes and failures of the important experiments carried out after the Mission mode was brought into being, to bring about suitable modifications in them and also to make the lessons learnt widely applicable.

1.2.0 METHODOLOGY FOLLOWED BY THE EXPERT COMMITTEE

1.2.1 The Committee began its functioning with an interaction session with the senior officials of the Ministry of Rural Development and related agencies like Department of Expenditure, Planning Commission, and Central Ground Water Board. These discussions clarified the ideas underlying the constitution of the committee and enabled identification of focus areas. This was followed by an in-depth discussion with the technical officers of the Rajiv Gandhi National Drinking Water Mission.

1.2.2 The Committee decided to follow the methodology of field visits to selected Mini Mission projects, discussions with concerned officials (especially field level implementing officers) and beneficiaries, collection of essential data through a questionnaire sent to all the states and perusal of relevant available documents brought out by the Rajiv Gandhi National Drinking Water Mission.

The following states were selected for field visits.

West Bengal	(Midnapur, Bankura)
Bihar	(Palamau)
Rajasthan	(Churu)
Tamilnadu	(Ramnathapuram)
Kerala	(Palghat)

1.2.3 West Bengal was chosen for the fact that it is one of the few states where an effective Panchayati Raj System is in operation. Bihar was selected for its reported management problems in rural water supply. Rajasthan and Tamilnadu were identified as hard core problem areas in two distinctive geographical regions of the country. Kerala was included as it is different from other states in its rural water supply programmes and in recognition of the fact that the quality of life indicators especially those relating to health are very high in that state.

1.2.4 In these states the Committee visited the six Mini Mission districts of Midnapur, Bankura, Palamau, Churu, Ramnathapuram and Palghat (visited by a Sub Committee). The field visits helped in identifying the problems of Operation & Maintenance, acceptability of technology, community participation, integration of services and programmes of related departments and sustainability. During these field visits the Sub Missions were also specially evaluated. Recognising that the Mini Missions and to some extent the Sub Missions were only means to an end, that is, trials to identify elements for a larger application, the Committee had a perspective look at the implementation of the ARWSP and MNP to note the gaps and shortcomings which could be got over by utilising the experience gained in the experimental programmes. Thus, the Committee studied the implementation of all the rural water supply schemes in toto, during the field visits.

1.2.5 An elaborate questionnaire on all aspects of rural water supply with special emphasis on the Mini Missions and Sub Missions was designed and mailed to all the states. All the major states except Uttar Pradesh responded to the questionnaire. The Committee also studied documents brought out by the Rajiv Gandhi National Drinking Water Mission and related agencies.

1.2.6 The Committee held nine sittings for internal discussions. The key issues were identified and the members were assigned topics related to their area of expertise. Draft reports were collected and circulated among all members and the recommendations broadly finalised in the sitting at Madras held on 15,16 & 17th of November, 1993. The revised draft report was again circulated and vetted and finalised by the Committee in the meetings held at New Delhi on 31st December, 1993 and at Bangalore on the 16th January, 1994. This report was circulated to the Rajiv Gandhi National Drinking Water Mission and the Planning Commission for comments. After considering the comments, the Committee made appropriate modifications and approved the report for presentation to the Ministry of Rural Development on 15th March,

1994 at New Delhi.

1.3.0 STRUCTURE OF THE REPORT

1.3.1 The report is divided into five sections. 'Section A' presents an executive summary of the salient recommendations. 'Section B' describes the background of the evaluation and places the current programmes in historical perspective. This is followed by 'Section C' which deals with the following key issues and areas which were identified by the Committee for focussed attention.

- * Administrative set up for the Mission activities.
- * Sectoral coordination and integration.
- * Micro-level planning.
- * Sustainability,
- * Re-emergence of No Source problem villages.
- * Operation and Maintenance.
- * Community participation.
- * Sanitation.
- * Water Quality.
- * Sub Missions.
- * Research & Development; S&T inputs.
- * Human Resource Development.
- * Monitoring and evaluation.

1.3.2 In each of these thirteen chapters, the key issue or area is presented in perspective followed by the observations of the Committee and rounded off with its recommendations for the future. The next 'Section D' has the chapter dealing with recommendations regarding the future course of action in the three specific programmes - Mini Missions, Sub Missions and ARWSP. This section is to be read along with the recommendations given in 'Section C'. The annexures are given in the final 'Section E'.

1.3.3 Since specific issues are discussed separately and also there are general discussions subject-wise, there is some repetition of ideas and points. Though it has been attempted to edit them away, still in the interest of presenting a particular issue in its totality, certain recurring observations and points have been allowed to persist. However, the Executive summary of the salient recommendations has been made as sharply focussed as possible.

1.4.0 SCOPE OF THE RECOMMENDATIONS

1.4.1 Since the experimental phase of the Mini Missions and Sub Missions is almost over, it is time that the results of these experiments and the lessons learnt while conducting them are applied to the rural water supply programme as a whole. Hence, the Committee felt that it would not be proper if it were to confine its recommendations only to the Mini Missions and Sub Missions. Except where it is clearly specified, the recommendations are applicable to the rural water supply sector as a whole.

CHAPTER 2

THE HISTORICAL PERSPECTIVE

2.1.0 Though water supply is a state subject it has always attracted the intervention of Government of India as it has been a priority item on the national agenda. The Bhore Committee of 1944 and the Environmental Hygiene Committee set up in 1948 prepared the ground for Government of India's promotion of water supply and sanitation programmes in the country. It is pertinent to note that the Environmental Hygiene Committee had recommended 90% coverage of the population with water supply and sanitation within four decades. Its recommendations especially with regard to sanitation remain unrealised even now.

2.1.1 In the initial years the Community Development and Local Development works took care of village water supply needs mostly by constructing wells. This programme was supplemented by the National Water Supply and Sanitation programme in 1954 which concentrated on more comprehensive water supply schemes requiring some amount of technical skill in design and construction. Though the allotments were modest in the first four Plans, the strategy was to integrate the resources and services of the field level agencies. Traditional sources were accepted as safe water sources and they were constructed wherever feasible. This continued till the advent of the handpump option after which the traditional sources came to be viewed as unsanitary and were gradually pushed outside the pale of formal rural water supply schemes.

2.1.3 The centrally sponsored scheme of ARWSP was launched in 1972 at a time when it was realised that rural poverty had reached a shockingly high level in spite of two decades of planned development and required a direct multi-pronged attack to be tackled. In order to achieve greater thrust and facilitate higher flow of resources, rural water supply was also included in the MNP in 1974-75. At this point of time the ARWSP was withdrawn but it was later reintroduced in 1977. Both these schemes have been continuously in operation since then.

2.1.4 The first quantification of the problem of rural water supply was made in 1964-65. It was then estimated that about two thirds of the population lived in areas where it was comparatively easy to tap local sources like wells while the remaining population required special engineering efforts in view of scarcity. A two-fold classification of problem villages was followed - scarcity villages which were those without an assured source within 1.6 kms or 100 metres of vertical distance; and health problem villages which were endemic to diseases like cholera, guineaworm, etc., or which had quality problems of excess fluoride, iron, salinity, etc.

2.1.5 In 1971-72 90,000 villages were placed in the scarcity group and 62,000 in the quality problem group. Moreover 1.85 lakh villages were reported to have only simple wells. In 1980 1.9 lakh problem villages (of both types) were identified. A more elaborate survey done in 1985 gave the figure of 2.27 lakh villages in the problem category of which 1.54 lakh were due to scarcity and 0.73 lakh due to quality problems.

2.1.6 The Technology Mission on Drinking Water and Related Water Management was introduced

in 1986. It undertook coverage of all the remaining 2.27 lakh problem villages by the end of VII Plan. At the same time 55 Mini Missions which were area based pilot projects were started to evolve models for further replication. (Annexure II A&B). Also five Sub Missions were started to tackle quality problems and promote sustainability (Annexure III A&B). The Mission mode which is understood as a qualitatively different method of government functioning with definite goals, time bound targets, easy procedures, participatory functioning and integrated approach represented the new thinking in the field of rural water supply. There was a clear recognition of the holistic nature of water supply which called for as much stress on the software aspects like health education, community participation, human resource development as on the hardware aspects. The Mission also recognised the importance of R&D in the sector and the need to integrate the services and resources of related departments and agencies. For the first time, the Mission sought to bring together various related agencies in an extensive network. Similarly, the Sub Missions aimed at field level applications of various technology options in solving the quality problems.

SECTION C

**ISSUES, OBSERVATIONS AND
RECOMMENDATIONS**

CHAPTER 3

ADMINISTRATIVE SET UP

3.1.0 INTRODUCTION

3.1.1 The Mission mode naturally involved concomitant changes in the administrative process, particularly in administrative procedures, and more so in the style of functioning. Rural water supply was transferred to the then Department of Rural Development in 1985 and within a year the Technology Mission was started. At the national level the particular division of the Ministry looking after rural water supply was transformed into the National Drinking Water Mission. Also an Empowered Committee was set up to achieve coordination of related developments. At the state level the existing set up was continued whereas at the district level an Executive Director was put in charge of implementation of the Mini Mission programmes through the DRDA. These administrative arrangements at the state and central levels were sought to be strengthened by networking with various expert institutions and agencies especially through the four Technology Advisory Groups. (Annexure 4)

3.2.0 OBSERVATIONS

3.2.1 The administrative implications of the Mission Mode of functioning in terms of structure, delegation of powers, procedures, etc., were not made clear. Even the Empowered Committee met only twice and then became defunct. Its powers and functions were never clearly defined. New posts of two Advisers, a Deputy Adviser, an Assistant Adviser and a Director were created for the purpose of the new programme at the national level. The Joint Secretary was designated as the Mission Director and was given some additional powers to facilitate smoother functioning. However, the conventional time-consuming procedures of technical and financial clearance continued in spite of the new approach.

3.2.2 Short term consultancies were resorted to in certain specialised areas of work where there was no in-house expertise like Rig Monitoring; Information, Education and Communication (IEC); Computerised Management Information System (MIS) and Human Resources Development (HRD).

3.2.3 The Council for Scientific and Industrial Research (CSIR) was assigned a major role through an MOU for Research & Development and Technology applications. The Central Mechanical Engineering Research Institute, Durgapur (CMERI), an affiliated institution of CSIR was given the exclusive responsibility for desalination efforts while the National Industrial Development Corporation (NIDC) undertook installation of defluoridation and iron removal plants and computerisation activities.

3.2.4 At the state level no effort was made to change the administrative procedures in tune with the Mission Mode. Even at the district level where a senior officer took over as the Executive Director, no special powers were given to him and he did not, in practice, get any additional flexibility by using the DRDA mechanism.

3.2.5 Though the Technology Mission called for an integrated approach and the concept gave adequate stress to the software aspects of rural water supply, surprisingly the in-house expertise of the Mission headquarters was limited almost solely to public health engineering. For example, there was no expertise to coordinate community participation elements of the programme; or to analyse the general cost effectiveness aspects of the technology or the projects. Even in areas where institutions like CSIR were to carry out the work, just for want of a coordinator exclusively for the purpose, the programmes could not succeed as there was no effective linkage with the Mission headquarters. The abnormally high number of unfilled technical posts in the Mission has also handicapped its functioning.

3.3.0 RECOMMENDATIONS

3.3.1 Appropriate recommendations regarding administrative /institutional structures and arrangements with regard to particular areas are given separately under those heads. However, those relating to general supervisory and administrative structure are given below.

3.3.2 The Empowered committee should be reactivated. It must meet twice a year to lay down policy formulations and review the programme with reference to them. Also it should facilitate integration of the programmes and services of various departments and agencies.

3.3.3 A major recommendation of the Expert Committee would be the creation of a single high-powered multi-disciplinary team of experts at the national level to advise and guide the Mission on all policy aspects. In a way it would combine the functions of the four TAGs but in a simpler and smaller body with higher powers and wider responsibilities. It should consist of about ten members and it goes without saying that the most eminent experts in the country in their respective fields who are willing to serve a national cause should be selected. This Committee could have regular sittings for 3-4 days at one go at least once in every quarter. Suitable honorarium could be paid to the members. This group should be constituted for a five-year period and should have expertise in rural water supply, sanitation, hydrogeology, HRD related to water supply, R&D related to water supply, water quality, economic and financial aspects of water supply, micro-level planning, community participation and IEC, management aspects of water supply, voluntary work in water supply, etc. In addition to these members, the Secretary (RD)/ Addl. Secretary (RD), Financial Adviser to the Ministry of Rural Development, Mission Director (RGNDWM), Advisers and Addl. Adviser of the Mission could also be members. Some of the important responsibilities and powers of this group would be:

- (a) Deciding on policy options and posing them to the Empowered Committee for approval.
- (b) Translating approved policy into appropriate programmes and activities.
- (c) Overall monitoring and evaluation of the programmes including conducting of evaluation studies.
- (d) Laying down R&D priorities and approving R&D projects and following up on results.
- (e) Evolving community participation models.
- (f) Initiating O&M experiments.
- (g) Approving technology application and other innovative demonstration projects.
- (h) Overseeing the HRD Programme.
- (i) Any other matter at the request of the Empowered Committee or the Mission.

3.3.4 This group should be empowered to constitute task forces for specific functions and activities. There has to be suitable delegation of powers for carrying out the responsibilities entrusted to this Apex Committee.

3.3.5 There should be greater delegation of powers to the state governments for sanction of schemes. For schemes approved at the Government of India level, only broad policy parameters relating especially to the software aspects need be looked into.

3.3.6 Also there should be a mechanism to speed up operations especially clearing of schemes which have to come to Government of India. It is suggested that a Working Group consisting of technical officers from the Mission and sufficiently senior representatives of the Ministry of Finance and Planning Commission could be constituted with the Mission Director as its chairperson and given sufficient powers to clear projects. There should be a Deputy Financial Adviser and supporting staff within the Mission to speed up clearances and releases. The Mission should be treated as a Scientific Department for administrative and financial purposes.

3.3.7 At the state and district levels coordination committees may be re-constituted on the lines of the Committee existing for IRDP with clear Terms of Reference especially to facilitate integration of resources and services of related departments and agencies. The State Committee could have the Chief Secretary as its chairperson and the District-level Committee may be headed by the Collector.

3.3.8 The Mission headquarters should be the overall expert nodal agency. The present staff strength at the technical level is too inadequate. The vacancies in the Mission need to be filled up immediately. Also it is essential to have some qualified officer in the implementing organisation dedicated solely to the task of coordinating with the concerned agencies; even assuming that the expertise available in national and state level institutions and sister departments could be utilised. It is obvious that the Mission needs additional professional expertise in the following areas.

- (a) IEC/Community Participation - It is essential to have an expert who will coordinate with related institutions and agencies in developing methodologies for reaching out to the people and for involving the community.
- (b) HRD - There is enough infrastructure available in the country to launch a successful HRD programme in the WATSAN sector but to tap this vast potential, an expert coordinator is required.
- (c) Economic & Financial Aspects - To achieve monitoring of costs and to analyse projects and schemes from the financial/economic angle, a specialist is required.
- (d) MIS - The services of a professional in computerised MIS is necessary for effective monitoring using the excellent network provided by NIC.
- (e) Micro-level Planning - To evolve micro-level planning methodologies and to oversee implementation of local level plans, an expert is required.

3.3.9 The Mission Director should be empowered to appoint full-time non-official consultants as is being practised in the Planning Commission without being restricted by the prevalent norms fixing the number of consultants in a Ministry/Department.

3.3.10 The Mission mode of functioning requires highly motivated staff especially at the Mission headquarters. A system of incentives needs to be built into the Mission set-up like special pay (of the kind given to officers on deputation to training institutions), local transport, subsidised accommodation, facilities for in-service training, etc. This would enable the Mission to attract the best talent to man the various posts.

CHAPTER 4

SECTORAL COORDINATION AND INTEGRATION

4.0 INTRODUCTION

4.1.1 The Technology Mission approach aimed at integrating, across levels and sectors, expertise, resources and efforts required for achieving its objectives in a cost effective and sustainable manner. Both horizontal and vertical integration was required at the central, state and district levels. Some of the more important sectors which were to be involved with the work of the Mission are:

Health	-	sanitation and hygiene
Environment	-	water quality and water conservation
Forest	-	source sustainability
Water Resources	-	sustainability
Agriculture	-	water conservation and sustainability
Education	-	awareness building
Welfare	-	equitable access and community participation
Rural Development	-	source provision and protection and community participation

4.1.2 Several committees and groups were formed at various levels to achieve these objectives.

4.2.0 OBSERVATIONS

4.2.1 The all important Empowered Committee which was to give lead to the Mission failed to achieve anything substantial. It suffered from the handicap of not being given a clear mandate and could not cut through routine bureaucratic procedures and achieve the Mission Mode of functioning and bring about a coordinated functioning of important ministries.

4.2.2 Another administrative mechanism vital to the Mission in helping it realise its objectives of integration and networking was the Technology Advisory Group. The four TAGs got off to a good start and took several initiatives in technology development and application, community participation, etc. However these Groups ceased to function from early 1989. (Annexure 5)

4.2.3 The state level Advisory Bodies did meet a number of times. But these committees don't seem to have gone beyond routine monitoring and procedural trouble- shooting. These bodies could not achieve their fundamental purpose of ensuring flow of funds and services from the different related departments to the project agency.

4.2.4 At the district level, the DRDA, in spite of being a multi-disciplinary agency, could not function as an integrating mechanism. It merely served as a conduit for routing of funds from Government of India. The project cell within the DRDA working under the Executive Director of the Mini Mission having technical

personnel from public health, water management, soil conservation and forestry departments, supported by representatives of CGWB/NGRI/CSIR, etc., did not get institutionalised though there were occasional instances of coordination while preparing the project. Similarly, the post of Executive Director which was intended to be manned by a senior technical officer or an administrator with the intention of being able to provide proper leadership to a group of officers from different departments, dwindled to that of a divisional head in the state Water Supply Department.

4.2.5 However, the Project Coordination Committees at the district level headed by the Collector were able to meet quite often. These committees functioned mostly to review physical progress and sort out local problems in implementation. In the absence of integration at the national level and the state level, the District Collectors could not utilise these coordination committees to bring about a focussed convergence of services and resources.

4.2.6 Discussions with the concerned functionaries of the district and state levels and observation of the implementation of the Mini Missions and the functioning of the associated institutions made it obvious that the major effort was on the hardware aspect of providing sources and that the implementing agency was almost the only player in this task. The Expert Committee could not find any input from other line departments and schemes into the Mini Missions activities, except where funds were earmarked for such departments by the Government of India from out of the Mission funds. Even in such cases where other departments were funded by the Mission, the works were not necessarily integrated with the purpose of providing water supply; for example, water harvesting structures built by the Block often did not directly benefit the existing water supply sources of the village.

4.2.7 Perhaps the main reason for absence of real integration lies in the fact that clear directives were not issued by the Ministries and departments which had a role in the programme both at the central and state levels. As funds for the Mini Mission programme were limited, at the sanctioning stage itself only the hardware aspects were approved and wherever pruning had to be done, generally, the software aspects were lopped off leading to an imbalance in the initial stage itself (Annexure 6). Though this gap was sought to be filled by integrating schemes of other related departments, nothing much could be done as no prior commitment on the part of the state governments was obtained to dovetail related schemes with the Mini Mission activities. It was surprising to note that even schemes under the control of the Ministry of Rural Development (other than the original earmarked component of RLEGP) like JRY, CRSP, DDP/DPAP, and Wasteland Development were not tied-up with water supply.

4.3.0 RECOMMENDATIONS

4.3.1 Efforts at integration should begin from the Planning Commission itself. An Integration Committee should be set up under the chairmanship of the member of the Planning Commission dealing with rural water supply and with representatives of the concerned divisions of the Planning Commission and the Ministries of the Government of India. The Committee must identify the areas and programmes where integration is possible and also the optimal process of integration so that drinking water concerns are reflected in the appropriate centrally sponsored and state schemes. Once this is done, the concerned ministries should inform the state governments and clear guidelines should be issued. Wherever necessary, schemes should be modified to allow integration of drinking water concerns at the field level.

4.3.2 The extent of integration should be monitored during the Plan discussions as well as by the Empowered Committee and the Apex Committee.

4.3.3 At the state level, the Planning department in cooperation with the Finance department should do a similar exercise for state-level schemes capable of being integrated with water supply.

4.3.4 Sectors like environment and forest, water resources, science and technology, information and broadcasting, agriculture and rural development should have earmarked allocations for drinking water concerns and special reporting requirements very much like the Minimum Needs Programme.

4.3.5 To start with, the guidelines of schemes implemented by the Ministry of Rural Development like JRY, CRSP, DDP/DPAP and Wasteland Development need to be modified to include definite support to rural water supply.

4.3.6 Special training modules have to be prepared on identification of the elements to be integrated and also to achieve proper orientation to develop the culture of working in cooperation with related departments and agencies. Since the Panchayati Raj institutions will come into being soon it is essential to train the non-officials also in this respect.

CHAPTER 5

MICRO LEVEL PLANNING

5.1.0 INTRODUCTION

5.1.1 The National Drinking Water Mission gave special emphasis to micro level planning based on scientific data as well as participation by the local community. This planning process was to be an integrated exercise involving other sectors as well.

5.2.0 OBSERVATIONS

5.2.1 For the first time in rural water supply, elaborate plans were prepared for each Mini Mission district. Most of the plans were prepared by the state PHEDs, though in some cases, external expertise was involved. It is seen that on an average each plan took six to nine months in preparation and all the available data were put together. However, the elaborate guidelines issued by Government of India regarding the preparation of the district level plans were not followed fully in spirit. Perusal of some of the plans revealed that they were not sub-divided into time-bound activities. Also they were predominantly concerned with setting up of new water supply systems. Other elements like community participation, training, health education, etc., were not clearly spelt out and appeared more as window dressing than as an integral part of the plan. Even these token elements could not be implemented in full in most of the Mini Mission districts.

5.2.2 The Scientific Source Finding experiments were also micro-level planning exercises for selection of sites. By and large they were very successful. However, no effort seems to have been made to evolve micro-catchment based water budgets which are essential for long term sustainability. The involvement of the people has also been limited to expression of locational preferences, besides general airing of needs.

5.3.0 RECOMMENDATIONS

5.3.1 Micro level planning is essential not only in the future Phase II Mini Mission programme but also in the entire rural water supply programmes. Of course, it is not easy to cover large areas in a short time. But micro planning teams could be created and given special orientation training.

5.3.2 Participatory rural appraisal methodology seems to be appropriate for micro level planning needs. This technique adapted for water supply programme and being tried out in four Mini Mission blocks by BGVS, as NGO, could be applied on a large scale after evaluating its success (Annexure 7).

5.3.3 Micro level planning process must be fully integrated into village institutions and structures especially in the context of the Panchayati Raj.

5.2.4 The unit for micro-level planning should as far as practicable be a natural micro-watershed of manageable size.

CHAPTER 6

SUSTAINABILITY

6.0 INTRODUCTION

6.1.1 The Mission approach gave special emphasis to the sustainability aspects of water supply. Sustainability was sought to be achieved through a scientific identification of sources, qualitative improvement of materials used in water supply systems, improved operation and maintenance through better-trained technical personnel and community participation, and elaborate monitoring. A special Sub Mission on Conservation of Water and Recharging of Groundwater Aquifers was launched. The purpose was obviously to tackle the demand side as well as the supply side of water supply.

6.2.0 OBSERVATIONS

6.2.1 Since the Mission's emphasis was more on coverage of villages with one safe water source, the sustainability aspects did not come into prominence to the extent they were intended to. In the case of Mini Missions, paucity of funds resulted in the components related to sustainability getting lower priority when the projects were sanctioned. The field visits confirmed that barring scientific source finding, the other factors related to sustainability got only nominal attention.

6.2.2 Further, there were reports of falling water tables, inadequate monitoring of water levels and absence of detailed water balance studies which have resulted in the states not being able to give a clear picture of the situation. Water conservation measures were again marginal. The Sub Mission on Conservation of Water and Recharging of Aquifers has so far sanctioned schemes worth Rs 26.66 crore only in the last six years and the expenditure is even lower at Rs 23.29 crore. Though substantial funds were expected to flow from employment generation, social forestry and soil conservation schemes to protect and upgrade sources, in practice, there was hardly any tie up. (also see chapter on Sub Missions)

6.2.3 The traditional water supply systems and water harvesting methods seem to have suffered neglect as spot sources have been provided in the villages. This causes concern as it could be safely presumed that with the disappearance of the traditional water harvesting and storage structures, also disappeared the traditional water conservation ethos. In certain scarcity areas the seemingly abundant flow of groundwater through the handpump or spot source has even resulted in the community which once had a very strong sense of water care and conservation turning into wasters of water. It must be recognised that time-tested water harvesting and conservation structures like "kunds" and "ooranis" represent human ingenuity at its best and embody cultural traits and practices which allowed the local community to survive in water scarce and hostile environments for centuries. Though the Committee did not visit any hill districts, the general data suggest that there has been significant degradation of catchments resulting in water sources, especially the springs, drying up. Of course, water-shed treatment is a large issue which cannot be the responsibility of the Rajiv Gandhi National Drinking Water Mission alone. But the recognition that proper treatment of water-shed areas is absolutely essential from a long-term point of view has not yet

been translated into practice.

6.3.0 RECOMMENDATIONS

6.3.1 The Sub Mission on Conservation of Water and Recharging of Groundwater Aquifers must be converted into the Sub Mission on Sustainability and its scope and funding enhanced substantially.

6.3.2 A master plan for ensuring sustainability must be drawn up urgently in coordination with related departments and agencies for those critical areas falling within the 'dark' blocks as categorised by the CGWB. In these areas there must be constant monitoring of water levels and depths of wells and a consensus water budget has to be prepared with the full involvement of the people. Catchment treatment measures should be taken up in a coordinated manner involving the agriculture, soil conservation, forestry and rural development departments.

6.3.3 There must be scientific planning at the level of the micro watershed using not only technical data but also local knowledge and perceptions. It should be ensured that new and additional sources of water do not replace the traditional and existing sources but as far as possible are complementary to them and integrated into the traditional water management ethos. Similarly, the technologies introduced into the village system must be internalised by the community through training and experience. This will ensure socio-economic sustainability.

6.3.4 The battle for ensuring sustainability must be waged both on the supply side and the demand side. There must be special efforts to build awareness among the people to prevent waste and promote efficient use. This is more relevant where there is indiscriminate exploitation of water for agriculture purposes.

6.3.5 The classification followed by Central Groundwater Board in categorising blocks into 'white, 'grey' and 'dark' depending on groundwater development is useful. Though this categorising is for irrigation it is also relevant for water supply. In the 'dark' block areas artificial recharging can be attempted on a large scale.

6.3.6 Legislative measures are certainly required especially in the 'dark' and 'grey' blocks. As a first step, it will be necessary to prohibit sinking of new irrigation wells within a specified minimum distance, say 500 metres, from existing sources in such blocks. Exceptions could be made where there is perennial recharging.

6.3.7 Professional institutions should be encouraged to adopt a cluster of villages to design and establish water harvesting technologies suited to the locality. Similarly NGOs could also play a significant role in this area. Special awards could be instituted for the development of innovative water-harvesting and conservation technologies.

CHAPTER 7

RE-EMERGENCE OF 'N' CATEGORY VILLAGES

7.1 INTRODUCTION

7.1.1 The Rajiv Gandhi National Drinking Water Mission has recently conducted a comprehensive Survey of the status of water supply in rural habitations. Though the survey is complete in all the states and the results of the survey from almost all the states have been computerised, the error correction and validation is still going on. However, provisional figures show that about 65,000 villages (main habitations) would fall in the No Source or 'N' category. When compared with the current figures based on 1985 Survey, which is only 750, (as on 1-4-1993) this is an abnormally high figure.

7.1.2 Initially the Committee wanted to go into a detailed study to ascertain the reasons behind re-emergence of no source villages but later it was made known that the Mission is contemplating a total re-verification of all the no source villages as revealed in the recent survey. Therefore the Committee confined itself to broad discussions with field level officers on this subject.

7.2.0 OBSERVATIONS

Some of the reasons identified for the re-emergence of 'N' category villages are given below.

7.2.1 Wherever systems have gone defunct, they have been reclassified as 'N' category villages. The water supply systems have become defunct either because their life period is over or due to unattended mechanical defects due to poor O&M.

7.2.2 There are places where there has been substantial draw-down of ground water resulting in existing sources going dry particularly in Gujarat, Tamilnadu, Rajasthan, etc.

7.2.3 Much of the re-emergence could be attributed to definitional differences some of which are listed below.

- (a) States like Punjab seem to have followed the 15 metre depth criterion which was once used as a parameter to define 'N' category villages but which is no longer valid.
- (b) States like Punjab seem to have interpreted a source to mean "a government provided source". So, villages with private sources or those provided by NGOs, have been classified as 'N' category.
- (c) In places like Rajasthan new revenue villages have come into being, carved out of existing villages.

- (d) In states like Bihar the distance norm has not been fully followed. Even if water is available within 1.6 km a village is classified as 'no source' if the water supply point is not located within it.
- (e) Some villages where there is severe depletion of water supply during summer have been classified as 'N' category.
- (f) In states like Karnataka, villages which have levels of supply ranging below 10 lpcd have been taken as 'N' category villages.
- (g) Also States like Andhra Pradesh have taken safe source to mean "a source free of quality problems particularly of chemical quality". So, even villages with handpumps which have developed excess fluoride, iron or salinity would fall in the 'N' category.
- (h) In Orissa, in 1985 all pucca wells were taken as safe sources; now only handpumps and sanitary wells are reckoned.

7.3.0 RECOMMENDATIONS

7.3.1 The Committee is of the opinion that no detailed recommendations can be given unless the data collected by the Mission as part of the re-verification of the Survey are further analysed and a detailed scientific assessment is carried out. However, the recommendations given in the chapters dealing with Sustainability, O&M and Water Quality are of relevance here.

CHAPTER 8

OPERATION AND MAINTENANCE (O & M)

8.1.0 INTRODUCTION

8.1.1 Water Supply systems are dynamic 'live' systems and the O&M policy has to be in tune with this fact. It is well-recognised that the Mission approach represented an excellent exposition of the holistic concept of water supply. Perhaps the most evident weakness, in an otherwise comprehensive conceptualisation, is the relative lack of importance given to O&M, which finds only a passing mention in the Mission documents.

8.2.0 OBSERVATIONS

8.2.1 In general the O&M of Mini Mission works is in no way different from the normal O&M systems prevailing in the states. O&M is generally state sponsored, whether it be in a two-tier system or a three-tier system. Even where panchayats are involved, the funds are practically government funds. Handing over of assets to panchayats has been mostly formal exercises on paper. Even where they have been handed over, during times of scarcity, yielding to public pressure, the government intervenes and funds the repairs. Cost recovery for O&M was not much in evidence (Annexure 8).

8.2.2 Moreover, the allotments for O&M have not been adequate. Requirements of funds are assessed more by rule of thumb than based on analysis of empirical evidence, and even the limited fund available is seen distributed not always necessarily based on a rational assessment of needs. There has not been any concrete effort to involve the community in O&M to supplement state efforts. However, there have been interesting experiments by voluntary agencies which have met with significant successes.

8.3.0 RECOMMENDATIONS

8.3.1 The present system of allotting resources for O&M is unscientific. Conventional notions of Non-Plan funds for O&M could do a lot of damage. Faced with a shortage of Non-Plan resources, states find it convenient to create new assets using Plan funds instead of maintaining or rehabilitating existing systems. This leads to a lot of wastage of resources besides re-emergence of 'N' category villages. What could be achieved with an expenditure of Rs. 4000-5000 in repair, is now sought to be realised, incurring as high as Rs. 30,000 by putting up a new system. A more rational determination of needs is necessary. Probably more Plan funds could be used for O&M, provided there is assured contribution from the public in cash or by way of labour. This will result in considerable net savings.

8.3.2 At least one O&M experiment must be taken up in each state (more in larger states), covering a block area, with the full participation of the community, the NGOs and local elected bodies. This scheme could be sponsored by Government of India with the aim of developing suitable models.

8.3.3 A carefully planned component has to be introduced in the HRD programme, to build up in the

community, the technical skills required to operate and maintain the local water supply systems. Since women are the major users and any break-down of the system would hurt them most, the women handpump mistry experiment should be further expanded.

CHAPTER 9

COMMUNITY PARTICIPATION

9.1.0 INTRODUCTION

9.1.1 The Technology Mission experiment implied active participation of the community in rural water supply at all stages, right from planning upto O&M. The need for community participation is well recognised and some of the important benefits of such participation are listed below:

- * A sharper identification of needs
- * Local resources mobilisation
- * Providing the added input of traditional local knowledge
- * Closer supervision of work
- * Improved O&M
- * Authentic feedback

9.1.2 Active participation of the community needs to be differentiated from a passive role which has been there for a long time, and, which is restricted to airing of needs, and sometimes, expressing preferences of locations etc. But genuine participation implies close involvement from the pre-planning stage onwards and is essentially a process of mature dialogue between the community and the professionals leading to consensus decisions.

9.1.3 Participation does not happen all that easily or naturally for several restricting factors have been erected over the years by the top down development process. Both the community as well as the professionals have to be adequately motivated and made aware to facilitate better participation.

The areas in which community participation is a must are:

- a) Identification of the drinking water problems
- b) Utilisation of indigenous technical knowledge regarding water harvesting
- c) Integration of this knowledge with the technical aspects of the proposed scheme.
- d) Site selection to ensure maximum social benefit.
- e) Contribution towards both the capital cost of construction and the cost of O&M.
- f) Keeping water sources neat and clean.
- g) Periodic evaluation of the project.

9.1.4 Closely related to the issue of participation of the community is the role of NGOs. The Mission assigned a special place to the voluntary sector (Annexure 9).

9.2.0 OBSERVATIONS

9.2.1 During field visits it was not possible to see even a single viable model of community participation in any of the water supply programmes. At best, there have been consultations with the local people or the Gram Panchayat to decide the location of a spot source. But beyond that, the community was not made aware of its entitlements - that is, the right to know the details of the scheme and the funds being utilised, the right to be made aware of the technology aspects, the right to know its new obligations, etc. Even where the Panchayati Raj system is in operation and the Panchayats have been entrusted with the task of running local water supply systems, the involvement of the community is only marginal. In this aspect there has been more of bureaucratisation of the Panchayats than democratisation of the programme.

9.2.2 The totally government-provided water supply system has only helped to create a culture of dependence in the community. When the handpump or the tap breaks down, the village waits for the government mechanic to repair it, and, it is not felt necessary to set it right with local initiative. The water supply system is not perceived as common property by the community.

9.2.3 Adequate structural arrangements and procedures for community participation have not been made anywhere. However, the committee could observe isolated successes where voluntary agencies were involved and where the participation element was carefully built into the programme (Annexure 10).

9.3.0 RECOMMENDATIONS

9.3.1 Participation of the people should not be deemed to mean participation of the representatives of the people. In local schemes, the entire group of beneficiaries should be involved.

9.3.2 People's participation should begin at the pre-planning stage itself. The consultations with the people should be more in the form of a dialogue leading to a consensus on the rights and obligations of both parties.

9.3.3 There should be water committees for each spot source or for a group of spot sources in densely populated villages. These committees should be constituted in such a way as to facilitate selection by consensus or by drawing of lots from among volunteers. This is to avoid divisions based on politics, caste, etc. At least half of the members of the committee should be women. Using representatives from water committees, there must be coordination committees at the panchayat, block and district levels, where, in addition to representatives of water committees, officials and local NGOs should also be involved.

9.3.4 There should be a more pronounced involvement of NGOs, especially, in advocacy efforts to inculcate the culture of self-help among the people. Instead of scattering the resources thinly, it is better to sanction well-planned, integrated projects to be implemented by reputed NGOs, which would serve as models having demonstration effects. There is need for much more openness in the selection of NGOs for

support. While it is not advisable to tie up NGOs with procedural requirements like production of Collector's certificates, there has to be adequate safeguard against possible misuse of governmental assistance. This can be best achieved by widespread local publicity about the scheme details and scale of assistance to the NGO. This should be done at least a month or two before actual release of funds. Such transparency will help the NGOs in the long run. When the Panchayati Raj institutions are in position, they should also be kept fully informed well in advance.

9.3.5 The departmental officials and Panchayati Raj functionaries, especially those at the cutting edge level need to be oriented to encourage and accept community participation. For this, adequate training needs to be given.

9.3.6 Existing groups like Mahila Samajams, DW CRA committees and Anganwadis should be fully involved in WATSAN activities.

9.3.7 Cost sharing must be made a basic element of community participation. It is suggested that at least 10% of the capital cost and 50% of the O&M cost should be generated from the community in cash, kind or labour.

9.3.8 Though community participation is a must in Rural Water Supply, it is felt that most of the states are not yet ready to go the whole hog at just the request of Government of India enshrined in broad guidelines. At the same time, it is not feasible to issue detailed guidelines at the Central level, as ground conditions vary vastly. So it is suggested that the state governments be asked to draft detailed procedures within six months, for involving the community in the pre-planning, planning, implementation, O&M, and monitoring and evaluation stages of a scheme. These could be finalised by mutual discussions with Government of India.

9.3.9 For promotion of people's participation effectively, the government may have to bear some additional cost on items like skill training, advocacy, awareness generation, etc. But this additional cost will be more than compensated by the returns from effective participation.

9.3.10 Drawing from the relatively successful experience of SEU/PSU in the Dutch-assisted projects, it can be stated that the services of social scientists would be very useful both in the Mission headquarters as well as in the state governments. IEC cells should be made compulsory for all state governments. Initially they may be fully funded by Government of India.

9.3.11 There should be 'Social Audit' of all rural water supply programmes. For this there should be a national Social Audit group as well as five regional sub-groups. These should be multi-disciplinary drawing on the expertise of non-official professionals of repute and could include eminent citizens, who are held in high esteem in the society, as well. These groups may be provided with all the circulars and guidelines, and the status reports issued by the central and state governments. Procedures for making available records to these groups should also be prescribed. The field visits of these groups should be fully supported by Government of India.

CHAPTER 10

SANITATION

10.1.0 INTRODUCTION

10.1.1 Sanitation is an integral component of any water supply programme. Sanitation would include personal hygiene, household hygiene and environmental hygiene.

10.2.0 OBSERVATIONS

10.2.1 The basic purpose of giving safe water would be negated if it is not collected, transported and stored properly. This most important aspect of water supply has not been given enough stress in practice. As of now, there is an obvious lack of coordinated functioning which is essential to make the people aware of the sanitary aspects of water supply. The Health Department, which has a vital role to play in this, seems to act on its own, parallel to the activities of the PHED and there is no purposeful convergence. So too, departments like Social Welfare and Education, which could easily spread the message of hygiene through anganwadis and schools, seem to be unaware of their role in this. And strangely enough, there is no perceptible link between CRSP and the RWS programmes.

10.3.0 RECOMMENDATIONS

10.3.1 There should be a concerted attempt to involve the Health, the Education and the Social Welfare Departments in spreading the message of total sanitation. The Rajiv Gandhi National Drinking Water Mission could prepare small modules on sanitation and drinking water suitable for various levels of students and distribute them for incorporation in the syllabus.

10.3.2 Suitable modules on Sanitation should be included in the National Literacy Mission programmes.

10.3.3 The water supply programme should be organically linked with the sanitation programme. Both CRSP and JRY could be dovetailed with various water supply programmes at the village level. Since 10% of CRSP is allotted for IEC, it could be used profitably to spread the message of safe water alongwith other aspects of hygiene.

10.3.4 The drainage arrangements around spot sources in villages should be improved and if it could be tied up with the Social Forestry component of JRY, it would be even possible to develop aesthetically pleasing locales around each spot source, provided the local community is adequately motivated to maintain it.

10.3.5 It is strongly recommended that a national level project for sanitation and water supply in rural schools be taken up on top priority, pooling funds from various schemes under operation in the Ministry of Rural Development. This would have several spin-off effects; the most lasting of which would be the inculcation in the students, at an impressionable age, the awareness of the importance of sanitation. Once

the students are habituated to using toilets and drinking water from safe sources, it would lead to generation of demand for such services in rural areas, with an intensity not evident anywhere now. It is recommended that water supply could be provided using ARWSP funds and the sanitation component could be a mixture of JRY and CRSP funds with the state government chipping in with its contribution of about 25%. The programme could be phased in such a manner as to cover all the recognised schools in the country by the end of the VIII Plan period. Likewise all the anganwadis having buildings of their own should be covered with a spot source and toilet. Here, the Department of Women and Child Development could also cooperate.

CHAPTER 11

WATER QUALITY

11.1.0 INTRODUCTION

11.1.1 The issues concerning drinking water quality are listed as below:

- (a) Water Quality Parameters - Drinking Water quality parameters are indicated by the WHO on a global basis with a fairly large number of parameters classified under aesthetic, organoleptic, organic, inorganic, bacterial and viral groups. It cannot be applied in its totality in the Indian Sub Continent. Within the country, urban and rural water supplies should have basic water quality parameters defined clearly. It would not be advisable to have a large number of parameters identified for rural water supply schemes. Essentially, the water quality parameters for RWS should be to prevent water-borne diseases and epidemics such as cholera, typhoid, etc., and to avoid complications arising from excess fluorides, arsenic, nitrates, etc. in drinking water.
- (b) Testing and analytical procedures for the limited number of parameters for RWS and the laboratory infrastructure required for the same.
- (c) Periodicity and frequency of sampling and analysis for RWS and the authorities to whom poor water quality should be reported.
- (d) Institutional framework for remedial action, if poor quality is reported, so that further deterioration in health status does not take place.

11.1.2 An elaborate Action Plan for the setting up of 85 stationary laboratories and 15 mobile labs, finalised in 1989, was to be completed by 1990. Its salient features were:

- Service area of two to three districts with a target of 6000 samples per year.
- A networking system from district level centres to state level centres to Regional Centres (All India Institute of Hygiene & Public Health, Calcutta; Defence Laboratory, Jodhpur; Indian Toxicological Research Centre, Lucknow; Bhabha Atomic Research Centre, Bombay; and Sri Jayachamarajendra College of Engineering, Mysore).
- A National Advisory Committee, Central Coordination Committee and State, District and Village committees proposed.
- Cost of hardware, consumables and staff for the initial period to be given as central assistance.
- Involvement of NGOs, PHCs, Anganwadis
- Creation of computerised water quality data base.
- HRD for the staff involved.
- IEC to spread quality consciousness among the rural public.

11.2.0 OBSERVATIONS

11.2.1 The efforts of the Mission have helped in building up an awareness, at least among professionals, regarding the quality aspects of rural water supply. For the first time, laboratories exclusively for RWS were set up at the district level.

11.2.2 However, one gets the impression that they are continuing because of central assistance. There does not seem to be a strong commitment or support on the part of the state governments to create a network of labs with clear functions and responsibilities and arrangements for follow up. Therefore, if central support is withdrawn, most of the labs may cease to function or drastically scale down their activities.

11.2.3 Though the Action Plan for water quality monitoring envisaged a committee system at the national, state, district as well as the village levels, it does not seem to have functioned effectively. It was found that the available infrastructure in schools and colleges and professional institutions were not being utilised, except in rare cases.

11.2.4 Yet another major problem is that the states have not created the required professional staff for the sanctioned labs. Except in a few cases, the labs are manned by temporary hands who have no stake in developing their expertise. Also, they do not appear to have been provided with adequate training for carrying out the tasks entrusted to them. This has resulted in very low output in almost all the labs, much below the targets planned for in the beginning (Annexure 11).

11.2.5 An effective surveillance policy is lacking in most of the states. The data generated in the existing labs are not used for building up a meaningful data base which could be utilised for policy decisions. Also, the follow up of results requires much improvement.

11.2.6 The Regional Centres for Water Quality were expected to play a key role in guiding the programme in the initial years. But they do not seem to have played their role in a systematic manner, especially in monitoring the functioning of the district labs, training their staff and rendering necessary advice. The link between the states and the Regional Centres has been tenuous and tentative. It was also felt that the monitoring of the whole programme at the level of Rajiv Gandhi National Drinking Water Mission could be improved. The stress seems to have been more on setting up of labs rather than on developing an efficient water quality surveillance system.

11.3.0 RECOMMENDATIONS

11.3.1 At the policy level a fundamental aspect of water quality monitoring and surveillance needs to be recognised. Two separate streams are required. The PHED has to have its set of laboratories for testing new sources and ascertaining the quality of water it supplies. At the same time, the existence of an independent water quality audit mechanism is a must. Historically, this has been done by an agency other than the implementing one, often, appropriately under the control of the Health Department. Both the sets of laboratories should be manned by trained professionals like Chemists, Bacteriologists, Sample Collectors, etc. As safe water is the basic concern of the Mission, both streams should be supported.

Where there are existing labs, they should be preferred.

11.3.2 All states must come out with a clear cut water quality surveillance policy. This would include monitoring of water quality both at source and supply points in a specified scientific pattern and sequence. Also there is need to know the quality of water at the user's end before consumption. This will indicate the real success of the programme and point out whether special health education efforts are necessary.

11.3.3 The committee system should be reactivated. Probably, the Apex Committee recommended for the national level could constitute a Task Force exclusively for water quality monitoring. Also, at the national level, an expert institution could be identified to provide professional inputs and effective monitoring similar to the role played by NICD in Guineaworm Eradication. (see Chapter on Sub Missions)

11.3.4 The whole activity needs to be continued as a Plan scheme considering the importance of the quality aspects of rural water supply. The support to laboratories already created should also continue under the Plan. This is to prevent any possibility of the resource crunch in the state Non-Plan sector affecting this vital activity.

11.3.5 The Rajiv Gandhi National Drinking Water Mission should assist voluntary organisations, with extensive field level network and sufficient capacity, in setting up water quality labs, with a one-time grant for hardware and for consumables for one year.

11.3.6 There should be a formal tie-up with the State Pollution Control Boards and their labs could also be used for specified requirements.

11.3.7 It is suggested that schools and professional institutions should be involved in the water quality surveillance network. Testing of certain parameters could be done effectively by them.

11.3.8 Sample testing kits could be given to high schools at the rate of at least one per block. The testing kits could be designed in such a way as to broadly indicate quality problems likely to occur in the locality. Based on the results from these preliminary tests the district lab could undertake detailed analysis.

11.3.9 A multi-tier approach is suggested while setting up water quality labs. It is not possible, nor it is desirable to conduct tests on all parameters at the district level. Therefore, a well-equipped lab at the state level would be needed and linked to the district labs for which central assistance need be provided. In bigger states, an intervening regional establishment could be set up.

11.3.10 Mobile water testing labs could be sanctioned in far-flung districts; for example, trailer type mobile labs could work in several difficult areas. Operational problems should not lead to the scrapping of the scheme altogether; only its sanctioning should be selective and restricted.

11.3.11 A thorough cascading type of training programme needs to be initiated. The Regional Centres, already identified, have a key role to play in making this training programme a success.

11.3.12 The Regional Centre network has to be rehabilitated. A clear MOU has to be formulated and agreed upon with these institutions. A five year perspective plan and annual action plans have to be chalked out and the Regional Centres fully funded by the Central government. The Regional Centres could be used for expert advice, training of personnel and scientific monitoring at the regional level.

11.3.13 An elaborate schedule for IEC on water quality has to be drawn up. Transportable IEC units could be set up in selected areas. Literacy centres, DW CRA groups, Anganwadis and the PHCs could be involved in awareness building. Water Quality Circles may be set up in educational institutions. Selected persons from these groups could be trained and IEC material given to them.

11.3.14 Water quality maps may be prepared for each block in the country using the data collected in the recent survey and they may be fine-tuned progressively.

11.3.15 Using data on bacteriological contamination, areas endemic to this problem have to be identified by the states and a concerted campaign launched, in tandem with the Health, Education and other related departments, with the active participation of the community to highlight the need for hygiene.

11.3.16 A computerised data base has to be built up using NICNET for data storage, retrieval and analysis.

11.3.17 A close monitoring of whole scheme is necessary including half yearly reviews exclusively for this subject.

CHAPTER 12

SUB MISSIONS

12.1.0 INTRODUCTION

12.1.1 Out of five Sub Missions, three relate to tackling of chemical quality problems arising from excess fluoride, excess iron and excess brackishness, one relates to the problem of guineaworm infestation and the remaining one is for water conservation and recharging of groundwater aquifers.

12.2.0 SUB MISSIONS DEALING WITH CHEMICAL QUALITY PROBLEMS

12.2.1 INTRODUCTION

12.2.2 These Sub Missions were mainly technology application experiments. It was sought to remove the quality problems through appropriate treatment methods. Alternative sources or a mix of both are being considered under the Sub Missions only from 1993.

12.2.3 OBSERVATIONS

12.2.4 Defluoridation

12.2.5 For defluoridation, two types of treatment plants have been set up - one attached to the handpump and the other for larger schemes, called the "Fill and Draw" type. The process employed is the same in both kinds of treatment plants, that is, precipitation using alum. During the field visits, it became evident that the handpump-attached defluoridation plants are not working properly (unlike the Fill and Draw type plants which showed satisfactory performance), as the treatment efficiency was not uniform. The NIDC which has set up defluoridation plants on behalf of Government of India has now suggested a modification of the handpump-attached plants which improves the quality of treatment and ensures that the product water contains fluoride levels within permissible limits. But the main reason behind the failure of the handpump-attached plants is not technical or technological.

12.2.6 The Mission also launched a Fluorosis Control Campaign. But due to various problems, this has got off the ground only now. In places where defluoridation plants were set up, there does not seem to have been any awareness-building exercise to make the community realise the dangers of drinking fluoride-affected water and the benefits to be derived from a treatment plant. This has resulted in the community almost rejecting the handpump-attached defluoridation plant. Several states have even reported vandalism of the plants by anti-social elements, which would certainly not have happened, had the community considered it as a useful asset. Since the treatment plants slow down flow of water in the initial stages of pumping, they are treated as a hindrance to the smooth flow of water and often disconnected by the people, which only shows that, in the perception of the community, the dangers of drinking fluoride-contaminated water are seemingly less than the effort required for additional pumping in the

beginning.

12.2.7 Iron Removal

12.2.8 As regards iron removal, the technology is very simple for it involves only proper aeration. Yet, this is another scheme which has floundered for want of active community involvement. Though the principles of treatment are very simple, an effective structure for the treatment which is the most suited in each locality is yet to be finally evolved. Several models like up-flow type and down-flow type with iron or ferrocement or brick storage structures have been experimented in various places. It is reported that their performance in removal of excess iron is quite satisfactory. However, the field visits, reports and discussions with officers indicate that the majority of the iron removal plants are not in working condition, partly due to the structural inadequacies, but mainly due to the absence of people's participation in their O&M. These iron removal plants attached to handpumps were erected on a large scale more as a contractor's job. There was hardly any preparation of the community to receive this innovation. The additional duties of the local people in prolonged initial pumping and fortnightly back-washing were never made clear. Here again, there have been several instances of vandalism; in many instances, the local people have disconnected the conduit to the iron removal plant and re-converted the system into a simple handpump. This failure of the handpump-attached defluoridation and iron removal plants should drive home the point that even a useful and seemingly appropriate technology application is meaningless if the community is not conditioned to receive it through prior consultations and proper extension methods.

12.2.9 Desalination

12.2.10 The desalination plant scheme seems to have been an overall failure. Here the predominant technology used is "reverse osmosis" even though there are a few plants using 'electro-dialysis' to remove additional salt content. Though this technology is a widely accepted one, it is certainly inappropriate to the village situation, both due to its cost and due to its maintenance needs. The Committee could see only two plants in working condition out of the five it visited. During discussions, it was learnt that, a majority of them are either not working or working much below optimum levels. Wherever the plants were working, the people felt happy in getting water much less salty than the earlier source. At the same time, the community is uninformed about the costs involved or the obligations of the O&M contractor with the result that they seemed quite apathetic to long periods of breakdown of the plants. Also they had neither means nor knowledge of measuring the TDS content of the product water. Though there was the contractual obligation to supply water with less than 500 mg/l of TDS, random tests showed it to be higher, even upto 1000 mg/l. The contractor's meter was generally relied on. There seems to have been only occasional verification by the PHED.

12.2.11 An enormous amount of administrative problems exists in this programme. There is much bickering over the O&M dues to the contractor, especially those relating to the period of non-running of the plants. The procedure prescribed for certifying the log-sheets is routine and certainly not foolproof. There has been a virtual absence of quality audit and technical monitoring by any special group, even of the local PHED, and therefore, defects and failures in the O&M by the contractors could not be detected. With hindsight, the dual responsibility for providing water and for treating it has had disastrous consequences, enabling contractors to pass on the blame to the state PHEDs and, to some extent, vice versa. It ought to

have been a turnkey arrangement. The absurdity of the arrangement is seen in the O&M contractor maintaining a generator to run the plant in the event of electricity failure and the PHED pumping from the source depending only on electricity. This dual system has resulted in delays in installation and commissioning.

12.2.12 The cost of running the plants even in their new condition has been high. The three year O&M contract period is over or is ending in most of the cases. The Committee got the impression that the PHEDs would find it extremely difficult to run the plants, as they have not earmarked sufficient funds for the O&M and as the systems are old, there is likely to be more breakdowns and, in another one or two years, the imported membranes may have to be replaced. Also, the PHED engineers need further training to run the plants and execute, or, at least supervise the repairs. The Committee strongly felt that this costly and sophisticated technology ought to have been properly field-tested in the rural milieu before such a large scale programme was taken up.

12.2.13 General Observations

12.2.14 The concept of Sub Missions especially those relating to quality problems is not clearly expounded. It appears that it became confined to technology application experiments. Though stated here and there in the objectives, these Sub Missions did not succeed in identifying the total problem and following a time-bound and cost-effective approach to solving it with a mix of solutions. Even these experiments do not seem to have been conducted, monitored and followed up in a systematic and scientific manner. Though CMERI and NIDC were entrusted with the task of carrying out these important Sub Missions - CMERI for Desalination and NIDC for Defluoridation and Iron Removal - they seem to have played a mere intermediary role rather than a professional nodal role. Both the institutions were bogged down in the nitty-gritty of finalising the targets, choosing vendors, preparing and paying bills and so on. These day-to-day trivia have deflected the institutions from their primary task of monitoring, scientific assessment and technology development. For example, there are several designs of iron removal plants, but proper designs for specific problem areas are yet to be finalised. In general, there is not much to be said in areas like design improvement, simplification of O&M and cost reduction. This is particularly true of desalination.

12.2.15 It is doubtful whether the choice of CMERI and NIDC for the tasks entrusted to them was appropriate. May be they had general managerial capacity in project implementation of a scientific and technical nature, but they never had inherent expertise and experience to carry out the tasks related to water quality and water treatment, and that too in the rural environment.

12.2.16 The role of the state government in the Sub Missions was distant and marginal as the important tasks were entrusted to the nodal institutions. The state governments appear to have receded into the background more as recipients than as implementers. This has affected proper and timely site selection as well as O&M.

12.2.17 Training of staff to maintain the facilities created has not been done in a planned manner. Though iron removal and defluoridation plants do not pose much of a problem to a trained engineer, the desalination plants require a special kind of training. Wherever training has been given it has been more

at the lower levels than at the supervisory levels. This is bound to have an adverse affect on the O&M as expertise to approve and supervise maintenance is likely to be limited.

12.2.18 As mentioned earlier, the quality of product water is not being tested in a systematic way, even in the case of desalination plants, where O&M charges are linked to the quality of product water. Also, disposal of effluents has not been planned for at all. At present the convenient method of dumping the waste water in locations, where there is no local objection and which are at a seemingly safe distance, is resorted to. Nowhere has any study been done on probable infiltration routes or groundwater movements and the possibility of re-entry into the acquifer. In the case of excess iron and brackishness, it would lead to wastage of resources if they re-enter the acquifer. But in the case of fluoride, it has dangerous dimensions.

12.2.19 While setting up treatment plants, nowhere was any comparative cost analysis made of the various options, so as to decide on the least cost solution or a mix of solutions. It has to be noted that in some places alternative sources could be cheaper in the longer run; in some places a combination of alternative sources and treatment plants would be better; in other places rain water harvesting could be combined with these. In the case of excess brackishness, mixing of treated water with water from handpumps or power pumps could be tried to reduce salinity to acceptable levels. Site-specific investigation, design and erection of plants have not been emphasised.

12.2.20 It was noted by the Committee that barring a few rare exceptions, that too mostly in the case of iron removal plants, the various treatment techniques have not been adopted by state governments for their ARWSP and MNP schemes. This reinforces the point that replicability has not been achieved.

12.2.21 RECOMMENDATIONS

12.2.22 A thorough techno-economic evaluation of the Sub Missions on Desalination, Defluoridation and Iron Removal has to be made by an independent committee as the present study has been mostly on the functional and managerial aspects.

12.2.23 It is seen that the setting up of Defluoridation, Iron Removal and Desalination plants has been dragging on for a long time. Therefore, for the approved project a clear time-bound state-wise plan of action has to be prepared for:

- (i) Installation of plants for which orders have been placed and fabrication work has been started by the vendor. If no fabrication work has been started and the plant is not required, the supply order may be cancelled.
- (ii) Completing installation work for those plants where partial erection has been done or where the plants has been received after fabrication.
- (iii) Commissioning all the installed plants.
- (iv) Repairing all the non-running plants.

- (v) Those plants which are beyond repair may be identified and inspected by a technical team and then abandoned and removed as scrap. This is essential as letting 'failures' stand as they are, sends wrong messages to the community making them cynical and suspicious of innovation. Probably as a special case, the whole operation could be funded by Government of India.

12.2.24 If Desalination plants are to be taken up in future, the work should be entrusted as a total package, from source identification to commissioning, in a turnkey manner.

12.2.25 The role of Government of India in Sub Missions should be akin to that it played in the development of the handpump - i.e., technology experimentation and development, action-research, dissemination of results, standardisation of equipments and spare parts and quality control. The basic task of tackling quality problems should be left to the states, after laying down clear policy priorities.

12.2.26 The results of Part II of the recent Survey dealing with water quality problems may be analysed and the total problem identified and a time-bound project prepared for each state. The tackling of quality problems should follow the package approach consisting of an appropriate mix of solutions like alternative sources, treatment plants and rain water harvesting with a strong software component for training, awareness building in the community and people's participation.

12.2.27 Rain water harvesting is a must in severe quality problem areas where alternative sources are costly to tap. Wherever feasible, mixing can be tried to achieve satisfactory water quality.

12.2.28 States may be supported to develop suitable models in the case of Defluoridation and Iron Removal plants.

12.2.29 The Apex Committee could identify nodal agencies for technology development, having proven experience and expertise in the area.

12.2.30 In the case of fluoride and arsenic affected villages, the mode followed for Guinea worm Eradication is suggested i.e., a single agency coordinating various departments and agencies on behalf of Government of India, guiding implementation, monitoring progress, evaluating results and taking follow-up action.

12.3.0 SUB MISSION ON GUINEAWORM ERADICATION

12.3.1 INTRODUCTION

12.3.2 The national programme on Guinea worm Eradication, which was conceived in 1979 and sanctioned in 1982 with WHO support, is being implemented, with the NICD having the nodal responsibility of planning, guiding, monitoring and evaluating. The Public Health Engineering component of the programme got a fillip with the introduction of the Sub Mission on Guinea worm Eradication. This Sub-Mission presents an example of a well-integrated and smoothly-functioning programme. The key components of the programme are;

- Active case search thrice a year led by the Health Department
- Management of patients in Primary Health Centres
- Provision of drinking water supply including conversion of step wells into sanitary wells
- Chemical treatment of unsafe sources with Temephos
- Health education and awareness building in the community
- Training of the personnel involved

12.3.3 The whole programme is backed up by bi-annual reviews, elaborate monitoring of important indicators against set targets, concurrent and independent evaluations, epidemiological surveys and the professional nodal work of NICD.

OBSERVATIONS

12.3.4 The Committee did not visit areas having hard-core guineaworm problems. However, it had detailed discussions with field level officers during the visit to Rajasthan and also went through the important documents related to this Sub Mission. On the whole, the programme has gone ahead in a very systematic manner and may be counted as a success story. The most impressive aspect of the scheme is the integration of the working of various departments at the field level - Health, PHED, Rural Development, Social Welfare, etc. There is absolute role clarity and each department knows what exactly it has to do. The whole programme is well-orchestrated by NICD (Annexure 12). There has been a very visible IEC component. Almost all the students and teachers of the 20 worst affected districts have been given basic training. The awareness in the community about the disease and its prevention has increased tremendously.

12.3.5 RECOMMENDATIONS

12.3.6 The key factors that led to the success of this Sub Mission which are absent in other Sub Missions and Mini Missions and which need to be adopted in future are listed below.

- (i) The professional role of the nodal agency - unlike other nodal agencies which seem to have been overwhelmed by routine problems, NICD has focussed its priorities right and pursued them systematically.
- (ii) Clearly identified goals and targets for each definite component of the programme and for the operation as a whole.
- (iii) Excellent field-level integration of participating departments who knew what they had to do.
- (iv) Appropriate technology interventions.
- (v) Excellent IEC.
- (vi) Elaborate reporting system which was compiled and analysed for policy decisions.

- (vii) Concurrent evaluations and independent studies which helped provide mid-course correction of strategies.

12.4.0 SUB MISSION ON CONSERVATION OF WATER AND RECHARGING OF GROUNDWATER AQUIFERS

12.4.1 INTRODUCTION

12.4.2 This Sub Mission has two components - one related to scientific source finding and the other related to augmentation and conservation.

12.4.3 OBSERVATIONS

12.4.4 As regards the first component it has achieved beneficial results which have been described elsewhere in the report. As regards augmentation and conservation, water harvesting structures have been taken up in several areas. There has been an attempt to standardise them and even draft BIS standards are ready. However, it has not been possible to integrate them with the general rural water supply system. The field visits showed that they were mostly taken up in isolation.

12.4.5 RECOMMENDATIONS

12.4.6 This Sub Mission should be renamed Sub Mission on Sustainability and given special importance for effective integration into the rural water supply programmes (also see chapter on Sustainability).

12.4.7 Water harvesting structures both traditional and modern have to be inventorised and disseminated widely.

12.4.8 Accepted designs could be sent to Zilla Parishads and Panchayat Samitis and Panchayats for adoption. These have to be integrated with the existing water supply systems for which clear guidelines have to be issued.

CHAPTER 13

RESEARCH & DEVELOPMENT AND SCIENCE & TECHNOLOGY APPLICATIONS

13.1.1 INTRODUCTION

13.1.2 The Mission envisaged the use of the best technology available for rural water supply. Also, it aimed at identifying an appropriate technology mix for economy in investment and ease of operation and maintenance. This included adoption and adaptation of traditional technologies and their standardisation and upgradation wherever required. The obvious corollary of this policy was an active R&D programme. This was sought to be achieved through an extensive networking of agencies in the form of Technology Advisory Groups. The Cabinet had earmarked 5% of ARWSP funds for R&D as early as in 1987. For want of an effective implementation mechanism, this important decision could not be translated into practice.

13.2.0 OBSERVATIONS

13.2.1 Most of the R&D projects are seen to have been sanctioned through CSIR (Annexure 13). Similarly S&T inputs were also to be mostly through CSIR and its affiliated institutions. It is relevant to note that almost all the projects were sanctioned in the initial years of the Mission. Thereafter, a sharp scaling down of R&D activities is noticeable. Even though the projects were taken up with the consent or at the instance of the Mission, its role in directing them and following them up seems to have been marginal. This was left to CSIR as its sole responsibility, and there seems to have been no effective and continuous link between RGNDWM and CSIR. The excellent network of institutions under CSIR could be used for R&D, but by its very nature of functioning, CSIR can not be expected to enlarge the scope of the results of a project or disseminate them widely. This should be done by the RGNDWM.

13.2.2 It was revealed that the Mission did not have a clear cut procedure for deciding on S&T and R&D priorities, sanctioning projects, monitoring them and following up on results. The TAGs, which could have done these things, faded away too soon. So interesting projects like economy taps, shallow-well handpumps using plastic materials, ED based desalination plants, etc., could not be taken into the next phase of extended field trials.

13.2.3 Among the S&T inputs, scientific source-finding, using technical data from diverse sources by integrating them into a meaningful pattern and interpreting them using a pool of expertise, was a commendable success. States have reported significant improvement in the success rate of drilling using this improved methodology. Though many states are yet to finally adopt the system of source-finding committees for other RWS schemes, its basic tenets have been widely accepted and internalised.

13.2.4 Among the traditional technologies, the Mission pioneered the use of water harvesting, especially roof water harvesting, as a viable option in scarcity areas. An inventory of traditional systems has been made and efforts are on to standardise them. Even draft BIS standards are ready. However, so far, the

states have not accepted this as a regular feature of their water supply programmes. It would require some initiative from the Mission to get them accepted by the states.

13.3.0 RECOMMENDATIONS

13.3.1 The Rajiv Gandhi National Drinking Water Mission should play the central coordinating role in promoting S&T inputs and R&D activities in the sector, in association with related agencies and institutions, akin to the role played by CPHEEO in the development of handpump. The Apex Committee, suggested earlier to advise the Mission, should constitute a Task Force to determine research priorities and S&T application needs, recommend projects and review the implementation results. This Task Force should have subject matter specialists to vet the projects.

13.3.2 Projects in applied research, normally undertaken by professional institutions as part of their Post Graduate and Doctorate degree programme, could be encouraged to be taken up in the WATSAN sector. If the Mission undertakes to make data freely available to benefit institutions, and assures the cooperation of the State Water Supply departments, a good response could be expected. Also wherever required, supplementary funding can be provided.

13.3.3 It is seen that State PHEDs have amongst its staff sufficient talent to identify pressing problems and evolve solutions by taking up action research projects. It is necessary to encourage such departmental research activities. Some states like Tamilnadu, Gujarat and Andhra Pradesh have attempted to create R&D cells, but they are not taking up projects for want of support. R&D cells in the state PHEDs should be supported and projects sponsored by state governments given special priority and fully funded by Government of India.

13.3.4 The Task Force for R&D and S&T applications could also recommend KAP studies, baseline studies, studies to determine optimality of efforts, etc. These concurrent studies would prove useful in making mid-course corrections in policy.

13.3.5 As regards traditional systems and technologies, they have to be made part of RWS in order to facilitate their regular use. It is recommended that at least 5% of the Government of India provision for RWS should be set apart for adoption and adaptation of appropriate traditional systems and technologies giving priority to scarcity villages. This should be matched by an equal MNP provision from the states. Diversion from this allocation to other schemes should not be permitted.

13.3.6 In order to ensure adequacy of resources for R&D, it is suggested that 2% of Government of India's investment in RWS should be earmarked as a non-divertable corpus for R&D. This could be scaled up to 5%, once the R&D programme really gets going.

13.3.7 In view of the importance of O&M in sustaining rural water supply systems and safeguarding the enormous infrastructure and assets created, R&D support should be provided for novel O & M methodologies at the field level.

CHAPTER 14

HUMAN RESOURCE DEVELOPMENT (HRD)

14.1.0 INTRODUCTION

14.1.1 The Technology Mission on Drinking Water purported to introduce a holistic approach in providing water supply, implying a qualitative difference from the earlier practice. This called for a re-orientation of professionals in the sector. With the separate approach to rural water supply brought about by the transfer of the subject to the Rural Development Department, a rural bias in technology adoption, adaptation and application was called for. This again entailed training of the personnel involved.

14.1.2 One of the basic objectives of the Technology Mission was to evolve a cost effective mix of technologies appropriate to the local needs of rural communities. This involved a kind of 'domestication' of technologies hitherto not familiar in rural areas like desalination, defluoridation, water treatment, etc. Operation and maintenance of facilities using these technologies required special training.

14.1.3 As the Mission envisaged community participation, awareness building in the community and upgradation of local level skills for O & M also became a HRD activity.

14.2.0 OBSERVATIONS

14.2.1 Though a comprehensive HRD was planned, only ad-hoc efforts are seen in the field, scattered in bits and pieces all over. The initial orientation of PHED personnel to the Mission approach was limited to a few discussions with the Central Government officials and supply of printed material. Even in the case of new treatment technology applications, formal training was much delayed, especially in the case of desalination. It appears that most of the PHEDs have started feeling the need for trained personnel only after the management of the desalination plants was transferred to them after the three-year O&M done by private agencies.

14.2.2 As regards re-orientation of the community, only stray efforts are evident. Systematic health education was done only under the Sub Mission for Eradication of Guineaworm.

14.2.3 The Indian Training Network (ITN) was an important step in the right direction. It sought to bring together the training expertise of certain top-notch institutions, with the idea of introducing a cascading type of training programme, in which a core group of master trainers in identified areas would train a set of trainers, who would then in turn train the implementing officers and even lay public. The ITN programme has had only a nominal presence. But it is heartening to note the recent initiatives to revitalise this programme for which a HRD policy has been drawn up (Annexure 11).

14.3.0 RECOMMENDATIONS

14.3.1 Though it may be possible to refine the recently approved HRD policy further, it is felt that further delay should not happen. The implementation of the policy may start straight-away. Modifications, if required, can be made en course.

14.3.2 Considering the administrative realities, it is felt that it is better to earmark a fixed percentage of the Central plan assistance in water supply and sanitation (about 1 to 2%) for HRD and seek specific schemes. This has a better chance of getting a positive response from the states. Once the programme strikes root and a pattern emerges, it can be decentralised to the states.

14.3.3 It is more economical to conduct training programmes in established institutions. Already, there are seven national level institutes as part of the Indian Training Network. A few more institutions could be added to this network. Since these institutions cater to a national clientele, they should be sufficiently strengthened by providing funds for:

- (a) Hostel facilities, provided the institution is able to devote at least 120-150 days a year for training activities related to the water supply sector.
- (b) Additional classroom facilities.
- (c) Equipping laboratory dedicated to rural water supply.
- (d) Teaching aids, books and equipment.
- (e) Faculty exclusively for training in rural water supply.
- (f) Training material preparation.

14.3.4 Similar support could be given to engineering colleges, polytechnics and SIRDs, at the state level, instead of creating independent training institutes.

14.3.5 It is essential to have a full-time coordinator for HRD at the level of the Mission, assisted by a Cell. In the initial stages, the cell may take lead in the training needs assessment, preparation of training material, etc.

14.3.6 A cascading type of training programme can be followed. A proper training needs assessment has to be made, as has been done in Andhra Pradesh, Kerala, Uttar Pradesh and Gujarat. The methodology adopted by these states may be analysed and suggested to other states for replication.

14.3.7 The HRD Cell at the Mission headquarters should initiate action to prepare distance education modules in selected topics relevant to rural water supply.

14.3.8 Support should be provided for induction training for the new entrants.

14.3.9 Currently, post-graduate PHE courses are mostly hi-tech and have an urban bias. Government of India should support Postgraduate degree/diploma courses in rural water supply and sanitation for serving engineers in selected institutions, with a practical orientation to the rural setting. Attempts should be made to incorporate salient elements of rural water supply in Public Health Engineering courses at various levels, wherever such gaps are noticed.

CHAPTER 15

MONITORING AND EVALUATION

15.1.0 INTRODUCTION

15.1.1 The Mini Missions and Sub Missions were presented as a projectised approach for solving water supply problems in a time-bound manner. This called for close monitoring and evaluation. This was made very clear in the project document on Mini Missions as well as the printed documents brought out by the Mission on the Sub Missions. Clearly identified milestones were listed, against which progress was to be monitored. Monitoring of ARWSP was also made more elaborate.

15.1.2 The Mini Missions and Sub Missions were essentially experiments taken up in diverse situations to evolve models for later-day replication throughout the country. Identification of models involves not only close monitoring but also evaluation studies both concurrent and post-facto. Close monitoring and concurrent evaluation are required to make mid-course corrections in the experimental phase.

15.1.3 The Sub Missions were attempts to evolve appropriate technological solutions to water quality problems. New technologies were tried out on a large scale in rural situations with the idea of evolving a cost effective mix. This implied that close techno-economic monitoring had to be there for technology modification, improvement and replication.

15.1.4 It will not be wrong to say that the most important role of RGNDWM would be detailed and scientific monitoring and evaluation of RWS so that it is aware of the failures and successes of the programme to enable it to take corrective measures.

15.2.0 OBSERVATIONS

15.2.1 In spite of the stress on monitoring and evaluation, only the conventional method of monitoring was followed, concentrating on the physical and financial targets. Of course, they were sub-divided activity-wise. But further details regarding location, technology, cost effectiveness and timeliness were not monitored.

15.2.2 At the district and state levels, the committee system of monitoring was also evolved. Though the district committees met quite often in the first 3-4 years, the state committees hardly seem to have played any significance role.

15.2.3 In order to promote better monitoring, the Government of India supports a monitoring cell at the State PHEDs and, in several states, an officer of the rank of Superintending Engineer has been posted exclusively for monitoring. Though this has facilitated better flow of available information and a better liaison with the Government of India, the quality of monitoring does not seem to have improved. Records of the RGNDWM show that even conventional reports are, more often than not, much delayed in their submission.

15.2.4 The NIDC and CMERI were entrusted with the task of coordinating the Sub Missions. Here, there was a slightly more advanced form of monitoring. More details were given and constraints were identified in their reports. But there was no procedure for follow up on important action points. It is also to be noted that, since they were technical institutions, the monitoring expected from them was not merely of a managerial kind but also of a scientific and technical nature. This does not appear to have been fully done.

15.2.5 But for one study in the beginning, no attempt at concurrent evaluation was made. This is surprising since other divisions of the Ministry dealing with JRY, IRDP, etc., are known to conduct regular concurrent evaluations. Similarly, no post-facto evaluation has been made.

15.2.6 There were attempts at computerisation of data flow and data analysis. NIDC was appointed as consultant for evolving the necessary software. Though some software was prepared, it was never put to use.

15.2.7 In spite of the fact that the Mission aimed at promoting cost effectiveness, no monitoring of costs was done. This is all the more essential since the delegated powers to the states are based on per capita cost ceilings.

15.2.8 Even where reports are received, the mechanism at the level of the RGNDWM to compile, analyse and prepare necessary feed back for policy makers and follow up the decisions, is quite weak. Absence of an exclusive monitoring group other than the conventional statistics cell at the Mission has resulted in only routine monitoring and even the data received are not being fully used.

15.2.9 Two important successes deserve to be mentioned - one relating to handpumps and the other relating to the Sub Mission on Guineaworm Eradication. The first one started long ago and is the combined effort of Government of India and Unicef through a scientific and technical monitoring of handpumps. This has resulted in a lot of improvements and has thrown up several policy options, especially in their O&M. Similarly the NICD held half-yearly reviews on Guineaworm Eradication very promptly, after elaborate field surveys by the Health Departments of the states. The tasks of participating departments and agencies and the time limits were clearly defined and achievements were evaluated against pre-determined indicators. This systematic approach has contributed in no small measure to achieving the objectives of this Sub Mission.

15.3.0 RECOMMENDATIONS

15.3.1 For appropriate monitoring and evaluation, an exclusive cell has to be created at the Mission headquarters, as well as at the state government level, with the specific mandate to critically analyse the data and provide information for mid-course corrections.

15.3.2 Review and Support missions, which are a feature of some externally assisted projects, have been quite successful. They facilitate detailed critical appraisal of the implementation process from first hand experience gained by field visits. The Rajiv Gandhi National Drinking Water Mission also should send such field missions, consisting of experts drawn from within its fold as well as from outside, to the states at periodical intervals to assess the field level performance and problems and suggest suitable remedial

action. There should be a monitoring mechanism at the Mission headquarters which could ensure that the recommendations are implemented by the state governments. If the fund releases are linked to the carrying out of the recommendations, it will help achieve improvements in the quality of field level implementation.

15.3.3 Specialised monitoring is required for certain important aspects of rural water supply like water quality surveillance, tackling of quality problems, technology development, cost analysis, etc., which could be entrusted to institutions with a clear MOU. In this connection, the role played by NICD in guineaworm eradication lends itself as a model.

15.3.4 As in the case of IRDP, JRY etc., a panel of institutions may be prepared and assigned the task of specific concurrent evaluation studies as decided by the Apex Committee.

15.3.5 The states should be encouraged to conduct their own evaluation studies and guidelines have to be issued for this purpose. These evaluation studies may be funded by the Government of India.

15.3.6 Non official, multi-disciplinary professional groups could be entrusted with the task of performing social audit. (also see chapter on Community Participation)

15.3.7 Computerised data collection, compilation and interpretation is essential to cope with the wide ranging monitoring functions required at the Mission headquarters for which the NIC could provide necessary support. Systematic studies of data flow from the cutting edge levels may be made for representative states, and a mutually agreed reporting system prepared by the states and Government of India, adopting the same formats for the state and central government data requirements. If additional information is required at a particular level, separate modules could be added on.

15.3.8 The wealth of data thus generated may be made easily available to institutions like IITs, Engineering Colleges, IIMs, University departments, to be used for academic programmes and for scientific analysis and interpretation.

SECTION D

THE PROGRAMMES

CHAPTER 16

THE PROGRAMMES

16.1.1 The Mini Missions and Sub Missions were strategic experiments to evolve suitable models in a short time of two years, to tackle the problem of providing sustainable water supply to the whole of India, at an affordable cost. Since the objective of providing drinking water sources in almost all villages in the country has been more or less achieved, Mini Missions and Sub Missions in their present form have become irrelevant.

16.1.2 However, with the impressive physical coverage well-achieved, there would be a natural shift of emphasis to the sustainability of the sources and assets created. Therefore, in future, the software aspects would assume importance. As made clear earlier, in spite of the Mini Mission and Sub Missions not being able to achieve their objectives, the lessons gained from these experiments buttress the relevance of the original concept. However, there is no need for further experimentation. But, the time is not yet ripe for large scale replication. Therefore, it is suggested that in the case of Mini Missions a second phase could be initiated. This is more of a consolidation phase where the earlier inadequacies could be overcome and the foundation laid for future large scale application. Though total replication is not yet possible, several valuable lessons which have been learnt in the experimental phase could be incorporated in the ARWSP also and the states persuaded to accept them in the MNP.

16.2.0 PHASE II MINI MISSIONS

16.2.1 Phase II Mini Missions may be taken up in selected areas conforming to natural watersheds, preferably within the jurisdiction of a block. These projects may be chosen in such a way as to be representative of typical hydrogeological and socio-economic zones. While selecting project areas from a shelf of proposals to be collected from the states, weightage may be given to unserved population and socio-economic indicators. Projects may be distributed in such a way as to cover desert areas, quality problem areas of excess iron, excess brackishness, excess fluoride, excess arsenic and industrial pollution, 'dark' block areas (in alluvial areas, consolidated sedimentary areas, granitic areas and basaltic areas), hilly areas, coastal areas, wetland areas, tribal areas and environmentally degraded areas.

16.2.2 Expert agencies or groups may be assigned the task of preparation of projects which should include, inter-alia, the following aspects essentially.

- (a) Time-schedule of activities (for two years)
- (b) Committed flow of funds and services from related departments and agencies. Earmarking should be done by the Planning Commission and it has to be reiterated by the state finance, planning and the participating departments. The role of each level of department personnel has to be clearly stated right from the head of the department to the field level workers. Wherever possible, measurable indicators of integration should be made.

- (c) Community involvement right from the beginning, with definite roles for NGOs and school and college students.
- (d) IEC.
- (e) HRD for the staff and the community.
- (f) Action research in selected areas
- (g) Tie-up with local professional institutions
- (h) Micro-level planning, especially participatory water resource mapping and preparation of consensus water budget with required recharging measures (this could be on the lines of the participatory project being implemented by BGVS with UNICEF support in selected blocks)
- (i) Total sanitation
- (j) Full utilisation of traditional systems including adaptation wherever required.
- (k) Evolution of an acceptable O&M model
- (l) 10% community contribution for the project cost and 50% for O&M cost (except in tribal areas).
- (m) Computerised monitoring and concurrent evaluation.
- (n) Social audit.

16.2.3 The Apex Committee, recommended for the mission as a whole, could prepare project guidelines and constitute a Task Force for vetting projects, arranging field missions twice a year and following up their recommendations. It could help in general monitoring of all the projects and in finalising the guidelines for future replication.

16.2.4 75% of the total project cost (other than community contribution) may be met by the Government of India

16.3.0 MODIFICATION IN SUB MISSIONS

16.3.1 Except in the case of the Sub Mission on Water Harvesting, the other Sub Missions could be transferred to the state governments (except technology development) as a priority item under ARWSP. Water quality problems like excess fluoride and excess arsenic will perforce have to get the first priority under ARWSP. As regards other problems like excess iron, excess brackishness, excess nitrate, etc., the states may give the next priority depending on the local situation. But the Sub Missions have to follow a

time bound projectised approach. Based on the Survey done recently, the total problem has to be quantified by the state governments, to be tackled by an appropriate mix of solutions which could consist of alternative sources, water harvesting and treatment methods in a locally suitable and cost-effective mix. The Apex committee should identify professional agencies to play a nodal role in facilitating close monitoring and evaluation. There should be a clear community participation element in these Sub Mission activities and this part of it could be funded by Government of India.

16.3.2 Government of India should confine itself to technology development by suitable action research projects. In this respect, the Government of India could play the role which it played earlier in the development of the handpump.

16.3.3 Chemical and biological pollution of water supply sources would be a problem of the immediate future. In order to get advance warning signals, the quality of groundwater needs to be specially monitored as also surface sources used specifically for drinking water supply. The pollution control laws provide for fining and closure of units. But they need to be amended for allowing recovery of full damage for the pollution caused to a drinking water source, including cost of provision of an alternative water supply scheme.

16.3.4 The Sub Mission on Water Harvesting could be renamed as Sub Mission on Sustainability and its scope extended and funding increased. 75% of the cost could be met by Government of India and the allocation raised substantially. Its activities may be concentrated in the 'dark' blocks and quality problem areas. It is better to have area-based projects which are more like action-research projects. Close monitoring of the effects of recharge measures has to be done.

16.4.0 MODIFICATIONS IN ARWSP

16.4.1 The ARWSP is the major programme of Government of India in rural water supply. This important scheme is governed by guidelines issued way back in 1986. At that time the priority was on rapid expansion of coverage of water supply with the aim of providing safe water sources in every village. And naturally the guidelines reflect this priority. However, it is made clear in the guidelines that the lessons of the Mission experiments would be adopted in ARWSP.

16.4.2 As mentioned earlier, though the Mini Mission experiment did not succeed to the expected degree, several important lessons could be drawn from both its failures and successes. Some of them need to be incorporated in the ARWSP guidelines, especially those which are of immediate relevance in the changed context, where the stress would be more on the sustainability aspects. The specific recommendations of the Committee on the changes to be brought about in the ARWSP are given below.

16.4.3 Funding Pattern

16.4.3.1 Not less than 5% of the ARWSP funds should be earmarked for traditional systems. This is of vital importance from the point of view of sustainability as well as from the point of view of community involvement. These systems have gone through the process of evolution and are quite adapted to the local situation. Moreover, they meet the non-drinking needs of the community and eke out the supply from the

handpump. Now with the switching over to handpumps, these sources have been neglected with the result that they have become un-hygienic. But when the handpump is under repair, people resort to the neglected sources which is quite harmful. Hence this recommendation.

16.4.3.2 At least 2% of the funds should be earmarked for R&D. This can be scaled up to 5% by the end of the plan, if the results are commensurate with the expenditure.

16.4.3.3 A minimum of 1% of the ARWSP funds should be distributed to the districts and blocks for IEC activities.

16.4.3.4 Just as there is a formula for devolution of funds to the states, there should be a formula based on uncovered population and general socio-economic backwardness for allocation of funds to the districts from the state and from the district to the block. Within a block, priorities for spending would have to be clearly spelt out.

16.4.3.5 The O&M allotment for states should also be distributed based on a formula to the districts and blocks, taking into account the assets in position as revealed by the recent Survey.

16.4.3.6 Fluoride and Arsenic control should be the first charge on ARWSP funds. The second charge should be other quality problems which can be decided by the state governments. The 'N' category habitations could be given the next priority after sub-categorising them based on population and distance from the nearest available source.

16.4.3.7 As far as practicable, the powers of sanction of individual schemes may be delegated to the state governments. However, field missions may be sent, once a year to the smaller states and twice a year to the bigger states, consisting of officers both from the mission and from outside. The report of the field missions should be given due weightage and even the release of funds could be tied to the carrying out of the recommendations of these missions by the states.

16.4.4 Monitoring and Evaluation

16.4.4.1 In addition to the field missions, there should be concurrent evaluations by reputed institutions. This could be coordinated by the Apex Committee. The regular monitoring should be through NICNET. Reporting formats could be designed in such a way that right from the field level, information could flow up the network.

16.4.4.2 The crucial indicator to be monitored is not the number of villages but the number and type of systems created, the number of standposts and the population covered. District-wise monitoring has to be done at least once in a quarter.

16.4.4.3 Social audit should be mandatory.

16.4.5 General Aspects

SECTION E

ANNEXURES

16.4.5.1 The coverage norms may be liberalised in phases, with the strict condition that the next phase would be taken only after the entire state reaches a particular level. The supply norm of 40 lpcd may be retained for the moment. The distance norm could be reduced in phases to 1 km and 0.5 km. Similarly the number of persons per handpump could be reduced to 150 in the next phase. In places where there is abundant water, and where the community is willing to meet the total cost of additional facilities including their maintenance, they may be provided.

16.4.5.2 At present 25% is earmarked for Scheduled Castes and 10% for Scheduled Tribes. This may be continued. However, a change is suggested in the implementation. The state governments may be asked to list out the SC/ST habitations separately and their coverage should be monitored as a distinct component of the programme.

16.4.5.3 Scientific source finding should be made compulsory. Similarly ground water has to be monitored both for source depletion and quality deterioration. Taking cue from CGWB, the state governments have to select observation wells in representative areas known for groundwater depletion and quality problems.

16.4.5.4 An assured flow of funds and services from related departments has to be arranged. This can be done only with the intervention of Government of India, especially the concerned Ministries and the Planning Commission. This should be reiterated and finalised by the State Planning, Finance and participating departments. In the first instance, it is suggested that funds under the control of Rural Development like JRY, DDP/DPAP, CRSP and Waste Land Development programme, etc., should be used for water supply concerns. Other departments which could actively participate are those dealing with Health, Education, Social Welfare, Minor Irrigation, Soil Conservation and Social Forestry. Each state may be asked to identify the role of each level of personnel of various departments right from the lowest level and develop indicators of integration. An annual report may be obtained by Government of India on this.

16.4.5.5 50% of the O&M cost should be generated by the community by way of cash, kind or labour, as also 10% of the capital cost. While calculating these contributions they should be reckoned for the state as a whole.

16.4.5.6 Consensus water budgets should be prepared for each micro water-shed in the 'grey' and 'dark' blocks in such a manner that in five years all such blocks would have them.

LIST OF ANNEXURES

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- 2.1 Mini Missions Objectives and Strategies
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- 3.2 Sub Missions achievements
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9. Role envisaged for voluntary agencies in the Mission activities
10. Note on the success achieved in the RK Mission Project in Midnapore and SWACH project in Rajasthan
11. Performance of selected water quality labs at the district level
12. Role of NICD as a nodal organisation in guineaworm eradication
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No. W-11021/9/93-TM II
Government of India
Ministry of Rural Development
Rajiv Gandhi National Drinking Water Mission

9th Floor, Paryavaran
Bhawan, CGO Complex,
New Delhi - 110003.

April 30, 1993.

ORDER

Subject: **A Reconnaissance Study Report on the functioning of the Rajiv Gandhi National Drinking Water Mission (RGNDWM) Programme.**

Keeping in view the fact that the Centrally sponsored Rural Water Supply Programme has been in operation for a long time, the 8th Plan document emphasised the need for an in-depth evaluation of the programme in order to identify changes if any, required in the concept, the content or the manner of implementation of the programme including Mini Mission and Sub Mission projects.

During the Annual Plan (1993-94) discussions as well as at the meeting of the Expenditure Finance Committee on RGNDWM held on 2nd March, 1993, it was decided that a reconnaissance study report by a group of Experts will be necessary. It was also decided that the findings and conclusions of the study by the group of Experts could be incorporated in restructuring the content of the Rural Water Supply programme particularly the Mini Missions and Sub Missions initiated under the Technology Mission on Drinking Water in villages launched in August, 1986.

In pursuance of the above decision, it has now been decided to constitute a Team of Experts.

COMPOSITION:

The Expert Group would consist of the following members:

1. Dr. B.B. Sundaresan
Chairman
(Former Director, NEERI & Former V.C. of Madras University)

2. Shri G.S. Raghavendra
Member (Retd. Engineer-in-Chief, M.P.)
(Substituted with Shri R Kondala Rao, Engineer in Chief, Panchayati Raj Engineering Department, Government of Andhra Pradesh, as Shri Raghavendra was indisposed).
3. Dr. K.R. Karanth
Member
(Former Director of CGWB)
4. Dr. Sekhar Singh
Member
IIPA
5. Dr. Chakravorthy
Member
Ramakrishna Mission
Bellur, Calcutta.
6. Shri S.M. Vijayanand
Member-Secretary
Dy. Secretary, RGNDWM

TERMS OF REFERENCE

The Expert Group's main responsibility will be:

- (i) To submit a reconnaissance study report based on interviews and discussions, field visits and data collected directly and through secondary sources covering the Mini Missions in atleast 4 major states and 2 other purposely selected states.
- (ii) Detailed Technical, Financial and Organisational evaluation of the Mini Mission programme with recommendations for its restructuring and additional coverage, if any. The group's work could be supported by field studies on selected aspects as emerging from the reconnaissance study to be carried out by independent organisations having adequate field net-work. The specific subjects to be covered by the Expert Group are:
 - (a) Reasons for re-emergence of 'No-source category villages'
 - (b) Sustainability of water supply systems with reference to
 - (i) Technical
 - (ii) Financial
 - (iii) Organisational, and
 - (iv) Environmental aspects.
 - (c) Extent of integration of drinking water supply component with other related components
 - (d) Success in evolving an appropriate technology mix and changes required for improved performance

- (e) The impact of Sub Missions and their acceptability by the people and the technical and financial viability and strategies for the future of the Sub Mission programme.
- (f) Adequacy of present arrangements for operation and maintenance of the assets created for the Rural Water Supply.

BUDGET

The honorarium for the non-official members of this team would be regulated as per existing Rules of Govt. of India. The budgetary requirements for travel, field studies, secretariat support, etc. would be provided by the TM Division. The Traveling Allowance of the members of the Expert Group who are not Govt. servants would be governed by the provisions of S R 190 as amended from time to time.

DURATION

Since the results of the study are going to be used in restructuring the activities of the Rajiv Gandhi National Drinking Water Mission, it is desirable that the study is completed as early as possible. It is expected that the team would be able to complete the study within four months from the date of commencement of the study.

-sd-

(P K SIVANANDAN)
JOINT SECRETARY & MISSION DIRECTOR

MINI MISSIONS - OBJECTIVES & STRATEGIES

Objectives

The Mission will aim at the following in the project area:

- (i) In the selected areas sources will be identified where none have been identified so far.
- (ii) Appropriate technologies will be utilised to ensure that the identified water source is made available to the population, using in particular traditional means for such exploitation.
- (iii) The quality of water will be monitored; and problems will be identified and dealt with by the application of science and technology to ensure that the water available is of acceptable quality.
- (iv) Steps will be taken to ensure that the quantity and quality of water is sustained on a long term basis by the application of methods to ensure ecological stability.
- (v) Surveys of various kinds for identification of water sources.
- (vi) Adoption and improvement of both conventional and non-conventional methodologies for the reduction of cost and dependence on external inputs.
- (vii) Prevention of pollution.
- (viii) Educating the public in conservation of the quantity and quality of water.
- (ix) Training of both governmental and non-governmental personnel, particularly women, in the various aspects relating to the sustained management of the water supply system.

Criteria for identification of problem villages

The following criteria have been adopted for categorisation of problem villages:

- (a) those which do not have an assured source of water within a distance of 1.6 kms or within a depth of 15 meters (in hilly areas, villages where water sources are available at an elevation difference of more than 100 meters from the habitation) or
- (b) those where the available water has an excessive salinity, iron, fluoride or other toxic elements;
or
- (c) those where diseases like cholera, guineaworm, etc., are endemic.

Pilot Projects

Importance would be given to locate projects in different states and the selection would be such as to cover most of the problems associated with the supply of drinking water so that, the experience gathered from these pilot projects could be utilised in other parts of the country. Groundwater survey would be taken up on a priority basis in unserved field areas. The project would deal with problems identified on present assessment and also work out solutions for new problems that would be exposed in the process of implementing a project. The strategy would be to deal with the total problem of drinking water supply in the project areas by following an integrated and inter-disciplinary approach.

Linkages with Plan Schemes

Specific activities under the Technology Mission will be confined to the project areas. The normal programme of providing drinking water facilities through State MNP and general ARWSP shall continue in other areas. The low cost technologies as well as improvement of conventional systems that will be developed in project areas may be replicated in normal schemes under MNP and ARWSP. The Mission activities will thus supplement normal plan activities, simultaneously introducing qualitative improvements and cost effectiveness through appropriate technology and better management techniques in ongoing programmes.

Survey

Attempts would be made to coordinate survey results with the actual location and drilling of tubewells for handpumps and construction of sanitary wells to ensure higher percentage of success.

Appropriate Technology

Rigorous analysis of the requirement of suitable technologies for specific disciplines will be made and proven low cost technologies will be adopted to provide long term solutions to the drinking water problems. Where proven low cost technologies are not available, the Mission would endeavour to develop appropriate technologies through R&D efforts of the various research organisations. These technologies and methodologies may differ in many respects from the conventional methods of treatment and supply of potable water.

Improvement of Conventional Systems

Alternatives would be explored to make conventional systems of supplying potable drinking water more cost effective by developing material substitutes or by designing and formulating schemes with the aim of avoiding excessive cost on distribution and investment. Efforts would be made to reduce over dependence on power by developing local sources rather than laying down of pipelines to bring potable water from distant sources.

Improvement of Traditional Sources/Structures

It is necessary to develop locally acceptable technological improvement of traditional sources, such as wells, tanks, ponds, etc., with the aim of providing safe drinking water and reducing the drudgery of rural women in drawing and fetching water. In difficult hill, desert and forest areas traditional water collection structures would be developed through the use of appropriate technology and material and also by

developing techniques for retention of water in reservoirs.

Pollution

Water supply through pipes, handpumps or sanitary wells may be contaminated with pathogenic micro-organisms. Detection of such contamination through water analysis at various levels, preventive measures such as concrete platforms, drainage facilities to carry away waste from the handpumps, tubewells, wells, etc., would be necessary.

Related Water Management

Water management would involve augmentation of existing groundwater sources through micro-level ecological planning involving afforestation, soil and moisture conservation and by adopting the technique of artificial recharge in areas where groundwater has been depleted. The concepts of water budgeting for conjunctive use of water resources would be introduced and long range measures formulated for preventing indiscriminate use of water.

Multi-Disciplinary Approach

Since the Technology Mission aims at providing a long term solution to the drinking water problem, a multi-disciplinary approach is essential.

PROGRESS OF MINI-MISSIONS (as on 30.04.1994)

STATE	NAME OF MINI MISSION	COST APPRD BY CENTRAL GOVT.	MONEY RELEASED				EXPENDITURE				Month Code	Balance (Cost Approved-Total Release - Int Earned) 3-6-7
			Upto 1992-93	During 1993-94	Total (4+5)	Interest Earned	Upto 1992-93	During 1993-94	Total (8+9)			
1	2	3	4	5	6	7	8	9	10	11	12	
ANDHRA PRADESH	EAST GODAVARI	400.000	373.000	25.000	398.000		281.050	22.022	303.072	02/94	2.000	
	KURNOOL	416.380	402.450		402.450	11.262	340.910	2.340	343.250	02/94	2.668	
	MEHBOOBNAGAR	338.000	324.000		324.000	7.148	303.850	10.320	314.170	02/94	6.852	
ARUNACHAL PRADESH	EAST SIANG	264.457	232.000	50.169	282.169		226.430	2.520	228.950	11/93	0.001	
ASSAM	CACHAR/DARANG	220.840	200.000	58.840	258.840		112.455	70.160	182.615	02/94	6.170	
BIHAR	GIRIDIH	328.100	309.500	15.290	324.790		244.457	25.990	270.447	02/94	3.310	
	PALAMAU	279.610	268.000	11.610	279.610		203.662	34.930	238.592	03/94		
	ROHTAS	148.500	148.500	15.000	163.500		097.197	13.718	110.915	02/94	3.500	
	SAHIBGANJ	051.320	051.320		51.320		045.716	0.563	46.279	03/94	0.000	
	SINGHBHUM	477.172	460.995	15.000	475.995		387.710	5.706	393.416	01/94	1.177	
GOA	ENTIRE STATE	315.980	310.000		310.000		245.490	37.820	283.310	03/94	5.980	
GUJRAT	DANGS	400.000	388.000	30.000	418.000	5.060	312.042	21.921	333.963	03/94	0.000	
	DHARAMPUR TL.	200.000	180.000		180.000		129.275	70.725	200.000	03/94	20.000	
	JAMNAGAR	342.070	342.070		342.070		298.120	21.060	319.180	01/95	0.000	
	KACHCHH	227.860	227.860		227.860		222.840	0.130	222.970	12/93	0.000	
HARYANA	AMBALA	409.450	403.000	75.000	478.000	0.060	348.240	5.028	353.268	01/94	6.570	
	GURGAON	297.560	231.940	40.000	271.940	2.076	253.620	28.230	281.850	03/94	23.544	
HIMACHAL PRADESH	KANGRA	615.720	608.000	90.000	608.000		563.680	46.440	610.120	03/94	5.550	
JAMMU & KASHMIR	ANANTNAG	464.210	449.510	100.00	549.510		426.250	21.260	447.510	01/94	7.360	
	UDHAMPUR	472.170	441.000	100.00	541.000		329.649	82.043	411.692	03/94	25.200	

1	2	3	4	5	6	7	8	9	10	11	12
KARNATAKA	DHARWAR	400.000	397.000	60.000	457.000		400.000	34.900	434.900	01/94	7.560
	GULBARGA	400.000	390.000	80.000	470.000		400.000	80.000	480.000	11/93	10.000
	RAICHUR	400.000	400.000	50.000	450.000		364.870	3.780	368.650	02/94	27.610
KERALA	PALGHAT	352.000	343.000	35.000	378.000		303.420	36.700	340.120	03//94	12.000
MADHYA PRADESH	JHABUA	325.310	325.310		325.310		278.676		278.676	11/93	0.000
	RAIGARH	400.700	400.700	80.000	880.700		400.700	24.270	424.970	05/93	5.610
	SHAHDOL	571.300	571.300	53.700	625.000		551.130	17.000	568.130	03/94	5.000
MAHARASHTRA	LATUR	431.760	410.000		410.000		336.085	9.285	345.370	01/94	21.760
	SATARA	467.514	450.000		450.000	6.410	381.730	3.190	384.920	02/94	11.104
MANIPUR	SOUTH MANIPUR	121.860	110.000		110.000		104.420	1.770	106.190	02/94	11.860
MEGHALAYA	WEST KHASI	544.700	529.000		529.000	15.700	482.500	24.370	506.870	03/94	0.000
MIZORAM	AIZAWL	323.170	320.000		320.000		323.170		323.170	7/93	3.170
NAGALAND	KOHIMA	587.676	587.676		587.676		587.676		587.676	1/92	0.000
ORISSA	KORAPUT	626.500	613.000		613.000	3.340	445.120	2.150	447.270	03/94	10.160
	MAYUR BHANJ	101.400	80.000		80.000		69.726	0.000	69.726	10/93	21.400
	PHULBANI & GANJAM	417.540	391.000	15.000	406.000		300.140	50.220	350.360	03/94	11.540
PUNJAB	AMRITSAR	413.160	410.000		410.000		403.410	4.750	408.160	02/94	3.160
	FIROZPUR	673.620	665.000	6.850	671.850	1.770	627.520	27.430	654.950	02/94	0.000
RAJASTHAN	BARMER	468.840	455.000	13.000	468.000		395.050	7.320	402.377	02/94	0.840
	CHURU	841.730	810.000	30.000	840.000		650.900	190.830	841.730	02/94	1.730
	NAGAU	800.000	766.200	30.000	796.200		659.140	3.220	662.360	12/93	3.800
SIKKIM	SOUTH/EAST DISTT.	501.280	501.280		501.290		501.280		501.280	03/94	0.000
TAMIL NADU	RAMANATHAPURAM	419.260	403.860		403.860	2.868	368.719	47.251	407.973	01/94	12.532
	SALEM	300.000	287.500	60.000	347.500	1.190	300.000	60.000	360.693	6/93	11.310
	SOUTH ARCOT	230.850	220.000	49.000	269.000		230.850	46.170	277.020	03//94	8.020

1	2	3	4	5	6	7	8	9	10	11	12
TRIPURA	NORTH TRIPURA	227.900	210.000	55.000	265.000		189.320	80.340	269.660	02/94	8.480
UTTAR PRADESH	AGRA	480.000	400.000	70.000	470.000		376.590	77.490	454.080	03/94	10.000
	MIRZAPUR	544.450	528.870		528.870		501.380	11.990	513.370	02/94	15.580
	SULTANPUR	451.660	451.660	40.000	491.660		447.950	15.550	463.500	03/94	34.990
	UNNAO	423.180	348.140	60.000	408.140		402.100	20.090	422.190	03/94	15.040
WEST BENGAL	BANKURA	454.510	428.000	4.730	432.730	10.735	383.980	44.404	422.984	02/94	11.045
	MIDNAPUR	381.600	381.600		381.600		381.600		381.600	7/93	0.000
	PURULIA	426.000	377.000		377.000		196.490	1.586	198.076	12/93	49.000
A & N ISLAND	ENTIRE UT	10.500	10.500		10.500		10.500		10.500	12/92	0.000
LAKSHADWEEP	ENTIRE UT	221.860	189.610	40.000	148.000		112.690		112.690	12/91	10.060
PONDICHERY	ENTIRE UT	73.890	73.890		73.890		47.520	2.550	50.070	02/94	0.000
TOTAL		21527.259	20587.241	1458.189	22046.230	67.619	18276.054	1451.535	19727.830		474.243

Under ARWSP		
Mini mission	Cost Approved	Expenditure
East Godawari	167.000	
Goa	74.400	
Dangs	35.700	
Gulbarga	160.890	249.846
Dharwar	436.500	33.227
Raichur	183.840	57.256
South Manipur	40.410	
Nagaur	473.630	588.160
Salem	160.560	125.803
Agra	221.860	
Midnapur	250.000	227.490
Churu	127.340	152.810
Udhampur	355.750	
Unnao	13.340	
	2701.220	1434.592

Under MNP	
Mini Mission	Expenditure
Rajgarh	24.970
Kohima	21.660
Unnao	58.930
Sikkim	4.794
Agra	19.800
South Arcot	73.490
A&N Islands	2.417
Aizwal	2.507
	208.568

In Koraput Special Assistance of
Rs. 100.00 Lakhs was given in 1992-93.

SUB MISSIONS - OBJECTIVES & STRATEGIES

1 SUB MISSION ON CONTROL OF FLUOROSIS

Nodal Agency NEERI, Nagpur

Collaborating Agencies

NIDC, New Delhi; AIIMS, New Delhi; TWAD, Tamilnadu; DL, Jodhpur; Central and State Groundwater Boards, State PHEDs, State Health Department/Primary, Health, Centres/Sub Centres, DRDA/Zilla Parishad/Village Panchayat, State Tribal Department, State Rural Development Department, State Education Department, Voluntary Agencies, State Deptt. of Forest and Environment

Objective

- * To provide water with permissible limits of fluoride (0.5 ppm to 1.5 ppm) to 8700 villages in 13 States/UTs affected by fluorosis, by 1988.
- * To evolve cost effective technology
- * To replicate simultaneously the above technology in other areas.

The states are Andhra Pradesh, Uttar Pradesh, Madhya Pradesh, Punjab, Tamilnadu, Haryana, Gujarat, Rajasthan, Bihar, Orissa, Karnataka, Maharashtra, Delhi

Strategy - Engineering Sector

- * Water quality assessment of existing sources.
- * Selection of alternative sources/source finding.
- * Establishment of appropriate and cost effective technology.
 - (a) Chemical treatment
 - (b) Physical methods
- * Installation of pilot projects in each affected state.
- * Replication of technology.

Strategy - Health Factors

- * Training of village and district level health educators.

- * Organising awareness camps.
- * Introducing laminated veneering for masking brown/black teeth, introducing domestic defluoridation technology for the benefit of pregnant women/foetus.

Methodology

Engineering

- * House to house survey to identify the quality of water, the incidence and prevalence of fluorosis (information collection in pre-coded proforma).
- * Scientific source finding.
- * Finalisation of technology package.
- * Preparation and implementation of cost-effective rural water supply schemes and treatment of fluoride contaminated water sources.
- * Installation of technology and maintenance of rural water supply scheme.
- * Training of trainers.

Health

- * Distribution of chemicals viz., alum, lime and bleaching powder of standard quality to households wherever domestic defluoridation technology has to be implemented.
- * Community involvement & training.
- * Awareness campaign.
- * Computerised management information systems.
- * Monitoring and evaluation.

2 SUB MISSION ON REMOVAL OF EXCESS IRON FROM DRINKING WATER

Nodal Agency National Environmental Engineering Research Institute, Nagpur

Collaborating Agencies

Ministry of Rural Development; NIDC, New Delhi, ITRC, Lucknow, CGWB, New Delhi, Polytechnology Transfer centres (CSIR), State Public Health Engineering Departments, State Departments of Health, Social Welfare, Rural Development & Education, State Ground Water Boards, State Water testing laboratories, village laboratories, District Rural Development Agencies/Zilla Parishads, Voluntary Agencies

Sub Mission Objective

- * To remove excess of iron from drinking water in (permissible limit upto 1.00 ppm) in problem villages by 1988 in 10 states.
- * To evolve cost effective technology.
- * To replicate simultaneously the above technology in other areas.

The states are:

Kerala, Tamilnadu, Andhra Pradesh, Maharashtra, Madhya Pradesh, Orissa, Assam, Manipur, Nagaland, Arunachal Pradesh,

Strategy

- * Identification of drinking water sources
- * Water quality testing
- * Establishment of appropriate and cost effective methods for excess iron removal
- * Awareness generation including training

Methodology

- * Water quality assessment/confirmation of problem
- * Identification of alternate safe sources
- * Finalisation of technology package
- * Identification of fabricators/manufacturers
- * Installation of technology and maintenance
- * Training of personnel in installation, operation and maintenance
- * Monitoring/evaluation/feed back
- * Community involvement
- * Awareness campaign
- * Computerised management information system

3 SUB MISSION ON DESALINATION OF WATER

Nodal Agency

Central Salt & Marine Chemicals Research Institute (CSMCRI)
Bhavnagar

Collaborating Agencies

Defence Laboratory, Jodhpur, Bhabha Atomic Research Centre, Bombay, Central Electronics Limited, Sahibabad, Polytechnology Transfer Centres (CSIR), NIDC, New Delhi, CGWB, New Delhi, DAVP, State Rural Development Department, State Public Health Engineering Deptt., State Health Department, State Ground Water Board, State Testing Laboratories, State Education Departments/Science, Colleges, Voluntary agencies

Objectives

- * To desalinate brackish water in identified villages by 1990.
- * To supply potable water through desalination at 10 litres per capita per day for drinking and cooking and non-desalinated water at 30 litres per capita per day for other purposes.
- * To supply potable water through desalination at 10 lpcd for drinking and cooking and non-desalinated water at 30 lpcd and for other purposes and 30 litres non-desalinated water per cattle (per day) in desert areas.
- * To evolve cost effective technology
- * To replicate simultaneously the cost effective technology in other areas.

Criteria for inclusion of villages under this Sub Mission.

- (a) Total dissolved solids (TDS) more than 1500 parts per million
- (b) Water cannot be supplied by any conventional water supply systems

Strategy

- * Application of appropriate desalination technology depending on brackishness of source water and available energy e.g., Reverse osmosis, Electro dialysis, PVED, Solar distillation, etc.
- * Reduction in the cost of product water
- * Evolution of integrated water supply system including desalination technology
- * Identification of villages where integrated technology mix can be replicated
- * Evolution of safe effluent disposal techniques

Methodology

- * Water quality assessment/confirmation of problem villages
- * Identification of suitable desalination technology
- * Transfer of desalination technology
- * Identification of manufacturers, etc.
- * Installation of technology and maintenance
- * Training of trainers and operators
- * Monitoring, evaluation and feedback
- * Research & development for cost effective technology
- * Awareness campaign
- * Replication

4 SUB MISSION ON ERADICATION OF GUINEAWORM

Nodal Agency

National Institute of Communicable Diseases

Collaborating Agencies

Ministry of Health & Family Welfare, Ministry of Rural Development, State Public Health Engineering Departments, State Health Departments, State Tribal Welfare Departments, State Rural Development Departments, State Education Departments, Central and State Groundwater Boards, Voluntary Agencies, CSIR

Sub Mission Objectives

- * Cover 9283 guineaworm affected villages by 1989
- * Supply potable water 40 litres per capita day
- * Supply 70 litres per capita per day in desert area
40 lpcd for human beings
30 lpcd for cattle
- * Elimination of guineaworm disease
- * Evolve cost effective technology mix to achieve these objectives within constraint of plan allocation.

Strategy

- * Active case searches
- * Vector controls
- * Provision of potable water supply
- * Conversion of stepwells into sanitary wells
- * Promotion of personal prophylaxis
- * Treatment of cases
- * To focus on 4 project areas (Mini Missions) to evolve cost effective S&T techniques.

Methodology

- * House to house searches
- * Treatment of unsafe water sources
- * Scientific source finding and development
- * Preparation and implementation of cost effective rural water supply schemes.
- * Improvement of maintenance of rural water supply schemes.
- * Structural improvement of stepwells, ponds, tanks, etc.
- * Distribution of appropriate drugs to the patients.
- * Community involvement, women in particular in site selection and maintenance of rural water supply.
- * Involvement of Zilla Parishad, Village Panchayat & Voluntary Agencies
- * Awareness campaign
- * Computerised management information system.
- * Continuous monitoring and evaluation.

5. SUB MISSION ON CONSERVATION OF WATER & RECHARGING OF GROUND WATER ACQUIFERS

Organisations involved in development of drinking water resources

Coordinating Agency

Ministry of Rural Development

(Mission Directorate)

Nodal Agency Central Ground Water Board (CGWB)

Implementing Agency in each state State Drinking Water Supply Department (SDWSD)

Collaborating Agencies

National Geophysical Research Institute (NGRI), Department of Space (DOS), National Remote Sensing Agency (NRSA), Space Application Centre (SAC), State Ground Water Departments (SGWB), Voluntary Agencies (VA), District Rural Development Authorities, (DRDA), Zilla Parishads (ZP), Village Panchayats (VP)

Supporting Agencies

Different Central and State Departments dealing with Forestry, Health and Family Welfare, Soil Conservation, Agriculture, Meteorology, Education, Information and Communication, etc.

Human Resource Development

- * Recruitment/Redeployment of qualified personnel to raise a dedicated task force
- * Organisation of training programmes in the fields of
 - (a) Remote sensing
 - (b) Hydrogeological surveys
 - (c) Geophysical exploration
 - (d) Drilling
 - (e) Development and maintenance of sources
- * Active involvement of the community in the operation and maintenance of drinking water schemes.

Objectives

- A. Locating and establishment of sustained water sources in 2.27 lakh villages, in order to
 - (i) Supply potable drinking water @ 40 litres per capita per day (lpcd)
 - (ii) Supply additional 30 lpcd for cattle in desert areas
 - (iii) Sustained availability of such water on long term basis
- B. Evolving cost effective technologies for exploration and development of water resources; their quick replication on a large scale.

Strategy

Short Term

- * Identification of villages which have no source of drinking water.
- * Location and development of sustainable drinking water sources, not necessarily in the close vicinity of the village, with the help of remote sensing techniques, hydrogeological surveys and geophysical exploration.
- * Terrain evaluation in hilly regions for development of water resources.
- * Improvement and development of traditional storage and distribution systems for drinking water.

Long Term

- * Development of drinking water resources in the remaining problem villages using the same techniques as above.
- * Assessment and management of water resources in micro-watersheds.
- * Sustained supply through conjunctive use of surface and groundwater resources and augmentation of water resources.

Methodology

Investigation/Exploration

- * Collection of hydrogeological and related data in problem areas.
- * Identification and delineation of potential zones for groundwater resources development using landsat imageries and hydrogeological data.
- * Reconnaissance to verify the available data and to update micro level data base.
- * Selection of sites best-suited for implementation of water supply schemes.
- * Chemical analysis of water for evaluating its suitability for drinking.

Point Source Identification

- * Geophysical exploration to pin-point sites for drilling of wells.

- * Identification of feasible groundwater structures viz., open well/bore well/infiltration gallery/jack well, etc.
- * Identification of suitable lift sites on surface water resources (if any).
- * Identification of appropriate rig for drilling.

Development of Source

- * Pump tests for optimal harnessing of groundwater resources and recommending appropriate pumps.
- * Identification of optimal depth & diameter of well, screening, pump etc.
- * Construction of suitable structures for groundwater exploitation and periodical monitoring of their performance.

Augmentation and Conservation

- * Designing and construction of suitable structures for rain water harvesting.
- * Artificial recharge of aquifers (wherever feasible).
- * Development and adoption of measures for reduction of evaporation losses from surface water bodies.
- * Conservation of water through adoption of appropriate irrigation practices.

Micro Watershed Management

- * Identification of micro-watersheds in problem areas.
- * Designing and establishment of networks for collection of geohydrological data.
- * Assessment of hydrogeological parameters of aquifers.
- * Estimation of recharge to groundwater regime.
- * Establishment of computerised data banks for geohydrological and other relevant data.
- * Scientific management of water resources using computerised mathematical modelling.

PROGRESS OF SUB MISSIONS

A Control of Fluorosis

Summary of status of Implementation of Defluoridation Plants (Position as on 31.12.93)

	<u>Fill & Draw Type</u>	<u>Handpump Attached</u>
1. No. of plants sanctioned	104 *	377
2. No. of sites identified	104	377
3. No. of plants for which L.O.I. has been issued	99	377
4. No. of plants for which agreements have been concluded with vendors	92	375
5. No. of plants for which civil works completed	86	N.A.
6. No. of plants installed	69	302
7. No. of plants commissioned	56	292
8. No. of plants handed over	55	284

State-wise Breakup of Plants

Sl No.	State	Total No. of Plants		No. of Plants for which orders are placed		Civil works completed		Plants Installed		Plants Commissioned		Plants handed over	
		F&D	HPA	F&D	HPA	F&D	HPA	F&D	HPA	F&D	HPA	F&D	HPA
1	Andhra Pradesh	30	269	30	269	29	-	29	226	24	222	24	218
2	Gujarat	11	-	1	-	11	-	11	-	11	-	11	-
3	Haryana	5	-	5	-	5	-	5**	-	-	5	-	-
4	Karnataka	10	9	2	9	2	-	2	9	-	9	-	9
5	Kerala	-	2	-	2	-	-	-	-	-	2	-	-
6	Maharashtra	2	2	2	2	2	-	2	-	1	2	-	-
7	Madhya Pradesh	2	8	2	8	2	-	2	8	2	8	2	8
8	Rajasthan	40	64	40	64	35	-	18	28	13	28	13	26
10	Uttar Pradesh	-	12	-	12	-	-	-	12	-	12	-	12
TOTAL		100	366	82	366	86	0	69	283	51	288	50	273

* Target modified from 130 to 104 based on feed-back from State Govt. for requirement of DF(HP) Plants in place of DF(F&D) plants.

** Installed departmentally

**SUMMARY OF STATUS OF IMPLEMENTATION OF IRON REMOVAL PLANTS
(POSITION AS ON 31.03.1994)**

	PRE-REVISED	REVISED
1. No. of Plants to be set up	11,908	11,859
2. No. of sites identified	8,493	8,493
3. No. of Plants for which agrèement has been signed with vendors.	7,621	7,572
4. No. of Plants Commissioned	8,633	8,721

State wise break up of plants installed through NIDC:

S.No.	State	No. of Plants allocated	Order placed/ agreement signed	Revised Target of IRPs	Plants recd. at ctrl. stores	Plants installed up to 20.08.93		
						TM	Others	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1.	Madhya Pradesh	150	150	150	150	150	-	150
2.	Tripura	416	416	416	416	125	-	125
3.	Arunachal Pradesh	67	67	67	67	67	-	67
4.	Manipur	168	168	168	168	168	-	168
5.	Nagaland	174	174	174	174	174	-	174
6.	Meghalaya	200	200	200	200	200	-	200
7.	Mizoram	100	100	100	100	100	-	100
8.	Bihar(BPMEL)	350	350	350	350	95	-	95
9.	Bihar(HWMC)	350	350	350	350	5	-	5
Total		1975	1975	1975	1630	1084	-	1084

II. State wise breakup of plants installed by State PHEDs through BPMEL/other firms / departmentally:

S.No.	State	No. of Plants allocated	Order placed/ agreement signed	Revised Target of IRPs	Plants recd. at ctrl. stores	TM	Others	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1.	Uttar Pradesh	276	288	276	120	100	193	293
2.	Bihar	2150	200	2150	200	200	200	200
3.	West Bengal	1000	946	1000	560	22	-	22
4.	Orissa	3780	1492	3780	-	665	-	665
5.	Assam	1897	1897	1897	-	1897	1875	3772
6.	Maharashtra	74	74	74	-	50	-	50
7.	Tamilnadu	25	25	25	1	6	-	6
8.	Pondicherry	20	13	13	13	13	-	13
9.	Kerala	30	30	30	30	30	-	30
10.	M.P.	512	512	512	512	512	1785	2297
11.	Tripura	40	40	40	-	40	-	40
12.	Manipur	80	80	80	-	80	-	80
Total		9,884	5597	9877	1436	3615	3991	7606

NIDC

Sub-total II State PHEDs &	9,884	5597	9877	1436	3615	3853	7606
GRAND TOTAL	11,908	7621	11,551	3059	4642	3853	8633

**STATE-WISE STATUS OF DESALINATION PLANTS
(As on 25.04.1994)**

State	Plants Running Regularly	Plants Running Irregularly	Plants not Running	Plants handed over to State Govt.	Plants yet to be Comm.	Total
Andhra Pradesh	9	-	2	7	3	14
Gujarat	6	-	5	-	1	12
Haryana	-	-	-	2	-	2
Maharashtra	1	-	-	2	-	2
Pondicherry	2	-	1	1	4	7
Rajasthan	58	9	-	11	4	71
Tamil Nadu	8	-	-	12	1	21
West Bengal	-	-	1	-	2	3
Total	84	9	9	35	15	132

Desalination plants yet to be commissioned (as on 31.1.1994)

S.No.	Name of the State	Site No.	Name of the village	Capacity of the plant cubic mtr. per day	Commissioning date	Remarks
1.	Andhra Pradesh	AP 2-6	Ullipalem	30		TDS value of RW(17000 ppm) has increased beyond the design value(6500 ppm). However, the State Govt. had suggested three alternatives sites for consideration, which are not technically feasible.
2.	Andhra Pradesh	AP 3-1	Gondi	50		-do-
3.	Andhra Pradesh	AP 7-1	Ramchanranagar	30		-do-
4.	Gujarat	GUJ 1-4	Nageshwar	10		State Govt. has expressed its inability to install of the plant as no source could be found out. State Govt. is to give its justification for dropping the site alongwith

					adjustment of 20% advance payment already made.
5.	Pondicherry	Pond.Ex-1	Keezhakasa-kudimed	20	Site has not been handed over because of variation of TDS value of RW which is more than the design value(3000 ppm) (present TDS value is 35,000 ppm)
6.	Pondicherry	Pond.Ex-2	New Bus Stand area	10	Site not handed over because sweet water source obtained.
7.	Pondicherry	Pond.Ex.3	Akkampet	50	-do-
8.	Pondicherry	Pond.Ex-4	Karikkalacherri	30	Site not handed over because alternate arrangements of drinking water has been made by the State Govt.
9.	Rajasthan	RAJ 4.4	Dumki	20	High TDS of RW.Alternate site to be suggested.
10.	Rajasthan	RAJ 14.1	Khorikalla	20	Only source developed no pump no RW tank water sweet alternative site to be identified.
12.	Rajasthan	RAJ 14.2	Phutelo	10	Only source developed no RW tank. Electricity connection not got - will be done in 2 months.
13.	Rajasthan	RAJ 14.3	Khorikalan	10	EE/Jodhpur suggested to drop the site.No communication from CE, Rajasthan.
14.	Tamil Nadu	TTN 4-7	Seluvu-puram	20	Plant has been transferred from AP. DRD has given approval in April 90. The supplier had asked for the escalation of the civil construction costs. However, MRD has decided that the civil construction would be taken up by TWAD Board.
15.	West Bengal	WB 1.1	Ghatwa	100	Turbidity as well as iron content in the RW have increased as a result plant cannot be commissioned without removing the iron content from the RW. PHED West Bengal Govt. has tried various alternatives. However, recently they have informed MRD(vide their letter dated23.2.93) that installation ofdesalination plantsat the site may not be practicable.
16.	West Bengal	WB 1.2	Sillaberia	100	-do-

ADMINISTRATIVE SET UP FOR IMPLEMENTATION OF MINI MISSIONS

The Rural Development Department of the Ministry of Agriculture will be nodal department for the Technology Mission.

The Mission Management structure will comprise of the following.

National Level

There will be an Empowered Committee comprising of the following:

Secretary, Department of Rural Development	: Chairman
Director General, CSIR	: Member
Secretary, Expenditure	: Member
Secretary, Water Resources	: Member
Secretary, Environment & Forest	: Member
Additional Secretary, PMO	: Member
Mission Director	: Member Secy.

This committee would meet, not less frequently than every two months in order to deal with all matters pertaining to the Mission and to review the financial, technical and physical progress of various projects and take necessary steps for timely implementation of these projects.

Technology Advisory Groups (TAG)

The Empowered Committee would be assisted by four TAGs. The groups would provide Science & Technology inputs such as selection and development of technologies to suit the Mission approach.

The composition and functions of these TAGs are given below.

Membership	Functions
<u>TAG I Water Sources</u>	
1. Chief Hydrogeologist, CGWB (Coordinator TAG 1)	shall attempt precise identification of dependable sources and prepare plans for development of groundwater sources and disseminate ground water data to the user agencies for follow up action; develop and suggest areas for augmentation of the existing groundwater resources
2. Representative of CSIR	
3. Representative of Deptt. of Environment	
4. Adviser, Technology Mission	

through micro level ecological planning and make recommendations on conjunctive use of ground and surface water resources.

TAG II Traditional Sources

- | | | |
|----|----------------------------------|---|
| 1. | DG, CART
(Coordinator TAG II) | will deal with the identification & development of traditional sources as well as development of water collection structures through use of appropriate technology and material and to make the water from such source potable. |
| 2. | Representative of CSIR | |
| 3. | Representative of DL,
Jodhpur | |
| 4. | Adviser, TM | |

TAG III Quality Control

- | | | |
|----|--|---|
| 1. | Joint Adviser & Coordinator CSIR (Coordinator TAG III) | Will deal with the problems of salinity, brackishness, fluoride, iron and other chemical and bacteriological contamination through application of science and technology inputs and advise on location specific and cost effective solutions for water treatment. |
| 2. | Representative of DL,
Jodhpur | |
| 3. | Representative of BARC,
Bombay | |
| 4. | Representative of NICD,
Delhi | |
| 5. | Adviser, TM | |

TAG IV Material and Design

- | | | |
|----|---|--|
| 1. | Adviser, TM (Coordinator TAG IV) | Improvement of the existing conventional systems through substitution of cheaper materials, corrosion resistant materials etc., and developing economical designs that would reduce over dependence on conventional power, to make it more cost effective. |
| 2. | Representative of CSIR | |
| 3. | Representative of CART | |
| 4. | Representative of Deptt. of Non-Conventional Energy | |
| 5. | Chief Engineers of some state governments | |

The TAGs may co-opt any member according to need.

Mission Directorate

There will be a Mission Director of the rank of Joint Secretary, supported by administrative and technical staff. These posts will be created for the Seventh Plan period initially.

The Mission Director

- * shall be responsible for the Mission and for clearance of projects, financial sanction, release of funds to the DRDA for the projects.

- * shall monitor and steer the plan of operations and formulate guidelines for action.
- * shall function as Secretary of the Empowered Committee and shall be responsible for follow up action of the decisions of the Empowered Committee and the recommendations of the Technology Advisory Groups.
- * shall channelise financial assistance for experimental low cost innovations of institutions with the aim of making the technology available to rural areas in and outside the Project Area for rapid application.
- * shall ensure replication of the technologies developed in the project areas in the ongoing Plan programmes for Rural Water Supply.

Advisory Group

The Mission Director will be assisted by an Advisory Group. This group will advise the Mission Director in all technical matters related to the Mission including clearance of project plans and will also suggest R&D programmes to be taken up by research organisations to provide necessary low cost Science and Technology inputs to the Mission projects. The advisory group will consist of the following:

Advisor I	Convenor (TAG 1)	Convenor (TAG II)	Convenor (TAG III)	Convenor (TAG IV)
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State level

State Project Coordinator

The Secretary incharge of rural water supply in the state shall be the State Project Coordinator and will be the nodal person in respect of the project taken up in that state and will report to the Mission Director in respect of all matters pertaining to the project.

Role of the State Project Coordinator

- * to coordinate with other concerned departments, e.g., Irrigation, Rural Development, Soil Conservation, Forest.
- * to supervise the implementation of the project.
- * to ensure the replication of the technology developed in the project area in other parts of the state, by incorporating the innovations in the ongoing programmes.

State Advisory Body

The existing Project Approval Board under RLEGP shall act as an Advisory Body at the state level in respect of the project. Secretaries-in-charge of rural water supply and other departments not already represented on the Board may be co-opted alongwith the District Collector/Chairman, DRDA and Executive Director as members of this Board. A representative of the Mission Director shall also

be invited to the meetings of the Board to advise and review the progress of the project. This Board shall act as a coordinating and supervisory body in the implementation of the project and ensure smooth flow of funds by different departments to the project agency in respect of different project components funded out of state resources. It shall meet at least once in two months. The decision of the Project Approval Board may be communicated to the Mission Director.

Project Level

Project Agency

The District Rural Development Agency (DRDA) will be responsible for the implementation of the project. The finances earmarked for the project activities will constitute a separate fund to be operated by the Executive Director and will be given directly to the DRDA by the Mission Director.

Executive Director

The DRDA shall have an Executive Director for the purpose of the project who would be either an Engineer at least in the rank of superintending engineer or a senior administrator. The Executive Director will be appointed at least for the project period by the state government. The Executive Director will function under the supervision of the Chairman, DRDA and will also be responsible to the Mission Director in the implementation of the project. The Executive Director will be supported by necessary officers and staff.

Role of the Executive Director

- * to prepare the detailed project report for the project
- * to obtain approval of the Mission Director for the project through the State Project Coordinator.
- * to be responsible for effective implementation of the project
- * to submit reports to the State Project Coordinator and Mission Director.

Project Cell

The district technical personnel responsible for Public Health, Water Management, Soil Conservation and Forestry will work under the Executive Director with respect to the project. Representatives of CART, CGWB, CSIR shall advise the Executive Director on project formulation and help in the preparation of the Project Report and in the implementation of the project. These officers and staff for the Executive Director, DRDA in the form of the separate cell in the DRDA, would be provided by the state government out of the existing staff of PHED and other departments that are involved in the project such as Forest, Soil Conservation, Irrigation, etc. In addition, there shall be a representative from CGWB/NGRI, a representative of CART and a representative of CSIR in the project cell. The CSIR representative shall normally come from an institution which will take up the project in that area. The representative of these organisations may either be from these organisations or engaged by them as short term consultants for the project period.

Executive of Components of Project

The different components of the project such as water supply schemes through tubewells with handpumps and piped water, soil conservation measures, afforestation in the catchment areas etc., shall be executed by different departments. Officers of these departments who will execute the different

project components shall be directly responsible to the Executive Director as far as this project is concerned. Funds required for different sectoral works to be executed by different departments, would be routed through DRDA so that the Executive Director can exercise effective control and coordinate the project activities in a proper manner.

Project Coordination Committee

There shall be a Project Coordination Committee at the district level headed by the Collector. This Committee shall have as its members the district level technical officers in charge of Forest, Irrigation, Soil Conservation, PHED, representatives of CGWB, NGRI representatives of CART, representatives of CSIR and other concerned institutions. This Committee shall meet every month to review and monitor the progress made in the project and provide overall guidance in implementation of the project.

Role of the Collector

- * will oversee the progress of the project in the district
- * will guide the Executive Director in allocating work to the different departments/agencies in the implementation of the project report

MINI MISSIONS - PROPOSALS AND APPROVED ITEMS

- A FEW SAMPLES

6.1 State: **Rajasthan**Name of the Mini-Mission District - **Barmer**

Schemes proposed

Schemes approved

Sl No.	Activity	Estimated Cost (Rs.in lakhs)	Sl No.	Activity	Original		Revised	
					Physical	Financial (Rs.in lakhs)	Physical	Financial (Rs.in lakhs)
1	Liabilities for on going schemes for 302 villages (211 fresh + 91 augmentation)	849.30	1.	Development of sources				
			a)	Tube wells	15	55.80	9	41.24
			b)	Large open wells	10	11.08	16	27.16
2	77 R.W. schemes for 130 Hard Core villages (43 Hard under investigation & 87 other trouble villages)	2350.33	2.	Detailed engineering of WSS	-	0.50	-	1.11
3	Research and development	62.60	3.	Construction of community tanks	10	2.50	34	53.44
4	Wireless net work	327.27	4.	Electro-dialysis desalination plants WSS				
5	Vehicles	107.00	a)	Plant	13	45.00	13	112.18
6	Ground Water exploration	195.59	b)	Other works	2	67.94	2	
	Total	3892.09	5.	Drilling of tubewells	70	225.35	56	177.03
			6.	Construction of open wells	4		16	
			7.	Guineaworm awareness programme	-	5.00	-	5.00
			8.	Augmentation of RWS				
			a)	RWS	2	55.67	2	43.31
			b)	ED	3		2	
			9.	Satellite imageries application.,	-		-	6.00
			Total		468.84		466.47	

NOTE ON THE FUNCTIONING OF TAGS

Four Technology Advisory Groups (TAGs) were organised to provide back up to the NDWM. TAG 1 was constituted to go into the technical aspects of water resources and the Central Groundwater Board was its coordinator. The TAG 1 was to help in identifying sustainable sources and in recommending conjunctive use of groundwater and surface water. There were several meetings of this TAG and some of its achievements are:

1. Preparation of the format of detailed project report.
2. Study of groundwater potential maps of states like Gujarat, Maharashtra and Rajasthan.
3. Scientific Source finding.
4. Monitoring of sources created.

This TAG was mainly involved in the coordination of source finding activities as well as preparation of project reports. This group ceased to function from 1989.

TAG II was organised with the objective of developing traditional sources of drinking water in rural areas, application of innovative and non-conventional methods and generate awareness and conduct training. CAPART was to play a major role. This group started off well and helped in identifying voluntary agencies in most of the Mini Mission districts and giving them a definite role. The traditional water harvesting structures were inventorised and the BIS has prepared draft standards. On the training and awareness generation aspects nothing much could be done. TAG II also faded away after the first two years.

TAG III was constituted with CSIR as the nodal agency. It was mainly to deal with water quality problems and application of technologies and S&T inputs. The R&D projects which were taken up came as a result of the working of this TAG. TAG III also decided on development of a mobile laboratory desalination and defluoridation technologies.

TAG IV was mainly for improvement of conventional systems and development of economic designs. BIS standards in drilling, piped water supply, etc., came out of the work of this TAG IV. However beyond this, development of economic designs could not be taken up at all.

Thus it is clear that the TAGs suffered for want of follow up of decisions. Nodal agencies were identified for each TAG. Experience shows that in addition to the nodal agency and only one or two others participated in the meetings. All the agencies and departments needed for integration and follow up did not take an active part in the deliberations. Therefore the TAGs could not strike root and they faded away after the initial impetus was exhausted.

6.2 State: **Jammu & Kashmir**

Name of the Mini-Mission District : **Anantnag**

Schemes proposed		Schemes approved			
Sl No.	Activity	Estimated Cost (Rs.in lakhs)	Sl No.	Activity	Original Cost (Rs.in lakhs)
1.	Water Supply Schemes covering 40 villages	162.50	1.	Water supply schemes covering 40 villages	99.51
2.	18 water supply schemes	212.20	2.	15 schemes covering 47 villages	169.98
3.	25 schemes for water supply covering - 82 villages	276.16	3.	25 schemes covering 82 problem villages	194.72
	Total	650.86		Total	464.21

6.3 State: **Uttar Pradesh**
Schemes proposed

Name of the Mini-Mission District : **Sultanpur**
Schemes approved (Rs.in lakhs)

Sl No.	Activity	Estimated Cost	Sl No.	Activity	Original Cost	Revised Cost
1.	Provision of water supply through installation of handpump to cover a population of 13,73,790 (11,134 handpumps to be installed in 125 villages)	687.00	1.	9 Nos. of regional water supply schemes for 131 villages	177.89	221.19
			2.	4 Nos. of regional water supply schemes for 62 villages	123.47	155.16
			3.	Installation of 1503 India Mark II Hand Pumps	150.30	150.30
	Piped water supply for 334 villages by -			Total	451.66	526.65
	a) New schemes to cover a population of 5,67,247 - 122 villages.	1418.12				
	b) Augmentation of existing water supply schemes to cover a population - 212 villages	32.41				
	c) New schemes for fluoride affected area to cover a population of 14,880	37.20				
3.	Installation of fluoride removal plants	2.40				
4.	Laboratory - 4 Units	6.00				
5.	T&P	38.64				
	Total	2221.77				
	Grand total including inflation + Consultancy charges (4%)	2430.61				
		97.22				
		2527.83				
		(2528.00)				

6.4 State: **Himachal Pradesh**

Name of the Mini-Mission District : **Kangra**

Schemes proposed			Schemes approved		
SI No.	Activity	Estimated Cost (Figure in lakhs)	SI No.	Activity	Original Cost (Figure in lakhs)
1.	281 water supply schemes	828.00	1.	Provision of potable water supply to 57 "N" category problem villages	241.01
			2.	Source finding/development	
			3.	Water Quality Monitoring	
			4.	43 water supply schemes	263.24
				92 Schemes	
	Total	828.00	Total		509.25

6.5 State: **Arunachal Pradesh**Name of the Mini-Mission District : **East Siang**

Schemes proposed			Schemes approved		
Sl. No.	Activity	Estimated Cost Figures in lakhs	Sl. No.	Activity	Original Cost (Figures in lakhs)
1	Gravity Fed water supply schemes - 77 Numbers	474.01	1.	Gravity fed water supply schemes - 77 Nos	137.212
2	Installation of Handpumps- 33 Nos.		2.	Installation of 33 hand pumps in 15 villages	12.300
4	16 water supply schemes covering - 36 villages	87.78	3.	16 water supply schemes covering 36 villages	74.620
3	1 H.P. scheme covering 15 villages	13.20	4.	Construction of 3 water harvesting structures for 3 villages	15.500
	Total	574.99	Total		239.632

6.6 State: **Tamil Nadu**Name of the Mini-Mission District : **Salem**

Schemes proposed			Schemes approved		
Sl. No.	Activity	Estimated Cost Figures in lakhs	Sl. No.	Activity	Original Cost (Figures in lakhs)
1	Creating new sources in the villages where water supply schemes or sources already failed - 276 (Habitations)		1.	117 water supply schemes covering 121 habitations	356.560
2	Water supply schemes - coverage of villages - 729 (Habitations)	3000.00	2.	Source finding including survey & investigation - 725 habitations	100.000
3	Augmentation - 1598 pre-coverage villages		3.	Water Quality Testing	1.500
4	Other supporting works/activities/ requirements		4.	Mass Awareness Campaign & Training	2.000
	Total	3000.00			Total 460.060
				(Out of Rs.460.06 lakhs expenditure of Rs. 160.06 lakhs to be met out of ARWSP funds)	ARWSP 160.060
					TM 400.000

6.7 State: **Meghalaya**

Name of the Mini-Mission District : **West Khasi Hills**

Schemes proposed

Schemes approved

Sl. No.	Activity	Estimated Cost Figures in lakhs	Sl. No.	Activity	Original Cost (Figures in lakhs)
1.	Rain Water Harvesting in 146 villages	83.0140	1.	Implementation of water supply 138 schemes (covering 138 hab./ham lets based on 'Rain Water Harvesting system)	78.120
2.	Rain Water Harvesting in 35 villages	18.9350	2.	Water supply schemes for 18 villages	46.540
3.	Water supply schemes for 89 villages	405.0000	3.	Rain Water Harvesting	129.170
4.	6 Schemes for W/S	40.0370	4.	37 pipe water supply schemes, 10 Rain water harvesting (PWSS 226.614, Rain Water Harvesting 49.80, Hand pump in 22 villages - 14.456)	290.870
5.	Pipe water supply schemes	60.2645			
6.	41 Schemes	321.9360			
7.	10 Schemes (Rain water Harvesting)	65.0570			
8.	15 Schemes	118.7500			
	Total	1112.9935			544.700
		1113.00			

6.8 State: **Andhra Pradesh**Name of the Mini-Mission District : **East Godavari**

Schemes proposed			Schemes approved		
Sl. No.	Activity	Estimated Cost Figures in lakhs	Sl. No.	Activity	Original Cost (Figures in lakhs)
	Phase - I & Phase - II	2715.000	1.	86 schemes for water supply	564.735
1.	925 schemes for water supply	(899.675)	2.	Mass Awareness Campaign & Training	2.265
2.	13 schemes of Rain Water Harvesting Structure	(37.02)			
	Total	2715.000		(Out of Rs.567.00 lakhs, expenditure of Rs. 167.00 lakhs to be met out of ARWSP funds)	Total 567.000
				ARWSP	167.000
				TM	400.000

6.9 State: **West Bengal**Name of the Mini-Mission District: **Bankura**

Schemes proposed		Schemes approved	
Sl. No.	Activity	Estimated Cost Figures in lakhs	Sl. No. Activity Original Cost (Figures in lakhs)
1.	704 Nos. of spot sources	176.00	1. 704 Nos. of spot sources 176.00
2.	Conversion of existing dug wells into sanitary wells/rejuvenation of dug wells/tube wells by vertical and horizontal drilling including trial boring and investigation work	256.30	2. Approved as in Sl.No.2 of proposals 256.30
3.	Operation & Maintenance	11.00	3. Training of Govt. & NGO officials attached with TM, Bankura 5.00
4.	Training & health education including materials for demonstration etc.	15.00	4. Training of personnel for repair & maintenance of spot sources 2.50
5.	Additional manpower & remuneration	3.75	5. Laboratory for water testing/ Awareness Building & health education 13.00
6.	Laboratory for water testing/ Awareness Building & health education	20.00	
	Total	482.05	Total 452.80
	Phase II	1.92	Eradication of Bacteriological contamination Phase II (Bankura & Birbhum Districts) 1.71
	Total	483.97	454.51

P.T.O.

Phase - II

Bankura District

Sl. No.	Activity	Proposed Cost	Approved Cost
	Eradication of bacteriological Contamination		
1.	Cost of sanitary protection works of 1.20 M dia x 18M deep existing RCC Rig wells	20,700/-	18,900/-
2.	Cost of new construction with sanitary protection works for 2 Nos. of 1.8M x 18M deep RCC Rig wells	59,000/-	55,620/-
3.	Cost of disinfection of water of existing and new sources	150/- (for 3 sources)	250/- (for 5 sources)
4.	Bacteriological examination kit	5000/-	5000/-
	Total	84,850/-	79,770/-

6.10 State : **Orissa**Name of the Mini Mission District : **Mayurbhanj (MM)**

Sl No.	Activities	Cost Proposed (Rs.in lakhs)	Cost Approved (Rs.in lakhs)
1.	Source finding activities	1.00	1.00
2.	Handpumps/sanitary wells 30 Nos	8.40	8.40
3.	New gravity fed R.W.S.S.	35.00	27.00
4.	Augmentation of 2 rural water supply schemes	21.60	21.60
5.	Construction of 5 water harvesting structures	10.00	10.00
6.	Water Quality Testing surveillance of monitoring 4000 samples	7.20	3.60
7.	Installation of 300 Iron Removal Plants	30.00	22.50
8.	Awareness campaign & training	3.00	3.00
9.	Establishment plain copies electronics typewriter, cost of Rs. R/C to tools plants	3.26	3.15
10	Expenditure incurred upto 4/89 against sanction dated 6-1-89		1.15
	Total	119.46	101.40

NOTE ON THE PARTICIPATORY PROJECT BEING IMPLEMENTED BY BGVS

Background

Bharat Gyan Vigyan Samiti (BGVS) is a voluntary organisation of eminent activists from the Literacy Movement, formed in the wake of the massive literacy campaign with the full support of Ministry of Human Resources Development. BGVS has grass-roots level network in about 150 districts in the country. Based on the premise that literacy without development is meaningless, BGVS has agreed to develop a model of sustainable, self-reliant development in the water supply and sanitation sector which springs from the people. BGVS, which functions as a consultancy organisation for the RGNDWM is implementing a project for 4 blocks in 4 Mini Mission districts-Purulia district, Kashipur block (West Bengal), Palamau district, Chainpur block (Bihar), Ganjam district, Bhanjanagar block (Orissa) & Ramnathapuram district, Mudakulathur block (Tamilnadu). This project is supported by UNICEF.

Project Purpose

The project purpose is to evolve a sustainable model of water supply and sanitation by combining the holistic knowledge of land and water resources which the community has with the technical knowledge of experts and by integrating various programmes and services of the government with the voluntary contribution of the people in a clear cut plan of action prepared jointly by the people and development officials with the help of volunteers with scientific background.

The project aims at giving confidence to the rural people to enable them to assess their primary resources and utilise them according to the priorities they deem essential. The final plan which would emerge would be based on the perceptions and needs of the community. The scientific personnel would only play a supportive and catalytic role.

At the end of the project through plot-wise mapping of various local features, the villagers would feel involved and respond constructively to their problems.

The maps would offer a vivid picture of the effect of the development process so far on the local resources, both positive and negative, and suggest the potential for the future. Since the maps would be the product of the cross-fertilisation of local knowledge and scientific assessment of resources, they could offer a rational basis for planning for future developments.

Some of the key features of the participatory resources appraisal methodology adopted by the BGVS as expressed in the document produced by the organisation are given below.

Objectives

- * Decentralise and internalise the process of planning at the village Panchayat level. This shall

be based on the micro-level terrain maps and socio-economic data base generated by the local people.

- * Bring out their invaluable and functionally important knowledge handed down through generations. Such knowledge is enriched by intimate day to day familiarity with the nature and use of local natural resources.
- * Involve and motivate local women in the process since they hold the key to socio-economic betterment of the community.
- * Plotwise mapping of local terrain conditions, land use, status of water resources and community facilities by local volunteers on cadastral maps, to build up a firm data base.
- * Record local perceptions about problems, solutions and suggestions for a desirable and sustainable land use on formatted data sheets. Sustainability can be ensured by a tempo of resource exploitation that does not overdraw on its carrying capacity now. Thereby, there shall be enough left also for future generations to use. However, this will necessitate the instilling of the value of "Need" and not "Greed".
- * Obtain genuine household-wise socio-economic and health-sanitation data through local volunteers to assist need based planning and development.
- * Prepare local Village/Panchayat level action plans with peoples participation. In the ongoing WATSAN programme. Emphasis shall be placed on water - source finding, extraction, enhancement, sustainability and management by local groups. Sanitation and better nutrition, which are keys to health and economic betterment shall also be part of the planning. This shall necessarily involve better primary productivity that can be sustained over the years to come.
- * Conduct the entire programme in a campaign mode, to create an environment conducive for instilling awareness and self-reliance.
- * Encourage the formation of local registered societies or NGOs to execute programmes and manage the created systems.

Useful strategies

At this stage, it is pertinent to note some of the basic premises on which the success of the programme depends:

- * The involvement of the local community at all stages; and volunteers from all sections, cutting across socio-economic barriers. They should preferably represent all hamlets/habitations.
- * Use of local terms in depicting land/water/soil/biota to facilitate eliciting local wisdom. It will also

make the exercise more acceptable and fruitful.

- * Restricting the parameters and information to a bare minimum in the first Phase, in conformity with the end use. This will also help in avoiding confusion and complications. Follow up resurveys can always be taken up by the community, once the initial mapping is completed and the standing volunteers group formed. It is a continuing process, whenever fresh plans are necessary, or to meet the needs of a new development perspective.
- * The programme elements should be kept flexible, according to local conditions, social setting and constraints.
- * An emphasis on obtaining ground truth by total village coverage; and not merely secondary or regionalised data. This alone can bring out the terrain variations at micro-level. - It will facilitate proper action plan and scheme formulation.
- * The approach towards the villagers must not be patronising. It has to be informal, empathetic and respectful. The purpose is to bring them out of their shells and volunteer information and suggestions. Involvement of local persons (men and women) in this process would help substantially.

Basic steps in the programme

The main steps that will have to be taken at various stages of the programme are stated in the succeeding paragraphs as check lists: -

- * Identify the area (State/Block/villages) in which the programme is to be taken and its focal point, viz., water sanitation, total planning for the Panchayat, agriculture and land utilisation, etc.
- * Decide upon the agency for catalysing the programme and its strength in the area. This will be followed by discussions and familiarisation with the key core personnel of the concerned organisation.
- * Evaluate the socio-economic set up in the target area and also the natural setting to decide upon the basic parameters to be adopted for resource evaluation. A perusal of available secondary data shall help.
- * Hold meetings and discussions with relevant functionaries of the Panchayats and State administration at all levels to evoke their response.
- * Initiate first level environmental building in the target villages to inform the dwellers about the purpose and broad modalities of the programme. Help of locally accepted persons like teachers, Panchayat members, social workers without vested interest should be sought.
- * Identify key agency leaders, resource persons, local Panchayat functionaries and selected

officials (DC/BDO, etc.). They should attend a centrally organised orientation course for a joint exposure to the programme content and field methodology.

- * Select a programme organiser for the Block or selected zone. He should preferably be a locally accepted social worker of sufficient capability. He should work on a whole time basis and possess adequate organisational capabilities.
- * Appoint scientific assistants from earth sciences and related disciplines on a training stipend basis (or select them from the voluntary groups/local State departments for the programme). They should attend the same orientation course. Later, registered cooperatives or NGOs for project implementation, and management of created assets can develop. Such user group formation should precede the formulation of schemes. Necessary training inputs have to be arranged for this. It is expected that the local volunteers who mapped shall play a key role in the process. They shall remain as a core standing development group that will also periodically update the maps and data.
- * Simultaneously, the District and Block level officials must cooperate and coordinate the mobilisation of funds. These are available under various rural development sectors and through Banks. This will ensure the implementation of the programmes planned by the community. District and block level committees may be suitably constituted. The background must be well prepared by the implementing agency well in advance, as indicated earlier in this section.

If there is any felt inadequacy in local environmental building at any stage, it can be compensated by taking it up seriously even at a late stage. The actual mapping process, however crucial, is relatively mechanical and simple compared to the community being able to comprehend the importance of the total socio-economic and primary resource dimensions of the programme. Therefore, a process of exhaustive environment building must be carried out, whatever the time it takes.

Role of scientists and technical functionaries

The scientific and technical functionaries have a special role to play in the programme. They can be drawn from local academic institutions and government agencies besides those working in voluntary networks. Their role is to be catalytic and supportive.

They will be responsible for the technical aspects and training elements of the programme. They should solicit the help of the organiser, lead volunteers and experienced resource persons of the locality, to work as a team to carry out their duties.

Their range of activities include:

- * Procure cadastral maps and arrange their copies.
- * Prepare course and training material in the local language.

- * Decide upon mapping parameters and map legends;
- * Train and orient local resource persons and lead volunteers.
- * Provide independent terrain analysis in the cadastral mode. This should bring out the micro level data pertaining to slope; fragility/erodibility; soil texture and depth; water availability etc., depending on the local conditions and natural setting.
- * Closely interact with villagers to elicit relevant terrain information about resource use and problems. These inputs, collated with their own data base and analytical results would lead to the preparation of a Derivative Map and Action Plan. This will show the areas with specific problems, such as erosion, flooding, drainage congestion, loss of productivity, salinity, mismanagement of water resources, inadequate catchment protection, etc.
- * Be ready with possible remedies based on interdisciplinary cross fertilisation of ideas between specialists from sectors like earth and biological sciences, agriculture and irrigation, soil science etc.
- * Help the volunteers in map finalisation.
- * Provoke the villagers to bring out their perceptions about land and water.
- * Be closely associated with all stages of community level discussions; preparation of integrated action plans; and also during the implementation stage.
- * Collect available secondary terrain related data about the area from local offices and governmental agencies.

However, for effectiveness, a Technical Support Group has to be formed -ideally through the Panchayat (where active), DC or BDO. Such a group should have local extension/implementation personnel and volunteers with technical background, besides the scientific assistants. Functionaries from agencies dealing with health, implementation of water supply schemes; hydrogeological investigations; soil conservation and agro-irrigation, must be drawn into the process.

- * The group shall function integratively at all stages of the programme at the local level. The Zilla Parishad (District Council) President and the Collector shall have to be actively involved to ensure cooperation and district level inputs.
- * It has to help in design and construction work connected with the implementation of local schemes.
- * It shall help in updating local skills and developing unskilled groups in the community, especially the women. The training inputs shall also include health and hygiene/sanitary aspects, apart from the water-cum-sanitation system management.

- * The group shall operate effectively before, during and after the programme to provide necessary inputs whenever needed.
- * The village surveyors/amins will also have to play a pivotal role in volunteers mapping. Procurement of cadastral maps, identifying plots and accompanying the volunteers teams during their mapping shall be a part of their role. They are also valuable repositories for information about the social setting of the village; and certainly of the various nitty gritty of the local land use and water management system.

The role of the science teachers in the villages and blocks will be highly relevant. They can, not only provide technical inputs but also, draw the school children into the programme on a significant scale. This will expose the children to a very important component of their learning, viz., resources and their utilisation. It will also instil an environmental awareness that will help future sustainable use of life supporting soil and water.

Role of Voluntary Agencies

Activists of voluntary agencies have to play the most crucial role in the entire programme to ensure the spontaneous participation of the local community.

- * Building up a receptive environment by explaining to the villagers the need for the programme. They shall also elucidate the links of land and water management with various developmental activities, including their health and socio-economic betterment.
- * Explaining the role the villagers have to play to plan on the basis of their knowledge and perception. This will be possible only if the value and importance of community experience about the use of natural resources is lucidly explained to them.
- * Organising the campaign with extensive village level contacts (Lok Sampark), in a culturally acceptable mode as in Literacy Movement. However, this programme is not a one way traffic to the people but one of give and take. All socio-economic sections have to be motivated, irrespective of their economic or social status to weave a community mosaic.
- * Making special efforts for the involvement of local women who alone can play a crucial role in social and economic betterment of the community. Assistance of influential local women should be solicited for this.
- * Identifying organisers & lead volunteers from each village. They should also mobilise local participatory volunteers with wide local acceptance - mix of youth and experience; and some with school education. It should be ensured that these volunteers represent all sections of society, and especially the under-privileged. Lead volunteers shall assist in this task.
- * Facilitating all phases of the programme by proper coordination between the Panchayats, Governmental agencies and local people. This shall also include the arrangements of local

hospitality and sponsorship to make the people feel that it is their own programme.

- * Motivating the people to cut across social, religious and economic divides.
- * Convincing the villagers about the importance of proper and sustainable use of their own natural resources. They should show them its links with economic betterment for all sections, and resource based local employment generation.
- * Demonstrating and training the volunteers in communicating with the people and in eliciting information available with them. Linked to this is the task of developing software like posters and pamphlets, folk art forms and kala jathas for this purpose. Local talent and lead volunteers shall be of great assistance.
- * Facilitating the technical aspects of the programme indicated earlier, by assisting the scientific assistants and lead volunteers in their work.
- * Showing the local volunteers how to carry out household socio-economic and health-sanitation surveys, using special data formats.

Thematic Resource Maps, Derivative Map and formats

The cadastral maps (revenue survey/mouza maps) shall be used as the base for mapping and preparation of the thematic and other maps. These are prepared by the State Survey Department and available at some level of administration, and probably in the local Panchayat/Block office itself. In fact, being the basis of land acquisition and ownership rights, the villagers are generally familiar with these maps, as is the village surveyor or "amin".

Since a vital component of the programme consists of actual plotting of features on the maps, a number of thematic maps have to be prepared.

The following seem to be the most useful themes: -

- * Terrain Features - depicting land characteristics; and also local land quality perceptions in vernacular.
- * Land Use status - depicting existing land use pattern and problems faced.
- * Water Utilisation and Community Facilities to depict water linked arrangements and structures, assets, amenities and infrastructural facilities.

However, the selection of themes may vary according to the local natural and socio-economic setting. Moreover, additional maps, may be necessary to avoid crowding of too many features. However, the ones indicated above seem to be the absolute bare minimum.

Unplottable data on the three themes, along with the villagers perception of problems and their solutions have to be recorded in specially designed formats. The household surveys shall also bring out the socio-economic and health-sanitation conditions of the village. The scientific assistants and lead volunteers shall also collect the relevant & available secondary data.

The preparation of the Derivative Map is a joint exercise for volunteers with acumen, scientific assistants, key Departmental and Panchayat functionaries. This is the basic document that will set planning in motion. Needless to state that the key role has to be played by the specialists of various kinds. Therefore, they must be well geared to work together; this symbiosis has to be developed during the earlier phases of the programme.

The Derivative Map is synoptic and synthesised by overlaying information from the other maps. This is supplemented by collating the data collected in formats and secondary mode. The process calls for innovation and creative thinking.

It has to identify gaps in development and infrastructure to be able to prioritise programmes. In doing this, the land quality and desirable land use pattern as brought out in the other maps, has to be considered. The map will ultimately lead to the formulation of developmental schemes, on the basis of community priorities. The map can only be finalised after consultations and dialogue with the community intimately.

Panchayat level Information System

The resource mapping programme will evidently generate a very large volume of plot-wise data besides the thematic maps themselves. The efficient management of the data (storage, updating, retrieval etc.) should be planned in advance. This should form an essential component of participatory developmental planning. Even if the mapping is not repeated for updating, the data matrix generated is invaluable - especially because it has been collected by the local villagers.

In the first stage, these should be analysed, collated and classified by the scientific assistants and village level volunteers to facilitate planning and identification of schemes for development. Tabulation camps can be organised for the purpose. Apart from the essentiality of the exercise to lay the foundation of a "Village Level Data Bank", the process will generate immense enthusiasm in the village and give them a real insight into the situation. The process has to be manual and non computerised to start with.

Ultimately, a Panchayat Level Information System as a software package has to be evolved to function as an economic analysis system blending the minimum graphic capabilities of a Geographical Information System (GIS) to represent and analyse the spatial micro level information. The development of such a system should be with the following objectives:

- * Store and analyse the panchayat level maps and data for deriving development indicators.
- * Provide hard copy outputs in both report and map form.

- * Link up the panchayat level data with the district level data based on GIS formats.

Supplementary Surveys and data collection for firming up schemes

The scientific assistants and other involved specialists shall have to play more than a supportive role in the action planning stage after the maps are finalised. They have to carry out certain independent surveys and observations in the village to ensure the viability of the suggestions made by the community.

For this purpose, they have to make necessary terrain related observations (topography; thickness of weathered material; prominent open joints or fractures, etc. for water targeting). They must also discuss with the departmental functionaries about the existing water supply and sanitation arrangements and their problems. This will be essential for the ongoing water and sanitation related programmes. Similar exercises can be undertaken in the case of programmes for total Panchayat planning. This will include the gathering and collation of all available and relevant secondary data.

The scientific assistants should ensure that the plot-wise data formats are filled in. Such data will include, inter alia, round the year agricultural practices, water level variations (seasonal), yield-depletion information, problems like water logging, drainage, erosion, fall in productivity, pollution, crop yields, etc. Inputs through discussions and dialogue with the villagers should be ensured to enrich the scientific data base.

They should examine the state of the catchment that influences the recharge of water; and depict the eroded zones and possible sites for water harvesting. While surveying the village, they can locate suitable water extraction sites, keeping the local sanitation arrangements in view. For example, - distance from sources of pollution, soil porosity factors, direction of seepage (above and below land surface), safe locations well away from the village habitations, drainage easement facilities vis-a-vis the extraction source etc.

They should prospect for sites for local material needed for construction of the well, weir, water harvesting structures, etc. In short, they must supplement the villagers mapping by a total local inventory related to water and necessary material resources.

In tracts with regular groundwater aquifers (like alluvium), the data available with State agencies have to be analysed to select water extraction sites and aquifer zones.

Collation and analysis of scientific data

The total data collected and the maps prepared by the volunteers should be adequately analysed by the scientific assistants and departmental functionaries. Such integrated information will be utilised to prepare the derivative map, described earlier.

local community, after the villagers come out with their suggestions. However, care should be taken that any such plans or suggestions should be simple and fully acceptable to the community. These should also be within the maintenance and management capabilities of the villagers.

Furthermore, there should be least external inputs of men and material. Ideally, its implementation should also lead to generation of employment within the village. However, the final programme for implementation has to be prepared in full dialogue with the villagers.

Participation of the community

Simultaneously, local village and hamlet level users committees will be formed, with the cooperation of the volunteers, and Panchayat functionaries (where elected and operational). Ideally, such committees should be elected by all the dwellers of a hamlet, for effectiveness. If the selection of mapping volunteers was done properly, they will certainly find representation on the committees so formed. In turn, the hamlet representatives will elect a village level management committee.

The four sets of maps prepared by the volunteers will be studied and critically appraised by the community in hamlet based group meetings in which the lead volunteers will play an active role. Thereby, the community priorities, development demands, gaps and problems will emerge. It is important that all socio-economic groups are represented in the discussions. Considerable time should be given for this activity, so that the community is ready for formal scheme formulation and action plans.

After these phases are over, the community representatives and technical personnel must jointly discuss the actions and priorities indicated by the community. Thereafter, the volunteers, experienced villagers and technical personnel should discuss and interact to work out a viable and acceptable action plan.

Linking up water and land management

Primarily, water extraction systems mainly for drinking water and related drainage and sanitary arrangements would have to be planned in dialogue with the community.

However, essential measures for water harvesting and catchment treatment for ensuring sustainability and enhancement of the local water resources would also be planned at this stage. This should be planned jointly by the local concerned officials, scientific assistants, experienced local villagers and volunteers.

Types of schemes and implementation

The approach should be self reliant, affordable and with least external inputs. Biological soil conservation, using suitable and familiar plants locally available, preferably with a commercial value is a good example. The construction of wells and water harvesting structures etc., must be done with local material to the extent feasible, the construction be done by local labour; and not by using contractors.

Where panchayats are not functioning, the users' committees could undertake the works. The system should be of such a type that its management can be locally accomplished and should also conform to the local cultural traditions, to ensure its fullest utilisation.

The objective is to have these local water extraction cum sanitation arrangements as an integral part of a community system of a cleaner and healthier village. It should, therefore, include programmes for resuscitating derelict ponds and ensuring their conservancy by bank management and proper use through the local committees. Convincing the people about toilet arrangements and selection of safe sites for community toilets and minimal hamlet-wise drainage also has to be taken up by the volunteers.

It is before this stage that an intensive house to house campaign is called for to make the villagers conscious about health, hygiene, nutrition and cleanliness. The local and willing women and volunteers must jointly undertake this task. As a strategy, focus on infant health and mortality may be a good motivating slogan.

Projectisation and administrative linkages

The relevant portions of the action plan should then be projectised as schemes for sanction by the concerned financial authority or department. This may be partly from the RGNDWM; and partly as a part of local developmental activities under the Jawahar Rojgar Yojana, etc. This needs to be coordinated by the DC/BDO and the District Council and Block level Panchayat Presidents.

Inter departmental coordination has to be initiated in advance between the activists and concerned District/Block level officials, and the Panchayat functionaries. This can be achieved through discussions and an Exposure Workshop. A standing Coordination Committee can also be formed at the District and Block levels.

This task is indeed difficult. Firstly, because of the numerous preoccupations that such functionaries have. Secondly, the culture of decentralisation has to be instilled in them by sustained efforts. It must be realised that there is a resistance to decentralisation at various levels. The silver lining is the availability of a large number of officials in districts and blocks with a social motivation, particularly after the Literacy Campaign has taken roots. However, once exposed to the enthusiasm and cooperation shown by the villagers during the programme, spontaneous bureaucratic support may be forthcoming.

Training inputs

Inputs of necessary training for identified villagers with acumen, with emphasis on the women, would be necessary. They should be able to manage and maintain the simple systems that are planned and to be constructed. It should also include all aspects of village hygiene and cleanliness, health and immunisation, etc. Help of trained and qualified workers should be sought for the purpose. However, training should be imparted in advance to some identified local volunteers. In turn, they can form part of the training team for the villagers. This would be a good strategy for effective involvement of the villagers.

Post constructional phase

The post constructional function of the volunteers and local users committee would be to

monitor the management of the system, update data and maintain links with Government agencies, preferably through the local panchayats. Thus, as an additional benefit, the programme will lead to the creation of a local peoples group that can oversee all developmental programmes in the village. It is hoped that the programme would ultimately lead to the formation of active and confident cooperatives and NGOs in the village that can attract non governmental financing and projects for development. This in itself could generate considerable economic activity to benefit the entire community.

Action planning for development cannot be strait-jacketed and according to rigid programme procedures. Innovations are necessary according to the level of confidence and mood of the local people. In fact, in the ongoing water & sanitation linked programme, four different models are emerging in the four Blocks taken up for the unique experiment.

NOTE ON O&M IN CERTAIN SELECTED STATES

I. Madhya Pradesh

The State PHED is in charge of maintaining the handpump scheme whereas the Gram Panchayats are assigned the task of maintaining piped water supply schemes. At the block level, handpump mechanics exclusively maintain the handpumps. The state has reported that only about 5% of the total expenditure on O&M is spent for preventive maintenance. The funds for maintenance are allocated on the basis of average cost of maintenance of PHED division. The spares are purchased by placing indent with the public sector undertaking and Laghu Udyog Nigam. Major items are purchased at DG S&D rates from approved suppliers. Only negligible quantities of spare parts are purchased off the shelf at lower levels.

Voluntary agencies are not presently being involved in the maintenance. There are no watchdog committees at the village level. However, on an experimental basis, women are being trained for handpump maintenance.

II. Tamilnadu

Except major schemes, the maintenance is done by an agency other than the one which created it; while TWAD Board is responsible for creation of assets, it is District Collector's responsibility for maintaining the handpumps and power pumps through the Divisional Development Officers and BDOs. The technical staff is on deputation from the TWAD Board. Normally, a caretaker from the habitation looks after the handpumps. He reports major repairs to the BDO. The block has got a fitter who attends to the repairs. In case the repairs are complicated, a mobile team, at the divisional level in the office of Divisional Development Officer which is headed by a Assistant Engineer, is sent to the handpump site.

All the power pump schemes have operators who are paid by the Panchayat. He reports to the BDO or the DDO for repairs depending on the severity.

III. Andhra Pradesh

In Andhra Pradesh, Panchayati Raj Engineering Department looks after the maintenance of handpumps. Local piped water supply systems are maintained by the panchayats. A three-tier system is being followed. The first tier is at the district level where there is one mobile team for 500 pumps; the second tier is at the block level where there is one mechanic for 50 pumps and the third-tier is at the village level where there is a caretaker for each pump. The mobile team consists of one mechanic, one driver and one mason and two helpers.

In six districts, a two-tier system is maintained i.e. at the sub-divisional level and at the village level. Now as an experiment in two sub-division areas a decentralised maintenance system is being followed. Local unemployed youths are selected and trained and entrusted with the task of handpump

maintenance in and around villages covering about 60-70 pumps. Each is paid Rs. 100 per pump per year; in addition the spare parts are provided by the department. The impact of this system is still being assessed.

IV. West Bengal

West Bengal has a full-fledged functioning Panchayati Raj system. The operation and maintenance of handpumps is the responsibility of Zilla Parishads which get it done through the Panchayat Samitis and Gram Panchayats. There is an exclusive O&M group consisting of a Sub-Assistant Engineer, two mechanics and two kalasis at the level of Panchayat Samiti. The spare parts are procured by the Zilla Parishad and handed down. Funds are devolved to Zilla Parishads for maintenance which is distributed among the Panchayat Samitis and Panchayats.

Though the panchayats are incharge of O&M, there is hardly any difference from a governmental system as the involvement of the community is absent. Alert members of the Panchayat and Panchayat Samitis are able to get better service from the mechanics. But the system is handicapped by shortage of funds. Had effective peoples participation been there, it would have eked out the meagre governmental resources for O&M. There are no watchdog committees at the village level; however there is a committee which is representative of the public at the Panchayat Samiti level.

Now there is a growing realisation among panchayats that this system is not sustainable. So several panchayats are now opting for training of local people and paying them either piece rate or daily wages, whenever required. The tool kit is maintained at the gram panchayat and is available to the mechanic when he is on duty. Initial feedback shows that this system is more effective.

ROLE ENVISAGED FOR VOLUNTARY AGENCIES IN THE MISSION ACTIVITIES

National Coordinating Agency

Council for Advancement of Peoples Action and Rural Technology (CAPART)

Implementing Agencies

1. National Association of Water Development Agencies (NAWDA)
2. National Resources Development Cooperative Society, Hyderabad
3. Centre for Environmental Education (VIKSAT), Ahmedabad
4. SEWA/UTTHAN, Ahmedabad
5. Many others

Background

The voluntary agencies have already been working in the field of providing safe water to identified problem villages for over a decade. A number of agencies have developed the expertise and the professional competence to carry out a variety of technical and professional services not usually associated with conventional voluntary agencies.

A major problem has been one of identity. Many of these agencies have been working closely with the community and have gained their confidence to the extent that social solutions have been found to semi-technical problems. In many areas where voluntary agencies have been providing drinking water, the methodology adopted has been radically different. The community has been involved in development of water sources (traditional) their own and also started repair and maintaining their own water supply where it has become too expensive for government to step in.

The Technology Mission has recognised the contribution of the voluntary agencies for the first time and the question is not why but how and when they can be involved in a significant way. It has been recognised that the alternative approach and methods adopted by these agencies has proved to be cost effective as well as being socially acceptable.

The Technology Mission will contribute to a change in thinking and attitude towards the role of a voluntary agencies in the supply of drinking water in problem villages.

Role of Voluntary Agencies

(As approved by the National Development Council in the VII Plan Document)

- * To support government efforts so as to offer the rural poor choices and alternatives.

- * To be the eyes and ears of the people at the village level.
- * To set an example; it should be possible for the voluntary agency to adopt simple, innovative, flexible and inexpensive means with its limited resources to reach a larger number with less overheads and with greater community participation.
- * To activate the delivery system and make it effective at the village level to respond to the felt needs of the poor.
- * To disseminate information.
- * To make communities as self reliant as possible.
- * To show how village and indigenous resources could be used, how human resources, rural skills and local knowledge grossly under-utilised at present could be used for their own development.
- * To demystify technology and bring it in a simpler form to the rural poor.
- * To train a cadre of grass root workers who believe in professional volunteerism.
- * To mobilise financial resources from within the community with a view to making communities self reliant.
- * To mobilise and organise the poor and generate awareness.
- * To demand quality services and impose a community system of accountability for the performance of grass-root government functionaries.

Objectives

- * To assist the government agencies to cover all the identified problem villages (2.27 lakhs) by the year 1990.
- * To reach safe drinking water to those communities (scheduled castes, scheduled tribes, backward communities) who do not have easy access to a perennial source.
- * To create structures where the involvement of the community of users in the planning and implementation at all levels is assured and institutionalised.
- * To generate awareness and consciousness of the need and importance of using safe drinking water.

- * To promote health education and environmental sanitation measures that would ensure potable drinking water.
- * To demystify technology and make knowledge and skills understandable, accessible and inexpensive.
- * To develop a community system of maintenance and repair through the handpump mistri system.
- * To encourage an integrated approach to evolving cost effective methods in technology dissemination.

Methodology

- * Identify capable, competent, professional and grass root voluntary agencies to supplement government effort in covering all the problem villages.
- * Involve the community from the initial stages in identifying and selecting water sources that could solve their problems and get them to participate in their repair and maintenance.
- * Mobilise human and technical resources available in the village conducive to furthering the objectives of the technology mission.
- * Organise training programme to upgrade skills at the operational level.
- * Arrange awareness generation camps on critical issues such as site selection, location of water source, repair and maintenance of water supply, health education, soil and water conservation, etc.
- * Develop and produce low cost materials using low cost technology.
- * Assist in the improvement of traditional methods in hilly, backward, tribal, coastal and inaccessible areas where alternative solutions are too expensive.
- * Compile and collect relevant data and design information systems which should make it available quickly to the concerned government and non-governmental departments.
- * Design operational location specific models that are replicable.
- * Follow integrated approach to mobilising human and financial resources by utilising existing schemes (RLEGP, NREP, DWCRA, TADP) to achieve the goals set up by the technology mission.

Activities

1. Source Development

Site selection through sophisticated technological means Hydrogeological and Geophysical investigations

2. Improvement of traditional methods

Structures, dugwells, tanks, ponds, percolation tanks, rainwater collection, khadins, stepwells conversions

Conservation of water

Enhancing potability

3. Purification of Water

Desalination - Training of trainers, supply of hardware

Filtration - Slow sand filtration

Pot cholination

Choline tablets

Candle filters

Eradication of guineaworm

Development of maintenance norms

Preparation of maintenance manuals

Training of handpump mechanics (HPMs)

4. Computerised management information systems

Taking stock of the existing studies already undertaken by the voluntary agencies (NAWDA-status of handpumps in Maharashtra: Geophysical investigations conducted by AFPRO: Information collected by GIT teams all over the country: Maintenance of handpumps, etc) and feeding it in the computer.

5. Monitoring and evaluation

Monitoring and evaluation to be done through identified voluntary agencies of the work done by other agencies on already accepted and standardised norms.

6. Awareness campaign

Extensive use of media like papers, newsletters in local languages, village camps, posters in

local languages, documentaries video films, padyatras and other traditional media to convey and communicate the following messages.

Importance of site selection through the use of simple technological means.

Role of women in selecting and certifying potable water source instead of leaving it to the engineers as is the practice.

Involvement of community in the identification of traditional methods.

Importance of personal hygiene to ensure potability.

Role of the handpump mistri (HPM).

Importance of integrating other programmes related to drinking water like health education, water and soil conservation, etc.

Water supply costs, especially the areas on operation and maintenance, will have to be met by the community.

7. Research and Development

Seismic survey technology for locating of deep aquifers.

Water balance studies of basin involving ground water table, groundwater flow, surface run off etc.

New designs and materials for delivery and distribution of water to inaccessible areas.

**NOTE ON THE SUCCESS ACHIEVED IN THE RK MISSION PROJECT
IN MIDNAPORE AND SWACH PROJECT IN RAJASTHAN**

A. Water and Sanitation Project in Midnapur district in West Bengal sponsored by the Rama Krishna Mission

This project is predominantly a sanitation project with a smaller drinking water component but its methodology is applicable to rural water supply projects also. The major emphasis of the project is on "advocacy" for which a specific strategy of awareness building and motivation among the people was formulated and translated into reality through personal contacts and group mobilisation.

The outreach facilities are provided by the village level Youth Clubs which form the grass-root level organisational structure. As of now, there are 682 village clubs. These clubs are grouped into 11 Clusters in 45 CD blocks. The Clusters are mainly involved in planning and monitoring and also in production, procurement and installation. The Clusters are helped by field staff. Each cluster has one Programme Assistant, one Work Assistant (Accounts) and one Work Assistant (Production) and four Work Assistants (Field). At the central level is the R K Mission Lok Shiksha Parishad which oversees the implementation and monitoring of the programme. It holds monthly meetings of the Clusters.

At the village level the Youth Club identifies motivators at the ratio of one for 200 families and the motivators are given a two and a half day training. These motivators alongwith the Youth Club leaders conduct family visits, group meetings and motivation campaigns. A large amount of IEC materials like flash cards, pictorial calendars, folders, leaflets, simple technical drawings, audio cassettes and video film are prepared and used.

The project has so far covered 34.92% of the population totaling 23.54 lakh people through various advocacy activities. Out of this, 1.28 lakh families were visited in their houses and another 5.82 lakh people were covered in motivation camps. The community has been involved in the planning and implementation process right from the beginning. Community contribution was insisted on. Local skills were built up by the clubs which trained masons. In order to produce and distribute building materials cheaply, 16 production centres have been started. The project has trained more than 500 handpump caretakers and 658 water committee members. The operation and maintenance is at the level of the community which uses the trained persons.

The extent of peoples participation and importance of motivation can be gauged from the following statement showing expenditure on social mobilisation and administration and the contribution of the community for installing 300 Tara handpumps and 31000 low-cost latrines.

Activities contributions	Community/beneficiaries administration	Amount spent for social mobilisation, training, and
Tara Handpump Programme	Rs. 3,22,244=56	Rs. 1,58,140=00
ISP	Rs. 68,21,625=39	Rs. 64,68,792=70
Total	Rs. 71,43,869=95	Rs. 66,26,932=70

Through effective advocacy and motivation, the need for proper water and sanitation facilities has been impressed on the community, which in turn, has come out fully to participate in these development activities. The result is that the facilities created are taken as belonging to the community and they are monitored with special care.

B SWACH Project

This is an integrated sanitation, water supply, guineaworm eradication and community health project implemented since 1986 in the Dungarpur and Banswara districts of Rajasthan with the help of Unicef/SIDA. This project implemented in a relatively backward area of Rajasthan has been very successful in implementing the software aspects of which the best examples are the village contact drives, village animators and social communication.

VILLAGE CONTACT DRIVE - (VCD)

Village Contact Drive (VCD) is a unique SWACH approach to reach maximum number of rural inhabitants in a coordinated fashion in a short time span. Village contact drives are organised with the help of a number of village contact teams. Each team comprises of two male and two female members who undergo a residential training for five days. After training, these teams move out in the field on padyatras for a fortnight covering fifteen villages. These teams make night halts in the village and their daily activities include door to door contact, filling of questionnaire, group meeting. "Prabhat Pheris and cultural programmes in the evening, in which songs in local dialect, skits, puppetry are used as means of communicating SWACH messages. This is how traditional and effective methods of communication are used.

Village Contact Drives are organised once a year by the Project to mobilise the community, to educate them and to establish a two way communication with them. Through these drives, SWACH not only disseminates its messages on personal hygiene, sanitation, environmental sanitation and guineaworm eradication, but also collects vital information on guineaworm disease status, sanitary conditions and finalise the handpump sites in consultation with village women for planning project activities.

AWARENESS CAMPS

A continuous dialogue is carried on with the community in the form of awareness camps. Animators and local NGO's organise three days women's awareness camps for promotion of health education and pursuance for adoption of better health practices like filtration of water, use of long handle lota, use of waste spill water from handpump for plantation of vegetables and fruits. After the camp, the NGOs and animators regularly hold meetings with women to motivate them to adopt new habits for better health.

INTENSIVE GUINEAWORM ERADICATION DRIVES

These drives are held before the onset of the Guineaworm seasons for disease surveillance and to sensitize the rural community on the causes and transmission of guineaworm disease, how to break the transmission cycle, how to prevent themselves from falling victim to this dreaded disease, why to use safe water sources, and why not to use open sources, etc. Special teams of educated villagers are formed who after a four day residential training convey all these messages with the help of flip books, charts, posters, religious songs, by enacting small dramas on themes related to guineaworm, etc.

To treat the guineaworm patients, SWACH organises curative camps. During these camps, through demonstration and 'Health Taksl', patients, attendants as well as villagers are oriented on how to avoid the transmission of the disease.

ANIMATORS

SWACH has developed an all women cadre of grassroot level functionaries called Animators or Sachetaks. Women from the community with a little education and showing leadership qualities are taken as Sachetaks. Each animator covers a cluster of 3 villages with a population of 1500-2000 persons. This enables the animator to visit a village 6-7 times a month within a distance of 4-5 km from the residence.

The selection procedure for animators was specially designed. Names of interested and enthusiastic women between 20-45 years of age were collected through the village contact drive as well as through adult education instructors, ICDS supervisors, sarpanchs, NGOs and similar sources. Selection camps were organised at the block level lasting one and a half days in which 25-30 participants were invited. There were seven sessions in the selection camps:

First Session	Introductory session
Second Session	Writing ability. An application was written by each participant in the camp. Secondly a brief note about the sanitary problems of their own village was written.
Third Session	Collection of information through surveys of nearby five families
Fourth Session	Oral communication skill
Fifth Session	Cultural programme
Sixth Session	Comprehensive ability of a picture

Seventh Session Interview

The selected persons were given detailed training which included a one day orientation course, a four day residential course and frequent refresher courses. After the training each animator was provided with the kit which contained necessary IEC materials. The training methodology was totally participatory.

There are supervisors for each groups of 5-6 animators. The supervisor has to be an educated person having secondary school education and is also selected in the manner described above and given training.

The animators serve as two-way information and communication links between people and the project. They carry safe water, guineaworm eradication, hygiene and sanitation messages to rural women and bring back valuable information on handpump breakdown, guineaworm cases, stepwells to be converted and related matters. They educate village women on how to use the handpump, use of washing platforms, care of the environment around the handpump, drainage improvement, use of handpump waste water for kitchen gardens and tree plantations, hygiene storage and use of drinking water, construction of soakage pits, as well as other health practices such as immunization, oral rehydration and construction of latrines.

The motivation and training of animators has had several positive spin off effects besides achieving their basic objective of educating the villagers on sanitation and water supply and on the dangers of guineaworm disease. The animators were able to persuade the villagers to have kitchen gardens, small plantations, smokeless chullas, etc. The animators also were able to establish linkages with other departments like Education, Health, Women & Child Development and Rural Development.

SOCIAL COMMUNICATION

SWACH is practicing simple, direct, problem solving and feasible communication techniques which are constantly evaluated and readapted to reflect the needs of the community and provides tangible rewards for community efforts.

To launch the programme, various training and orientation programmes for grassroot level functionaries, teachers and NGO's were organised. Community leaders, line departments representatives, local artists and NGO's were consulted while formulating different strategies. This is a continuing process.

Rural communities are associated while implementing physical interventions also. Village women are consulted for location of handpump. All efforts are made to talk with the owners and users of stepwells and take them in confidence before converting a stepwell into drawwell. Two pit sanitary latrines for individual household has been a tremendous success in the project area because of peoples involvement alone.

COMMUNICATION MATERIAL DEVELOPMENT

For developing communication and training material, three day workshops were organised wherein the project themes like guineaworm eradication, safe water, environmental sanitation, etc., were explained to the local writers and poets on first day. They developed slogans, songs, short skits on the proposed themes. On the third day of workshop, these newly developed items were presented before the group. The songs tunes were based on the popular folk songs tunes which can easily be picked up by the villagers during the drive and campaigns. Handpump arti based on 'Arti' "Om Jai Jagdish Hare" was found to be very popular and accepted by the villagers. Similarly, puppet shows were developed on project themes and played by the local youths and girls. Local artists were involved in developing posters on selected project messages with special reference to local geographical and cultural environment. These prototype material were field tested and produced after incorporating suggestions. From time to time the IEC material is being reviewed as well.

WOMEN HANDPUMP OPERATORS

The SWACH tried an interesting experiment using women as handpump mistries. Groups of three women were trained who have been made collectively responsible for 30 handpumps for their villages. The villagers use them for repair and pay them the repair charges. Initially, 24 women were trained and later this has been expanded. Though a small venture, it has been able to establish the significance of the experiment.

**PERFORMANCE OF SELECTED WATER QUALITY LABS AT THE
DISTRICT LEVEL IN THE LAST 3 YEARS**

District	1990-91	1991-92	1992-93
Jhabua	313	225	57
Raigarh	310	502	660
Rajragh	232	1312	1209
Kurnool	1421	2391	4600
Anantapur	1661	1012	2507
Erode	980	samples in three years	
Ramnathapuram	983	samples in three years	
Salem	2237	samples in three years	
Ambala	573	898	1598
Dharamshala	635	1900	1718
Nagaur	724	1871	1645
Daltonganj		--	125
Singhbhum		325	310
Jamnagar		676	325*
Valsad		526	453*

* For Part II Survey on quality of water additional samples were analysed.

ROLE OF NICD AS A NODAL ORGANISATION IN GUINEAWORM ERADICATION

NICD, Delhi an institution under the Director General of Health Services has been designated as the nodal agency for the planning, coordination, guidance and evaluation of guineaworm eradication programme. Initially NICD convened various meetings of expert groups and based on their recommendations it formulated and field tested the strategies on which National Guineaworm Eradication Programme was launched by Government of India during 1983-84. NICD has designed an efficient information and evaluation system which envisages timely flow of requisite information from the village to the PHC, then to the district and finally to the central level for concurrent monitoring of the programme as well as providing feedback for undertaking prompt corrective measures. At the national level, there are two review meetings of all the state guineaworm eradication project officers. Annually NICD convenes the meeting of Task Force under the chairmanship of Director General, Health Services, Government of India comprising of Secretaries of Health and PHED, Director of Health Services, Chief Engineer (RWS) and GWEP officers of the endemic states, experts from WHO and Unicef, officers involved in GWEP like the Planning Commission and officers from RGNDWM. The Task Force reviews the situation in detail and gives suggestions for modification on strategies and for follow up. So far 15 Task Force meetings have been held and the recommendations have resulted in improving the quality of the programme.

In addition NICD has deployed 12 Epidemiological Surveillance Team (ESTs) in the states of Andhra Pradesh, Karnataka, Madhya Pradesh, Maharashtra and Rajasthan from December, 1989. These teams cover the endemic districts and help the district and PHC functionaries in carrying out the programme. The ESTs work on a design methodology and information system under the guidance of the NICD as well as State Health Directorates.

Officers from NICD regularly visit, almost monthly, the priority guineaworm affected districts for on the spot review and guidance of the concerned authorities.

NICD has already conducted five independent evaluations in the country.

All these have contributed to the success of the programme.

**A BRIEF PROFILE OF THE R&D PROJECTS UNDERTAKEN
BY THE MISSION**

Titles	<u>Funds (Rs in lakhs)</u>		
	Released	Spent	Balance
<u>NGRI</u>			
Appraisal and management of water resources of problem areas	8.00	6.24	1.76
Development and field testing of software for rapid interpretation of geo-electrical exploration data	7.40	6.63	0.77
Saline fresh water interface dynamics in coastal saline water movement with time	3.00	3.00	0.00
Russian NMR hydroscope studies	5.00	5.00	0.00
Development and application of hydraulic fracturing stimulation technology	13.00	2.54	10.56
<u>NEERI</u>			
Development of water analysis kits (aquatester & bacteriological tester)	2.50	2.50	0.00
Design and development of mobile water testing laboratory	10.16	10.16	0.00
<u>NCL</u>			
Development of control release abate (Temphos) or other suitable chemicals for guineaworm control	6.00	6.00	0.00
Evaluation of polymer of long chain	7.00	6.41	0.00
	13.1		

alcohols and alkoxy ethanol mixtures
for water evaporation control at high
wind velocity

NBRI

Identification of plant species for biological purification of water	8.00	8.00	0.00
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MERADO, Ludhiana

Optimisation of RO plant design for desalination of brackish water	6.10	5.64	0.46
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Development of economy tap for community water supply	2.10	2.10	0.00
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MERADO, Madras

Design and development of improved shallow well handpump	12.00	11.93	0.07
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SERC, Ghaziabad

Design, development and construction technique for ferro-cement based structure like check dam, underground barriers, large capacity water tanks	6.50	6.39	0.11
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CSMCRI

Development of RO/ED technology or their combination for desalination of sea water including synchronised drive for ED unit	7.40	5.66	1.74
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ITRC, Lucknow

Design, development of mobile water testing laboratory	5.63	5.63	0.00
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CEERI

13.2

Development of portable electronically
controlled battery operated incubator

0.40

0.40

0.00

HRD POLICY - 1993

1. The assessment of training needs in each State, being the prime need, should be made within 6 months. The Ministry of Rural Development, Government of India will provide necessary guidelines for assessing the training needs with 2 months to each State.
2. The objective of the HRD Programme is to have atleast, one trained person at the village level. To met this aim, it is necessary to train atleast 20% of the grass-root level functionaries at the village level, atleast 15% middle level supervisors and 10% of top level decisions makes in each year for each of the State.
3. The training modules to be developed should be need based and practice oriented.
4. There should be a super specialised training programme in the area of policy planning and all aspects of project planning including formulation, analysis, monitoring and evaluation for a select group of persons. The faculty for this training programme should be the best talent available in the country and outside.
5. Adequate number of refresher courses should be planned for trainers and they should be conducted at regular intervals.
6. The training programmes identified for different target groups are listed in Appendix-A.
7. All the new entrants to the Public Health Engineering Department/Department responsible for Rural Water Supply and Sanitation in the state should be given induction training for 3 to 6 months, depending upon the cadre before his/her regular posting. It was felt that this induction training should also include hands-on training as well as modern technologies in this sector.
8. The present curriculum at the degree and diploma levels in the engineering institutions and polytechnics do not have coverage on rural water supply and sanitation technologies. It is therefore, strongly recommended that an elective course both at the degree and diploma levels in final year of engineering education of engineering institutions as well as polytechnics must be introduced. Further, the projects taken up in the final year at degree and diploma levels should include those covering rural water supply and sanitation technologies.
9. A subject on handpump installations ,its operation and maintenance should be introduced in the diploma/certificate course offered by ITIs.

10. The institutions and training centre under the ITN programme should be assigned the responsibility of preparing and producing standardized training course modules both for district level trainers as well as grass root level trainees.
11. The Ministry of Rural Development should finalise and publish the training modules for nation wide use.
12. A reference centre should be created to collect, store and disseminate literature and training material including Information, Education and Communication material under the overall control of the Ministry of Rural Development. The Ministry of Rural Development, Government of India may collect the existing material from different agencies including those from other developing countries.
13. Participatory preparation of IEC material by local talents should be encouraged.
14. The training material for grass root level trainees should be in regional languages and should incorporate audio-visual aids including slides, video/audio tapes, posters, charges and handouts.
15. A newsletter on rural water supply and sanitation should be published by Ministry of Rural Development, Government of India.
16. All the key institutions should be provided with all the relevant models of various rural water supply and sanitation systems.
17. The key institutions should be provided with a mobile awareness cum survey van equipped with audio visual aids in addition to other infrastructural facilities.

INSTITUTIONAL ARRANGEMENTS

Institutional arrangements required for human resource development in the water supply and sanitation sector are detailed below:-

I. Arrangements required at the Government of India level

1. A HRD Cell should be created in the Ministry of Rural Development with a National Coordinator of the rank of Additional Adviser, and an Assistant Coordinator of the rank of Assistant Adviser, with suitable secretarial assistance possessing proficiency in computers.
2. A National Committee may be constituted to function as the Advisory Group of HRD consisting of representatives of the following Ministries/Organisations.

- (i) Ministry of Rural Development
- (ii) Ministry of Human Resource Development (General Education and Technical Education)
- (iii) Ministry of Urban Development
- (iv) Ministry of Health and Family Welfare (Health Education)
- (v) Ministry of Labour(Employment)
- (vi) CAPART
- (vii) ICAR
- (viii) CSIR
- (ix) NIC
- (x) Network Centre
- (xi) Two representatives of State Governments

The meeting will be chaired by the Secretary, Ministry of Rural Development, the National Coordinator will be the member secretary. JS(TM) will be its Vice Chairman. This Committee should meet atleast twice a year.

3. The National Coordination Committee for ITN will be restructured to include in addition to the present members, all key institutions, WHO, UNICEF and NIC. All external support agencies directly contributing to the ITN would become members. This committee should meet at least once a quarter.

II Arrangements required at the State Level

1. A HRD cell will be located at the State headquarters of the Department/Agency in charge of RWS preferably with a Superintending engineer acting as State Coordinator, in the case of bigger states, and an Executive Engineer acting as state coordinator in the case of smaller states. State Governments may provide necessary secretarial support to this cell. This cell will be incharge of coordinating the entire HRD activities in the rural water supply and sanitation sector in the state. It will be responsible for giving feed back to Government of India on the programmes and the functioning of various arrangements proposed in the state.

2. The following committees will be constituted in the States:-

- a) An Apex Committee at the level of Government
- b) An Executive Committee at the level of Heads of Department.
- c) A District Committee at the level of districts level officers.

A) APEX COMMITTEE

Composition:

Secretary in charge of rural water supply - Convenor
Secretary in charge of Rural Sanitation (if separate)
Secretary ,Rural Development,
Secretary,Panchayati Raj,
Secretary,Health and Family Welfare,
Secretary in charge of SC/ST, Women and Child Development,
Secretary,Education,
Secretary,Technical Education,
Secretary,Employment,
Secretary in charge of Personnel/Training,
Secretary,Agriculture,
Secretary,Finance,
Representative of Ministry of Rural Development, Government of India.

The State Governments may make appropriate arrangements to assign the chairmanship of this Committee.

Functions:

1. Identification of departments/agencies which are to participate in the HRD in the rural water supply and sanitation sector and approval of all categories of staff/non officials requiring training in the sector and also broadly approving the areas of training.
2. Laying down policy and implementation procedures for selection and deputation for training and deployment after training.
3. Identification of existing training infrastructure available and planning its optimal use.
4. Arranging of funds allocation and funds flow.
5. Approval of calendar of training to be prepared by the State Executive Committee.
6. Review the progress of HRD programme implementation.
7. Provide necessary feed back to and interact with Ministry of Rural Development, Government of India through the Convenor.

This Committee may meet atleast twice a year.

- B) State Executive Committee on HRD for RWSS

Composition:

Secretary incharge of Rural Water Supply - Chairperson,
Head of Department PHE/Agency in charge of RWS
Heads of Departments of Health,
HRD,
Technical Education,
Education, Employment,
ITIs,
Rural Development,
Panchayati Raj,
Welfare of Women, Children and SC/ST
Key institutions/network centre looking after the state
UNICEF

Other external support agencies involved in RWS and Sanitation programmes of the state,
Representatives of the eminent NGOs active in the field of RWSS (to be selected by the Chair person)

This Committee may meet at least 4 times a year. The State Coordinator for HRD will be the convener of this Committee.

Functions

1. Identification of categories of staff/non officials to be trained, and the areas of training
2. Identification of trainees and trainers of and above the district level.
3. Identification of training institutions of and above the district level.
4. Preparation of calendar of training for the personnel mentioned in 2 above.
5. Approval of list of trainees/training institutions and calendar of training prepared by the district HRD Committee.
6. Planning and utilization of training funds.
7. Regular monitoring of the progress of implementation of the HRD
8. Preparation of procedures to ensure optimal utilization of trained personnel.
9. Providing necessary feed back to Apex Committee for policy decisions.

B) District level Committee

District Collector (Chief Executive Officer of Zilla Parishad)- Chairperson,

All District Level Officers representing Departments which are Members of the State Executive Committee, NGO's in the District active in Rural Water Supply and Sanitation.

This Committee may meet once in a quarter and the senior most Engineer, Incharge of Rural Water Supply and Sanitation in the districts will be its convenor.

Functions:

1. Preparation of list of grass-root block and district level trainers/trainees from concerned departments and non-government organizations.
2. Identification of institutions/locations for conducting /imparting training.
3. Preparation of calendar of training for the category mentioned at 1 above.
4. Monitoring and evaluation of training programmes at the district level.
5. Providing necessary feed back to the State Level executive committee.

III Role of State Government

In addition to administrative arrangements suggested above the State Government will also ensure the following:

1. A separate budget provision should be earmarked for the purposes of HRD in rural water supply and sanitation sector.
2. The State Government should evolve rational and easy procedure for release of personnel at various levels including training outside the state and outside the country. It is suggested that an advance list of persons to be sent for training may be prepared and approved by the government in the case of training outside the state or country and by appropriate level for other categories; Once, this list is approved, it should be deemed as Government sanction for the training ensuring automatic relief of personnel. This arrangement will ensure advance planning by the Department for making necessary arrangements during the absence of personnel deputed for training.

3. There should be clear delegation of powers for nominations to training as well as incurring necessary expenditure.
4. If a centre for training of PHE personnel is not available at present it is not necessary to create a new centre. The State Government could use existing facilities like SIRD and strengthen them using the training funds in RWSS.
5. The State Govt. as a policy should establish linkages with HRD programmes of various departments like TRYSEM, Total literacy, etc.
6. State Government should provide adequate incentives to trainers. In the case of non-official trainees a subsistence allowance could be provided.

IV Role of Government of India

In addition to creation of HRD cell in the Ministry of Rural Development, Govt. of India may consider the following points also.

1. To identify new institutions in areas like the northeast where the existing training infrastructure is inadequate.
2. To upgrade and strengthen all the training network institutes on the concept of 'minimum needs'.
3. To take action to conduct one workshop per annum to exchange experiences regarding various training programmes.
4. To collect and disseminate all materials relevant for training to the various state governments. This should also include case studies of importance.
5. Uniform cost norms for different programmes should be prepared. It is suggested that cost norms given in the concept paper should be adopted with suitable escalation to reflect current price levels.
6. The HRD cell at the Ministry of Rural Development should establish linkages with related HRD and awareness creation programmes of other Ministries like Health, Education, Welfare, etc.
7. Government of India may circulate the decisions of this conference to the States and the consensus opinion may be issued in the form of a Manual.

V Monitoring and Evaluation

There should be a system whereby in each course the trainees give an assessment of the quality of the training as well as the trainers in simple formats which could be consolidated and analyzed easily using computers. There should be concurrent evaluation of the training programmes both by State level and National level agencies.

There should also be quarterly reporting of the progress of the training through the NICNET system. The impact study of the training programmes/courses should be made once in 3 years by Government of India by an expert organisation like NIRD etc.

VI Financial Implications

1. One per cent of the total investment in rural water supply and sanitation (from both plan and non plan sources) should be earmarked for HRD programme in rural water supply and sanitation.
2. This programme should be a Plan scheme.
3. The commitment should be shared equally by Government of India and the State Governments.
4. Assistance to key institutions and network centres should be fully funded by Government of India.
5. Appropriate norms may be evolved for devolution of funds to the state governments.
6. The assistance from external support agencies should be used as an additionality.

Training Programme For Different Levels Of Trainees

Target Group	Type of Training course	Duration of course
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Grass Root level

<p>O&M of Handpumps O & M of village water supply facilities Installation and maintenance of Drainage or Low Cost Sanitation facilities. O & M of water treatment plants. Pipe Line/Pump/Electrical/ Maintenance of standposts. Health Education. Community participation/Mass Awareness. Water Quality. Disinfection.</p>	<p>2 to 5 days</p>
--	--------------------

Middle level planners

<p>Supervisory Management concepts Project Management Water Resources Planning Construction and O&M of handpumps Construction and O & M of water treatment plants Construction and Maintenance of pipeline/ pump/ electrical installations. Health Education Community Participation and Awareness Water Quality Administrative and Programme coordination Scientific source finding and geohydrology Computer applications in RWSS planning Financial management</p>	<p>1 to 5 days</p>
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Top Level Decision makers

Management concepts
Project management
Effective decision making using MIS
Water Production/Delivery
Water Quality
Low Cost Sanitation
Health Education
Community Participation
Water treatment/O&M
O&M of Water/Sanitation systems
Water resources management
Ecology and environment impact assessment

2 days

POSTSCRIPT

**Report of the Expert Committee on
Rural Water Supply Programme**

**Correspondence
And
Summary of Recommendations**



P. K. Sivanandan
Joint Secretary & Mission Director
Tele: 381104

ग्रामीण विकास मंत्रालय
भारत सरकार
कृषि भवन, नई दिल्ली-110001
MINISTRY OF RURAL DEVELOPMENT
GOVERNMENT OF INDIA
KRISHI BHAVAN, NEW DELHI 110001

February 12, 1993

Dear Dr. Shekhar Singh,

I am writing this letter in continuation of discussions I had with you at Gandhinagar on 11th February. We are planning to conduct a rapid evaluation of the rural water supply programmes of the country in general and of the Technology Mission in particular so as to come out with suggestions for strengthening the rural water supply programmes with reference to the Technology Mission concept. The study is expected to be completed in about six months and the study team is likely to consist of 6-7 members drawn from among Rural Water Supply Engineers, Groundwater Specialists, Financial Experts, Environmental Experts and NGOs.

I am enclosing some background information about the Rajiv Gandhi National Drinking Water Mission for your information. May I request you to convey your consent to be a member of the proposed evaluation committee.

warm regards,

Yours sincerely,

(P. K. Sivanandan)

Dr. Shekhar Singh,
IIPA,
Indraprastha Estate,
New Delhi-110 002.



सत्यमेव जयते

B. N. Yugandhar
Special Secretary

ग्रामीण विकास मंत्रालय
भारत सरकार
कृषि भवन, नई दिल्ली-110001
MINISTRY OF RURAL DEVELOPMENT
GOVERNMENT OF INDIA
KRISHI BHAVAN, NEW DELHI-110001

D.O.No.W-11021/4/93-TM-II

April 30, 1993

Dear *Prof. Shekar Singh*,

The Ministry of Rural Development have decided to appoint an Expert Committee to conduct a detailed technical financial and organisational evaluation of its Mini Mission Programme of Drinking Water Supply and prepare a reconnaissance study report. I am attaching herewith a copy of the Order constituting this Committee together with its terms of reference.

I am happy to welcome you to serve as Member of this important Committee on whose work depend the future orientation, strategies and implementation aspects of all activities of Mini Mission. I am confident your experience, expertise and contribution would be invaluable in the working of this Committee.

The first Meeting of this Committee will be convened shortly wherein the modalities of work and other logistics could be decided upon. I look forward to your cooperation in the successful completion of the work of this Committee.

With Warm Regards

Yours sincerely,

B. N. Yugandhar
(B. N. Yugandhar)

Prof. Shekar Singh,
Indian Institute of Public Admn.,
I. P. Estate,
New Delhi.

NO. W-11021/9/93-TM II
Government of India
Ministry of Rural Development
Rajiv Gandhi National Drinking Water Mission

9th Floor, Paryavaran
Bhavan, CGO Complex,
New Delhi - 110 003.

April 30, 1993.

O R D E R

Subject: A reconnaissance Study Report on the functioning of the Rajiv Gandhi National Drinking Water Mission (RGNDWM) Programme.

Keeping in view the fact that the Centrally sponsored Rural Water Supply Programme has been in operation for a long time, the 8th Plan document emphasised the need for an in-depth evaluation of the programme in order to identify changes if any, required in the concept, the content or the manner of implementation of the programme including Mini Mission and Sub Mission projects.

During the Annual Plan (1993-94) discussions as well as at the meeting of the Expenditure Finance Committee on RGNDWM held on 2nd March, 1993, it was decided that a reconnaissance study report by a group of Experts will be necessary. It was also decided that the findings and conclusions of the study by the group of Experts could be incorporated in restructuring the content of the Rural Water Supply Programme particularly the Mini Missions and Sub Missions initiated under the Technology Mission on Drinking Water in villages launched in August, 1986.

In pursuance of the above decision, it has now been decided to constitute a Team of Experts.

COMPOSITION:

The Expert Group would consist of the following members :

1. Dr. B.B. Sundaresan Chairman
Former V.C. of Madras University)
No. 76, First Avenue, India Nagar,
Madras - 600 020.
2. Shri R.S. Raghavendra Member
(Retd. Engineer-in-Chief, M.P.)
Sector E-7, H. 461, Arera Colony,
Bhopal.

- | | | |
|----|--|------------------|
| 3. | Dr. K.R. Karanth
(Retd. Director CGWB)
'Sankalpa'
625, Padmanabha Nagar
Bangalore - 560 070. | Member |
| 4. | Prof. Sekhar Singh
IIPA, IP Estate,
New Delhi. | Member |
| 5. | Dr. Chakraborty
(Secretary Ramakrishna Mission)
Ramakrishna Mission Ashram
Narendrapur, South 24-Parganas - 743508. | Member |
| 6. | Shri S.M. Vijayanand
Dy. Secretary, RGNDWM. | Member Secretary |

TERMS OF REFERENCE

The Expert Group's main responsibility will be:

- (i) To submit a reconnaissance study report based on interviews and discussions, field visits and data collected directly and through secondary sources covering the Mini Missions in atleast 4 major States and 2 other purposely selected States.
- (ii) Detailed Technical, Financial and Organisational evaluation of the Mini Mission programme with recommendations for its restructuring and additional coverage if any. The group's work could be supported by field studies on selected aspects as emerging from the reconnaissance study to be carried out by any independent organisation having adequate field network. The specific subjects to be covered by the Expert Group are:
 - (a) Reasons for re-emergence of 'No-source category villages'
 - (b) Sustainability of the water supply system with reference to (i) Technical (ii) Financial (iii) Organisational and (iv) Environmental aspects.
 - (c) Extent of integration of drinking water supply component with other related components
 - (d) Success in evolving an appropriate technology mix for rural water supply
 - (e) The impact of Sub Missions their technical and financial viability and their acceptability to the people and, strategies for the future Sub Mission programmes.

- (f) Adequacy of present arrangements for operation and maintenance of the assets created for the Rural Water Supply.

BUDGET

The honorarium for the non-official members of this team would be regulated as per the existing Rules of Govt. of India. The budgetary requirements for travel, field studies, secretariat support, etc. would be provided by the TM Division. The travelling Allowance of the members of the Expert Group who are not Govt. servants would be governed by the provisions of S R 190 as amended from time to time.

DURATION

Since the results of the study are going to be used in restructuring the activities of the Rajiv Gandhi National Drinking Water Mission, it is necessary that the study is completed as early as possible; The study should therefore be completed within four months from the date of commencement.



30.4.1993
(P.K. SIVANANDAN)

JOINT SECRETARY & MISSION DIRECTOR



सत्यमेव जयते

S M VIJAYANAND
DEPUTY SECRETARY
PHONE - 4361052

ग्रामीण विकास मंत्रालय
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Government of India
Ministry of Rural Development
Paryavaran Bhavan
B-1 Block, 9th Floor,
C.G.O. Complex, Lodhi Road,
New Delhi-110 003

D.O.No. W-11021/9/93/TM 11

July 6, 1994.

Dear Prof. Shekhar Singh

I am happy to inform you that the final report of Expert Committee on Evaluation of Rural Water Supply is to be submitted to the Prime Minister at 11 A.M. on 13th July at the South Block office. I request you to be present on the occasion. I am enclosing a copy of the final report for your reference.

I request you to reach Room No. 177 of Shri Ashok Jaitly, Addl. Secretary (RD), Ministry of Rural Development, Krishi Bhavan, New Delhi by 10.15 A.M. on the 13th of July, 1994.

With regards,

yours sincerely,

(S M VIJAYANAND)

Encl: a/a

Prof. Shekhar Singh
Professor
Indian Institute of
Public Administration
Indraprastha Estate
New Delhi.



पी.के. शिवानन्दन
संयुक्त सचिव एवं मिशन निदेशक

P.K. Sivanandan
Joint Secretary and Mission Director

D.O.No.W-11021/9/93-TM-II

भारत सरकार
ग्रामीण विकास मंत्रालय
राजीव गांधी राष्ट्रीय पेयजल मिशन
पर्यावरण भवन, बी 1 ब्लॉक 9th फ्लोर, सी जी ओ कॉम्प्लेक्स, लोधी रोड, नई दिल्ली 110 003

Government of India
Ministry of Rural Development
Rajiv Gandhi National Drinking Water Mission
Parvataran Bhavan B 1 Block 9th Floor C G O Complex Lodhi Road, New Delhi 110 003
Tel No 4361043 Fax No 4364113


December 20, 1994

Dear Prof. Shekhar Singh,

I have received your letter along with the cheque which we had sent to you towards honorarium. We in the Ministry appreciate the sentiments expressed in your letter. As I have personally seen, your contribution to the functioning of the Committee was substantial. You may like to know that recommendations are going to help us a lot in restructuring the Mission. The recommendations of the Committee was presented to the SSRC chaired by the Additional Secretary, Rural Development and decisions have been taken on all the recommendations. This is under further process. You may like to see these decisions (copy enclosed).

warm regards,

Yours sincerely,


(P. K. Sivanandan)

Prof. Shekhar Singh,
Indian Institute of Public Admn.,
Indraprastha Estate,
Ring Road,
New Delhi-110 002.

2.1.0 Administrative Set Up

Annex - I

	Recommendations (1)	Points for decision (2)	Observations & Decisions (3)
2.1.1	<p>The Empowered Committee should be reactivated and given the specific mandate of laying down policy guidelines and facilitating integration of schemes; services and resources by coordinating the activities of various departments and agencies.</p>	<p>If the recommendation is accepted, the suggestions for its functions and responsibilities is enclosed. These may be discussed and decided.</p> <p>It may also be decided whether an independent Board like NDDB would give better flexibility and independence in policy formulation and implementation.</p>	<p>The Committee agreed with the recommendation of reactivating the Empowered Committee. A smaller Committee for high powered functionaries under the chairmanship of Cabinet Secretary was considered appropriate to lay down policy guidelines and to deal with all matters pertaining to the Mission without going through the normal channels of departmental clearances. It was recommended that the Empowered Committee may be composed of the following members:</p> <ol style="list-style-type: none"> 1. Cabinet Secretary 2. Secretary(RD) 3. Secretary(Exp.) 4. Member Secretary, Planning Commission 5. Secretary, Water Resources and 6. Mission Director - Convenor <p>The powers and functions of the Committee may be as follows:</p> <ol style="list-style-type: none"> 1. To decide the general policy guidelines 2. To help in intersectoral coordination 3. Ensuring allocation of financial resources to achieve the objectives of the Mission particularly with in the system of annual plan allocations. 4. Providing back up support for HRD, R&D and IEC and other activities like creation of posts, appointment without reference to UPSC or Department of Personnel. 5. To take financial decisions concerning the Mission outside the powers of the Ministry of Rural Development, including creation of posts, appointments, etc. <p>The structure of the Mission's organisation was discussed with particular reference to the formation of Autonomous Bodies/Boards. It was felt that the success of NDDB cannot be attributed to its structure alone.</p>

Recommendations (1)		Points for decision (2)	Observations & Decisions (3)
2.1.2	A high powered multi-disciplinary Apex Committee of Experts should be created at the national level to advise, guide and monitor the rural water supply programme in its totality.	The Expert Committee may be constituted afresh or the SSRC could be reconstituted and expanded. The committee could be renamed as Executive Committee.	The present Committee of SSRC will act as a multi-disciplinary Apex Committee and the name SSRC will be retained. The SSRC may be enlarged with the induction of a few experts from the field of Water Quality, R&D, HRD and Water Resources.
2.1.3	Greater delegation and flexibility in sanctioning of schemes should be ensured through a Working Group in the Ministry of Rural Development.	Mission Director may be delegated suitable financial powers for sanction of schemes.	To avoid delay in the approval of the schemes, it was decided that Mission Director may approve all the schemes and put them up for post facto approval of the SSRC.

	Recommendations (1)	Points for decision (2)	Observations & Decisions (3)
2.1.4	<p>The existing vacancies in the RGNDWM should be filled up without further delay. The RGNDWM needs to be further strengthened with professional expertise in IEC/ Community Participation, HRD, Economic/ Financial aspects, MIS, coordination of R&D and S&T inputs and Micro level Planning. The Mission personnel should be given adequate incentives.</p>	<p>Short Term (decisions which can have immediate effect)</p> <ol style="list-style-type: none"> 1. Whether a drive should be made to fill in the existing vacant posts. 2. Whether the entire Mission staff including Consultants may be located in one building with adequate space. 3. Whether the system of incentive like OTA and honorarium now existing may be reviewed and improved. 4. Whether the Mission Director may be vested with full administrative and financial powers of the Head of the Department. 5. Whether the Mission may have the power to appoint consultants. 6. Whether free furnished residential accommodation with telephone facilities may be provided for the Experts/ consultants <p>Long Term:</p> <ol style="list-style-type: none"> a. Whether the Mission may be declared as a Scientific Department with all the powers and privileges of scientific Departments. b. Whether facilities like common residential accommodation to the entire staff, may be provided. 	<p>It was considered desirable to fill in all the vacancies immediately.</p> <p>The idea of accommodating the entire Mission staff including Consultants in one building was appreciated. Efforts could be made to get accommodation in one building in Paryavaran Bhawan.</p> <p>It was observed that the present level is too inadequate. Joint secretary (Finance) observed that it needs reworking by taking into account work load of each of the Divisions.</p> <p>Accepted</p> <p>Accepted</p> <p>Not accepted; these facilities could be linked to the consultancy fees and could be decided case by case</p> <p>The idea of organising the Mission as a Scientific Department was favoured by many and Dr. Basak and Prof. Aggarwal, National Consultants, were requested to prepare a paper on the desirable organisational structure, to be presented in the next SSRC meeting.</p> <p>This was not found feasible.</p>

2.2.0 SECTORAL COORDINATION AND INTEGRATION

	Recommendation (1)	Points for Decision (2)	Observations and results (3)
4.3.1	Efforts at integration should begin from the Planning Commission itself. An Integration Committee should be set up under the Chairmanship of the member of the Planning Commission dealing with rural water supply and with representatives of the concerned divisions of the Planning Commission and the Ministries of Government of India. The Committee must identify the areas and programmes where integration is possible and also the optimal process of integration so that drinking water concerns are reflected in the appropriate centrally sponsored and state schemes. Once this is done, the concerned ministries should inform the state governments and clear guidelines should be issued. Wherever necessary, schemes should be modified to allow integration of drinking water concerns at the field level.	Whether the Empowered Committee/ Apex Committee may perform these functions or a new Committee in the planning commission may be set up. In the latter case approval/comments of Planning Commission will be necessary.	It was decided that the Empowered Committee will ensure sectoral coordination and integration. It is not necessary to set up yet another Committee in the Planning Commission.
4.3.2	The extent of integration should be monitored during the plan discussions as well as by the Empowered Committee and the Apex Committee.	Whether the recommendation may be accepted.	Accepted
4.3.3	At the State level, the Planning Department in Cooperation with the finance department should do a similar exercise for state level schemes capable of being integrated with water supply	Whether the recommendation may be accepted with the modification that the Committee may be chaired by the Chief Secretary.	Accepted. However, as proposed, the committee will be chaired by the Chief Secretary of the State.

	Recommendation (1)	Points for Decision (2)	Observations and results (3)
4.3.4	Sectors like environment and forest water resources, science and technology information and broadcasting agriculture and rural development should have earmarked allocations for drinking water concerns and special reporting requirements very much like the Minimum Needs Programme.	Whether the recommendation may be accepted.	Accepted
4.3.5	To start with the guidelines of schemes implemented by the Ministry of Rural Development like JRY, CRSP, DDP/DPAP and Waste Land Development need to be modified to include definite support to rural water supply	Whether the recommendation may be accepted.	Accepted
4.3.6	Special training modules have to be prepared on identification of the elements to be integrated and also to achieve proper orientation to develop the culture of working in cooperation with related departments and agencies since the panchayati Raj institutions will come into being soon, it is essential to train the non-officials also in this respect.	Whether the recommendation may be accepted.	Accepted

2.3.0 Micro Level Planning

	Recommendations (1)	Points for decision (2)	Observations & Results (3)
2.3.1	Micro level planning is essential not only in the future phase II Mini Mission Programme but also in the entire RWS programmes. Of course, it is not easy to cover large areas in a short time. But micro level planning teams could be created and given special orientation training.	Whether the recommendation may be accepted.	Accepted
2.3.2	Participatory resource appraisal methodology seems appropriate for micro level planning. The technique adopted for water supply programme and being tried out by BGVS, a NGO could be applied on large scale after evaluating its success.	Appropriate coordinating groups may be set up as the Mission Head quarter State HQ and at the district project levels the structure of this project and the expertise to be provided may be decided. BGVS experiment may be evaluated.	Appropriate Coordination Groups may be set up as proposed. However, it was decided that BGVS model could be considered for adoption only after its completion and evaluation
2.3.3	Micro Planning process must be fully integrated into village institutions and structures especially in the context of the Panchayati Raj.	Whether the recommendation may be accepted.	Accepted
2.3.4	The unit for microlevel planning should as far as practicable be natural microshed of manageable size.	Whether the recommendation may be accepted.	Accepted

2.4.0 Sustainability

	Recommendation (1)	Points of Decision (2)	Observation & Decisions (3)
2.4.1	The submission on conservation of water and recharging of ground water aquifers should be converted into the submission on sustainability with higher funding and clear guidelines.	Whether the sub mission be converted into sub mission on sustainability with increased allocation?	Accepted
2.4.2	Micro water shed based master plans for ensuring sustainability by taking care of both the demand and supply sides should be taken up for implementation with the involvement of professionals institutions and NGOs.	Whether the recommendation may be accepted.	Accepted
2.4.3	In the dark and grey blocks, as classified by the CGWB, legislative measures need to be introduced to regulate withdrawal of ground water.	<p>-This can be achieved through</p> <ul style="list-style-type: none"> - Identification of areas not covered by programmes of other Ministries/Depts. - Study and selection of successful models. - Implementation of these models through convergency of services and integration of depts. <p>Whether States may be requested to pass legislative measures for ground water withdrawals in sensitive areas.</p>	Accepted

2.5.0 Re-emergence of 'N' Category Villages

	Recommendation	Points of decision	Observations and Decisions
2.5.1	No recommendation is given in the light of the decision of the RGNDWM to go in for a detailed validation study in the newly detected 'N' category habitations.	No decision now.	No decision required at this stage.

2.6.0 OPERATION AND MAINTENANCE

	Recommendations (1)	Points for decision (2)	Observations & Decisions (3)
8.3.1.	<p>The present system of allotting resources for O&M is unscientific. Conventional notions of Non Plan funds for O&M could do a lot of damage. Faced with a shortage of Non-Plan resources, states find it convenient to create new assets using Plan funds instead of maintaining or rehabilitating existing systems. This leads to a lot of wastage of resources besides re-emergence of 'N' category villages. What could be achieved with an expenditure of Rs. 4000-5000 in repair, is now sought to be realised, incurring as high as Rs. 30,000 by putting up a new system. A more rational determination of needs is necessary. Probably more Plan funds could be used for O&M, provided there is assured contribution from the public in cash or by way of labour. This will result in considerable net savings.</p>	<p>Plan and non-Plan distinction cannot be dispensed with as it is a policy accepted by Planning Commission, Ministry of Finance, Finance Commission and States. May be accepted in principle subject to the modalities.</p>	Accepted
8.3.2.	<p>At least one O&M experiment must be taken up in each state (more in larger states), covering a block area, with the full participation of the community, the NGOs and local elected bodies. This scheme could be sponsored by Government of India with the aim of developing suitable models.</p>	<p>Whether the recommendation may be accepted on cost sharing basis.</p>	Accepted

Recommendations (1)	Points for decision (2)	Observations & Decisions (3)
8.3.3. A carefully planned component has to be introduced in the HRD programme, to build up in the community, the technical skills required to operate and maintain the local water supply systems. Since women are the major users and any break-down of the system would hurt them most, the women handpump mistry experiment should be further expanded.	Whether the recommendation may be accepted with more closer monitoring of the progress of implementation of the existing instructions.	Accepted

2.7.0 COMMUNITY PARTICIPATION

	Recommendations	Points for Decision	Observations and Decisions
2.7.1	Community participation should be full participation of the community from preplanning stage itself and the community should be actively involved in monitoring as well as O&M; Water Committees are recommended for each spot source or a group of sources	Whether the recommendation may be accepted with the modification that water committee for each habitation may be formed	Accepted
2.7.2	Orientation training should be given to officials to facilitate community participation.	Whether the recommendation may be accepted	Accepted
2.7.3	N.G.Os should be helped by supporting model integrated projects involving local community. The mode of selection of the NGO and the scale of assistance should be transparent.	Whether the recommendation may be accepted	Accepted
2.7.4	Cost sharing with at least 10% of capital cost and 50% of the O&M cost must be basic element of people's participation.	To begin with, some contribution for O&M may be made by the public gradually rising upto 50% over a period. Sharing of 10% at capital cost is difficult.	Accepted, initially contribution for O&M may be 25%.
2.7.5	Each State has to prepare a clear procedure for community involvement and finalise it within six months.	Whether the recommendation may be accepted	Accepted
2.7.6	IEC Cells should be made compulsory in all State PHEDs.	Whether the recommendation may be accepted	Accepted
2.7.7	Social audit should be introduced in rural water supply schemes	Whether the recommendation may be accepted	Accepted

2.8.0 Sanitation

Recommendations (1)		Points for decision (2)	Observations and Decisions (3)
10.3.1	There should be a concerted attempt to involve the Health, the Education and the Social Welfare Departments in spreading the message of total sanitation. The Rajiv Gandhi National Drinking Water Mission could prepare small modules on sanitation and drinking water suitable for various levels of students and distribute them for incorporation in the syllabus.	Whether the recommendation may be accepted.	Accepted
10.3.2	Suitable modules on sanitation should be included in the National Literacy Mission programmes.	Whether the recommendation may be accepted.	Accepted
10.3.3	The water supply programme should be organically linked with the sanitation programme. Both CRSP and JRY could be dovetailed with various water supply programmes at the village level. Since 10% of CRSP is allotted for IEC, it could be used profitably to spread the message of safe water along with other aspects of hygiene.	Whether the recommendation may be accepted.	Accepted
10.3.4	The drainage arrangements around spot sources in villages should be improved and if it could be tied up with the Social Forestry component of JRY, it would be even possible to develop aesthetically pleasing locales around each spot source, provided the local community is adequately motivated to maintain it.	Whether the recommendation may be accepted.	Accepted

2.8.0 Sanitation

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10.3.1	There should be a concerted attempt to involve the Health, the Education and the Social Welfare Departments in spreading the message of total sanitation. The Rajiv Gandhi National Drinking Water Mission could prepare small modules on sanitation and drinking water suitable for various levels of students and distribute them for incorporation in the syllabus.	Whether the recommendation may be accepted.	Accepted
10.3.2	Suitable modules on sanitation should be included in the National Literacy Mission programmes.	Whether the recommendation may be accepted.	Accepted
10.3.3	The water supply programme should be organically linked with the sanitation programme. Both CRSP and JRY could be dovetailed with various water supply programmes at the village level. Since 10% of CRSP is allotted for IEC, it could be used profitably to spread the message of safe water along with other aspects of hygiene.	Whether the recommendation may be accepted.	Accepted
10.3.4	The drainage arrangements around spot sources in villages should be improved and if it could be tied up with the Social Forestry component of JRY, it would be even possible to develop aesthetically pleasing locales around each spot source, provided the local community is adequately motivated to maintain it.	Whether the recommendation may be accepted.	Accepted

	Recommendations (1)	Points for decision (2)	Observations and Decisions (3)
10.3.5	<p>It is strongly recommended that a national level project for sanitation and water supply in rural schools be taken up on top priority, pooling funds from various schemes under operation in the Ministry of Rural Development. This would have several spin-off effects; the most lasting of which would be the inculcation in the students, at an impressionable age, the awareness of the importance of sanitation. Once the students are habituated to using toilets and drinking water from safe sources, it would lead to generation of demand for such services in rural areas, with an intensity not evident anywhere now. IT is recommended that water supply could be provided using ARWSP funds and the sanitation component could be a mixture of JRY and CRSP funds with the state governments chipping in with its contribution of about 25%. The programme could be phased in such a manner as to cover all the recognised schools in the country by the end of the VIII Plan period. Likewise all the anganwadis having buildings of their own should be covered with a spot source and toilet. Here, the Department of Women and Child Development could also cooperate.</p>	<p>Whether the recommendation may be accepted</p>	<p>Accepted.</p>

2.9.0 Water Quality

	Recommendations (1)	Points for decision (2)	Observations and Decisions (3)
2.9.1	A fundamental policy change in water quality surveillance, calling for an independent agency to monitor water quality, is required. Each state should come out with clear cut water quality surveillance policy which would include monitoring of quality at the source, supply point as well as at the user's end.	Whether the recommendation may be accepted.	Accepted
2.9.2	The entire activity of water quality surveillance should continue as a plan scheme in which schools, professional institutions, pollution control boards and NGOs are involved	Whether the recommendation may be accepted.	Accepted
2.9.3	The Regional Centre Network must be strengthened with a five year perspective plan and annual action plans with special emphasis on training activities.	Whether the recommendation may be accepted.	Accepted
2.9.4	A computerized data base has to be built up and water quality maps prepared.	Recommendation may be accepted.	Accepted

2.10.0 MINI MISSIONS

	Recommendations (1)	Points for decisions (2)	Observations & Decisions (3)
2.10.1	Phase II Mini Missions may be taken up in watersheds covering representative hydro-geological and socio-economic zones of the country based on sharp guidelines including every aspect of the holistic approach to water supply.	<ol style="list-style-type: none">1. Whether the Mini Mission be tried in selected districts integrating water supply, sanitation with water sheds development through JRY and Department of Wasteland Development with available funds within the Ministry.2. Whether a cell may be created in the Mission to coordinate Mini Mission activities specially for water recharging, scientific source finding etc.3. Whether the BGVS model may be given a try in more areas.	<p>The concept of Mini Mission with watershed as a unit was not accepted. However, the concept of Mini Mission will be built into the project/ scheme as well as the Sub Mission on sustainability at micro level.</p> <p>This could be taken up under strengthening of the Mission decided earlier</p> <p>May be done after watching the success of the present experiment.</p>

2.11.0 SUB MISSIONS

Recommendation (1)		Points of decision (2)	Observations & Decisions (3)
2.11.1	Sub Missions on quality problems should be transferred to State governments as the first priority item under ARWSP. Government of India should restrict its role to the development of cost-effective models in dealing with quality problems	Present pattern of funding to solve quality problems under Sub Missions may continue till a complete picture emerges. Simultaneously quality problems can be given top priority in ARWSP.	Accepted
2.11.2	Rain water harvesting should be given priority in water quality problems areas as well as in scarcity areas.	Whether the recommendation may be accepted.	Accepted
2.11.3	An immediate action plan has to be prepared for rehabilitation of the non-functional treatment plants under various Sub-Missions.	Whether the recommendation may be accepted.	Accepted

2.12.0 R&D AND S&T APPLICATIONS

RECOMMENDATION		POINTS OF DECISIONS	OBSERVATIONS AND DECISIONS
2.12.1	A clear procedure for sanctioning of R&D projects with the help of task force and subject matter specialists should be evolved. The Apex Committee would coordinate this activity.	1. Whether draft R&D policy guidelines covering the implementation of the first three recommendations be approved? Regarding task force, this job will be done by approved panel of experts. Apex Committee's job will be done by SSRC.	The R & D policy guidelines and the procedure for sanctioning of R & D projects was approved. As regards the Task Force/ Apex Committee, these functions will be performed by the SSRC.
2.12.2	The mission should coordinate with professional institutions to accord priority to water supply in the research activities which are part of their academic activities.	2. Whether the recommendation may be accepted.	Accepted
2.12.3	State PHEDs must be encouraged to take up field oriented R&D projects.	3. Whether the recommendation may be accepted.	Accepted
2.12.4	Not less than two percent of the Government of India investment in rural water supply sector should be earmarked for R&D with a matching grant from the State funds	4. Whether 2% of the GOI investment on RWS be earmarked for R&D and whether it may be jacked up to 5% later on?	It was decided that initially 1 % of GOI investment on RWS may be earmarked for R & D projects. This may be increased depending on the need.
2.12.5	Traditional technologies and systems should be encouraged and 5% of the Government of India provision for rural water supply should be set apart for adoption and adaption of traditional technologies and systems with equal contribution from State funds.	5. Whether special importance be given and 5% fund allocated to adopt and adapt traditional water harvesting technologies and whether priorities be given for R&D as O&M?	Accepted
2.12.7	In view of the importance of O&M in sustaining rural water supply systems and safeguarding the enormous infrastructure and assets created, R&D support should be provided for novel O&M methodologies at the field level.	6. Whether the recommendation may be accepted.	Accepted

2.13.0 Human Resources Development

	Recommendation (1)	Points of decision (2)	Observations & Decisions (3)
2.13.1	The policy evolved in 1993 by RGNDWM may be implemented straightway.	Whether the recommendation may be accepted.	Accepted
2.13.2	Atleast one percent of the central plan assistance in Rural Water Supply and Sanitation should be set apart for HRD.	Whether earmarking of 1% of central plan assistance in RWS & S for HRD without insistence of matching contribution from States may be accepted for a five year period.	Accepted
2.13.3	The first priority should be to utilise established and reputed institutions and the existing network could be expanded.	Whether the recommendation may be accepted	Accepted
2.13.4	A cascading type of training programme, after proper training needs assessment, is required.	Whether the recommendation may be accepted	Accepted
2.13.5	Distance education to upgrade skills of practising engineers should be encouraged.	Whether the recommendation may be accepted	Accepted
2.13.6	Postgraduate courses with a rural bias for serving engineers could be supported by the Govt. of India in selected institutions. training institutes.	Whether the recommendation may be accepted	Accepted

2.14.0 MONITORING AND EVALUATION

	Recommendation (1)	Points of Decisions (2)	Observations and Decisions (3)
2.14.1	Extensive Computerised monitoring using NICNET should be introduced .	Whether the recommendation may be accepted.	Accepted
2.14.2	Monitoring Cell at the Mission Headquarters should be created for compilation and analysis of data to support policy decisions .	Whether the recommendation may be accepted.	Accepted
2.14.3	Field Missions should be introduced for direct field level assessment of performance .	To effectively help the Mission Headquarters on monitoring and evaluation, whether specified groups of experts be engaged as standing committee to do the required job at regular frequency.	Accepted
2.14.4	Concurrent evaluation studies need to be conducted by expert institutions; State Governments must be encouraged to conduct their own evaluation studies	Whether the recommendation may be accepted.	Accepted
2.14.5	The data generated may be made freely available for professional institutions for scientific analysis and interpretation.	Whether the recommendation may be accepted.	Accepted

2.15.0 ARWSP and Other Programmes

ARWSP guidelines need to be modified in the light of the recommendations made:

	Recommendations (1)	Points for discussion (2)	Observations & Decisions (3)
16.4.3.1	Not less than 5% of the ARWSP funds should be earmarked for traditional systems. This is of vital importance from the point of view of sustainability as well as from the point of view of community involvement. These systems have gone through the process of evolution and are quite adapted to the local situation. Moreover, they meet the non-drinking needs of the community and eke out the supply from the handpump. Now with the switching over to handpumps, these sources have been neglected with the result that they have become unhygienic. But when the handpump is under repair, people resort to the neglected sources which is quite harmful. Hence this recommendations.	Whether the recommendation may be accepted, with the modifications as per actual requirement.	Accepted
16.4.3.2	At least 2% of the funds should be earmarked for R&D. This can be scaled upto 5% by the end of the plan, if the results are commensurate with the expenditure.	May be accepted as upto 2% to be scaled upto 5%.	Accepted as stated against S.No. 2.12.4
16.4.3.3	A minimum of 1% of ARWSP funds should be distributed to the districts and blocks for IEC activities.	May be accepted. However, distribution to districts and blocks may be made by the states at such time the ARWSP funds are released to the states. Districtwise releases are not made to the central government.	Accepted

Recommendations (1)		Points for discussion (2)	Observations & Decisions (3)
16.4.3.4	Just as there is a formula for devolution of funds to the states, there should be a formula based on uncovered population and general socio-economic backwardness for allocation of funds to the districts from the state and from the districts to the block. Within a block, priorities for spending would have to be clearly spelt out.	Whether the recommendation may be accepted.	Accepted
16.4.4.1	In addition to the field mission, there should be concurrent evaluations by reputed institutions. This could be coordinated by the Apex Committee. The regular monitoring should be through NICNET. Reporting formats could be designed in such a way that right from the field level, information could flow up the network.	Whether the recommendation may be accepted	Accepted
16.4.4.2	The crucial indicator to be monitored is not the number of villages but the number and type of systems created, the number of standposts and the population covered. District-wise monitoring has to be done at least once in a quarter.	Whether the recommendation may be accepted.	Accepted
16.4.4.3	Social audit should be mandatory	Whether the recommendation may be accepted.	Accepted

Recommendations (1)		Points for discussion (2)	Observations & Decisions (3)
16.4.5.1	The coverage norms may be liberalised in phases, with the strict condition that the next phase would be taken only after the entire state reaches a particular level. The supply norm of 40 lpcd may be retained for the moment. The distance norm could be reduced in phases 1km to 0.5km. Similarly, the number of persons per handpump could be reduced to 150 in the next phase. In places where there is abundant water, and where the community is willing to meet the total cost of additional facilities including their maintenance, they may be provided.	Whether the recommendation may be accepted.	Accepted
16.4.5.2	At present 25% is earmarked for Scheduled Castes and 10% for Scheduled Tribes. This may be continued. However, a change is suggested in the implementation. The state governments may be asked to list out the SC/ST habitation separately and their coverage should be monitored as a distinct component of the programme.	Whether the recommendation may be accepted.	Accepted
16.4.5.3	Scientific source finding should be made compulsory. Similarly groundwater has to be monitored both for source depletion and quality deterioration. Taking cue from CGWB, the state governments have to select observation wells in representative areas known for groundwater depletion and quality problem.	Whether the recommendation may be accepted.	Accepted. However, CGWB will participate in the programme

	Recommendations (1)	Points for discussion (2)	Observations & Decisions (3)
16.4.5.4	<p>As assured flow of funds and services from related departments has to be arranged. This can be done only with the intervention of Government of India, especially the concerned Ministries and the Planning Commission. In the first instance, it is suggested that funds under the control of Rural Development like JRY, DDP/DPAP, CRSP and Waste Land Development programme, etc., should be used for water supply concerns. Other departments which could actively participate are those dealing with Health, Education, Social Welfare, Minor Irrigation, Soil Conservation and Social Forestry.</p> <p>This should be reiterated and finalised by the State Planning, Finance and participating departments. Each state may be asked to identify the role of each level of personnel of various departments right from the lowest level and develop indicators of integration. An annual report may be obtained by Government of India on this.</p>	<p>Whether a new Committee in the Planning Commission may be set up or these functions may be entrusted to the Empowered Committee.</p> <p>Whether at State level the committee may be headed by the Chief Secretary</p> <p>Whether the recommendation may be accepted.</p>	<p>It is not necessary to set up a separate committee in the Planning Commission. The inter-ministerial coordination can be achieved through the Empowered Committee. Use of funds for water supply concerns under the control of Ministry of Rural Development should be ensured by Secretary (RD).</p> <p>Accepted</p> <p>Accepted</p>
16.4.5.5	<p>50% of the O&M cost should be generated by the community by way of cash, kind or labour, as also 10% of the capital cost. While calculating these contributions they should be reckoned for the state as a whole.</p>	<p>To begin with, some (25%) Contribution for O&M may be made by the public gradually rising upto 50%. Sharing of 10% of Capital cost is difficult.</p>	<p>Accepted</p>
16.4.5.6	<p>Consensus water budgets should be prepared for each micro watershed in the grey and dark blocks in such a manner that in five years all such blocks would have them.</p>	<p>Appropriate decision can be taken after a detailed examination. A small expert group may be appointed to look into this problem in details and give specific recommendation for consideration by the government.</p>	<p>Accepted</p>



सत्यमेव जयते

पी०के० शिवानन्दन

संयुक्त सचिव एवं मिशन निदेशक

P.K. Sivanandan

Joint Secretary and Mission Director

D.O. No.W-11021/9/93-TM.II

भारत सरकार

ग्रामीण क्षेत्र एवं रोजगार मंत्रालय

ग्रामीण विकास विभाग

राजीव गांधी राष्ट्रीय पेयजल मिशन

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Government of India

Ministry of Rural Areas and Employment

Department of Rural Development

Rajiv Gandhi National Drinking Water Mission

Paryavaran Bhavan, B-1 Block, 9th Floor, C.G.O. Complex, Lodhi Road, New Delhi-110 003

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June 23, 1995

Dear Prof. Shekhar Singh

We have now received intimation from the Prime Minister's Office that the presentation on the Rural Water Supply may be made to the Prime Minister on Tuesday, July 4, 1995 at 11.00 AM. in South Block Office. We are working on this presentation.

The presentation will include the findings of the Expert Committee. As you were a member of the Expert Committee, it will be our privilege to have you with us at the time of presentation.

warm regards

Yours sincerely,

(P. K. Sivanandan)

✓ Shri Shekhar Singh
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