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**TRAINING IN THE NETHERLANDS  
ASSISTED WATER SUPPLY AND  
SANITATION PROGRAMME  
IN INDIA**

**STRATEGY PAPER**

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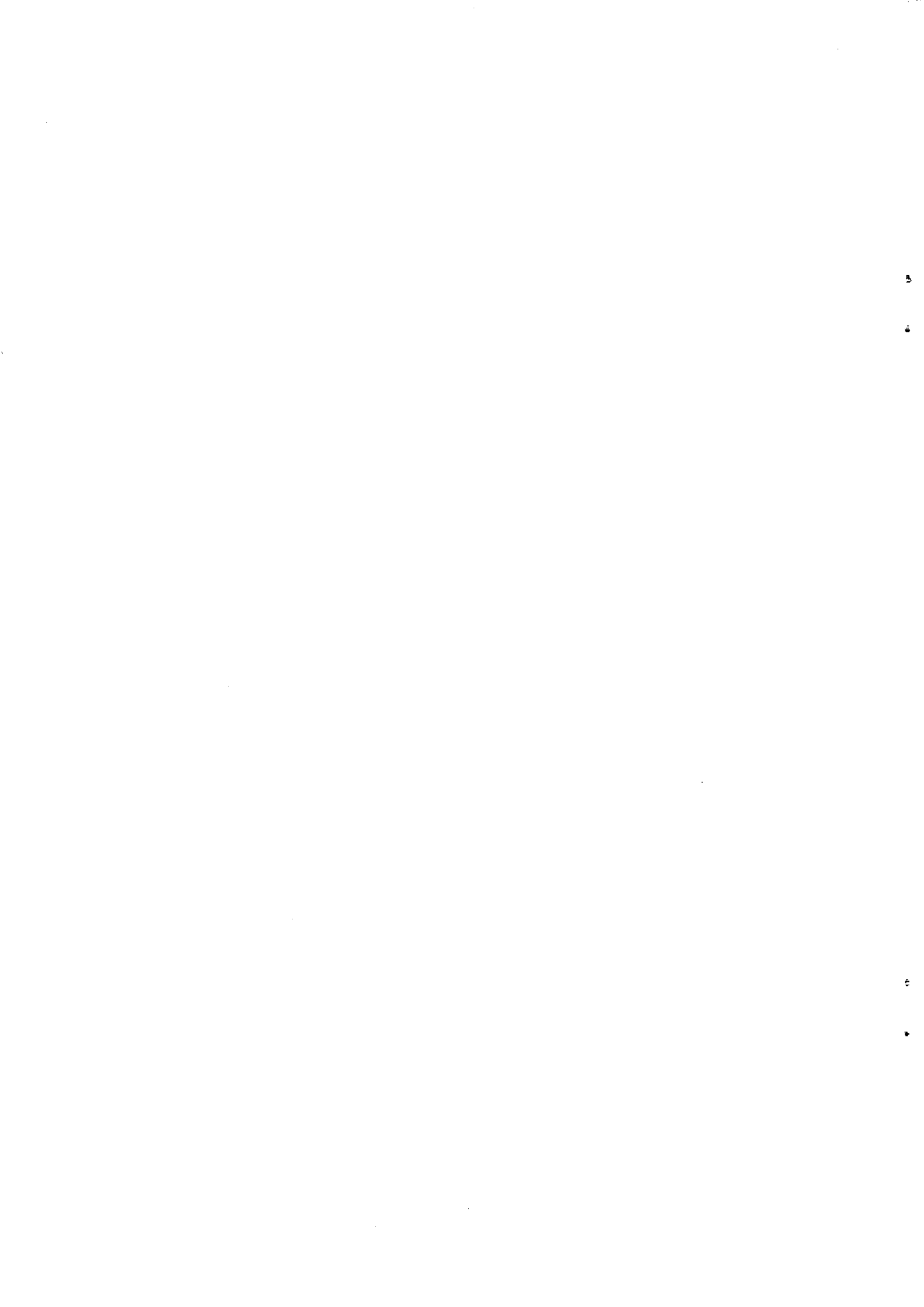
*Training in The Netherlands  
Assisted Water Supply and  
Sanitation Programme  
in India*

*Strategy Paper*

M.W. Blokland  
C.A. van Wijk-Sybesma  
J. Narain

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## *List of Abbreviations*

ACDIL	Academy for Community Development and International Living
AIIPH	All India Institute of Hygiene and Public Health
ATI	Administrative Training Institute
AW	Angawadi Workers
AFPRO	Action for Food Production
BHC	British High Commissioner
BC	British Council
CASR	Centre of Applied Social Research
CERDAT	Centre for Rural Development and Appropriate Technologies
CPHEEO	Central Public Health and Environmental Engineering Organization
CWRDM	Centre for Water Resources Development and Management
DAL/ZZ	Development Cooperation Department South Asia
DANIDA	Danish International Development Agency
DGIS	Directorate General International Cooperation
DWRCA	Development of Women and Children in Rural Areas
ESA	External Support Agency
ESI	Environmental Sanitation Institute
ESCAP	Economic and Social Commission for Asia and the Pacific
ETC	Education Training Consultancy
FPI	Foundation for Public Interest
GJTI	Gujarat Jalseva Training Institute
GoI	Government of India
GoG	Government of Gujarat
GoK	Government of Karnataka
GoN	Government of the Netherlands
GRI	Gandhigran Rural Institute
GWSSB	Gujarat Water Supply and Sewerage Board
HRD	Human Resources Development
HMWSSB	Hyderabad Municipal Water Supply and Sewerage Board
IHE	International Institute for Hydraulic and Environmental Engineering
IMI	Irrigation Management Institute
INSTRAW	United Nations International Research and Training Institute for the Advancement of Women
IRC	International Water and Sanitation Center
IRMA	Institute of Rural Management Anand
ITN	International Training Network
IWID	Initiatives Women in Development
KWA	Kerale Water Authority
MDF	Management Development Foundation
MUD	Ministry of Urban Development
NAP	Netherlands Assisted Projects
NAPO	Netherlands Assisted Projects Office
NGO	Non-Governmental Organization
NIRD	National Institute for Rural Development
ODA	Overseas Development Administration
ORG	Organization Research Group
PHE(D)	Public Health/Environmental Engineering Department

PRED	Panchayati Raj Engineering Department
PRIA	Society for Participatory Research in Asia
PROWESS	Promotion of the Role of Women in Water and Environmental Sanitation Services
PSU	Project Support Unit
PWD	Public Works Department
RCUES	Regional Centre for Urban and Environmental Studies
RCWS	Research Centre for Women Studies
RDTC	Research, Development and Training Centre
RGNDWM	Rajiv Gandhi National Drinking Water Mission
RNE	Royal Netherlands Embassy
RSM	Review Support Mission
RWSG	Regional Water and Sanitation Group
rws/s	Rural Water Supply and Sanitation
SEWA	Self Employed Women's Association
SIRD	State Institute of Rural Development
SJCE	Shri Jayamajendra College of Engineering
UNDP	United Nations Development Programme
UNICEF	United Nations Children Fund
USAID	United States Agency for International Development
VLOM	Village Level Operation and Maintenance/Management
WACO	Water Coordinator
WALMI	Water and Land Management Institute
WB	World Bank
WHO	World Health Organization

## *Summary*

### **Background and task of the Mission**

1. In India, formal education and training for the water and sanitation sector is of limited capacity and has an urban/industrial bias. Initiatives taken at the national level to specifically address training needs for the rural sector are of recent date, and the impact is not yet felt at the field level.
2. The Netherlands Assisted Projects (NAP) form an ongoing programme (since 1978) that comprises the provision of sustainable water and sanitation services in about 6000 villages in 43 districts in Uttar Pradesh, Andhra Pradesh, Kerala, Gujarat and Karnataka States. The projects are in various stages of completion, from project preparation to operation and maintenance.
3. Although training has always been part of the NAP, it has only recently become an integral component of project design. Training activities on integrated rural water supply and sanitation (rws/s) thus far included post-graduate level training in the Netherlands for 18 professional staff per year, as well as a large number of mostly ad-hoc trainings in the various States aimed to remove constraints identified during project implementation. Institutionalization of trainings has not been aimed for.
4. The task of the Mission is to broadly analyze and quantify training needs and target audiences in the NAP, assess training institutions, and to propose a strategy for the support of training capability development focusing on more sustainable rural water supply and sanitation (rws/s) projects and programmes. The Mission studied documents and conducted interviews prior to departure from the Netherlands, and in India, visited Andhra Pradesh, Karnataka and Gujarat states. These states were selected as amongst the five states they appeared to have made most progress in initiating the development of training programmes and capability.

### **Findings**

5. Apart from the users, artisans, caretakers, and functionaries at the village level, project implementation involves senior administrators in the State Governments, different governmental line agencies (especially engineering organizations), Non-Governmental Organizations (NGOs) and the Departments of Health and Social Welfare, and the Government administrative structure down to the village level. Because of the nature and approach taken in the programme, all those involved must be considered to be a target for training, however, this reports deals with the training of professionals only.
6. Within the larger target group of some 1250-1400 professionals can be distinguished the strategic apex of 30-40 persons (task: authorize integrated approach and create enabling environment), the strategic management level of 70-80 persons (task: promote and facilitate the integrated approach within and between cooperating organizations), the operational management level of 450-500 persons (task: operationalize integrated approach in project preparation, implementation and



operation), and the fieldstaff numbering 700-800 persons (task: field implementation of the integrated approach). Field level staff is reported to be least in need of supplementary training, and priority should be given to the development and implementation of training programmes for the first three groups (about 600 persons), with equal emphasis on each group.

7. In Andhra Pradesh, a training needs analysis of the implementing agency, the Panchayati Raj Engineering Department (PRED), has been conducted under the NAP, by the Regional Centre for Urban and Environmental Studies (RCUES) of Osmania University, and needs in the areas of management, technology and integrated approach have been identified. A proposal has been formulated to assist the development of a course programme and the training capability of the PRED's in-house Research, Development and Training Centre (RDTC). This proposal covers a period of two years and must be considered ambitious in view of the present, very limited capacity of the RDTC. External training capability is well developed, but not oriented on the rws/s sector and requires exposure to community management aspects.
8. In Karnataka, training for the NAP has not started, as the project is in its initial stages of implementation. The World Bank assisted rws/s programme has an integral training component, that for the first 280 villages has been contracted for the larger part to the Shri Jayamajendra College of Engineering (SJCE) in Mysore. The college proposes to use its own resources and those of about 30 other training institutions in the state, and a separate team of 40 trainers for village based trainings. There is an initiative to establish an independent Water Supply and Sanitation Training Centre in Mysore, that would institutionalize the capabilities that are now being developed. The knowledge and experience base for the intended training project is considered limited. Regular contacts with supervisory World Bank and project staff will help to decide the appropriateness of, and if so, the required adaptations to the training project for use in the NAP-Karnataka.
9. In Gujarat, the Gujarat Jalseva Training Institute (GJTI), was established in 1988 to cater for the training needs of in-service staff in the Gujarat Water Supply and Sewerage Board (GWSSB), the Municipalities and Villages. The institute trains thousands of persons every year, and has a training calendar of 49 courses directed at engineers, administrative staff, operators and linesmen, village caretakers and villagers. The GJTI is well housed and equipped. The staff will soon be expanded to include other than engineering disciplines, which will enhance the quality of the training. In Gujarat, there are other well equipped training institutions, but their focus on the specific needs of the rws/s sector is limited.
10. The Mission has come to the conclusion that training capability is being developed in all states, but that institutional set-up and progress achieved differ. The commonality in the approach is that in all states one, engineering-oriented institution has taken up state-wide training in the rws/s sector. This institution then cooperates with a network of external support institutes or resource persons, as the scope of the training programme both in content and target group size and in differentiation is too large for a single institute to handle. The social component in the training programmes is limited, as they either promote a particular training strategy or are limited to advocating general messages. Sector specific insights on gender are under

represented or lacking. On the basis of earlier reviews and the present Mission a number of specific training needs have been identified (see table 1, page 6).

11. The target groups of the training programmes are usually quite large. However, for certain, higher level groups, the numbers involved and the type of training required justify the creation of an inter-state level of training programmes that should preferably be managed by a single institution. These trainings would be for senior administrators and strategic management levels in the agencies and NGOs.
12. Staff development is required in all three states visited and presumably in the other states also. The mission found that not many of the faculty at the host institutions have the knowledge and experience required to develop and execute the required training. These shortcomings concern professional, sector-specific knowledge, and knowledge on course development for different audiences using a variety of modern teaching methods. They could be rectified by taking on additional staff to develop multi-disciplinary, and/or through additional training.
13. The recruitment and retention of good staff is another area of concern, especially for the in-house training institutions that do not enjoy sufficient independence in personnel management, and therefore could be hindered in building up a well-balanced and dedicated staff. Preference for training support should therefore go to States where training institutions satisfy yet-to-be-established criteria that would indicate that training is highly valued and well-resourced, and where these institutions enjoy (semi) autonomous status. It would be ill-advised to start a training capability development project in any one State without solid arrangements to ensure that the staff in which the project invests, is pre-qualified, dedicated to training, tasked such that the knowledge to be gained can be put to good use, and guaranteed to stay in the training institution for a long time.
14. Specific requests for external support that were put to the Mission concerned: staff development and staff exchange (SJCE, GJTI), specific research (GJTI), course content development (GJTI), training methodologies (SJCE), library and documentation support (SJCE, GJTI), and teaching equipment including computer software (SJCE, GJTI).

## **Training Strategy**

15. The development of a strategy for capability development for training in the rws/s sector needs to concentrate on the establishment of an adequate institutional framework, and on the development of training capability within the selected institutions.
16. In the area of institutional development three levels can be distinguished for development and support of integrated rural water supply and sanitation training: the state level, the inter-state level and the national level. Each of these levels has a distinct responsibility, commensurate with its position (see table 6, page 34).
17. At the state-level, an institutional framework for sector-specific training development and implementation is required. This framework should consist of a group of institutions with actual field experience and with expertise and experience in all

levels and associated methodologies of training, from village level to operational management.

This group of institutions should enter into the necessary formal agreements for the joint conceptualization, development and implementation of a sector-related programme of trainings.

The training programme should equip technical and social staff for jointly preparing and implementing rws/s projects that focus on high quality construction, sustained functioning and use, and improved hygiene practices.

For all kinds of practical reasons, the overall responsibility for the training programme should rest with one host institution. This host institution should be identified on the basis of credibility with sector institutions, sector-related training experience, capacity to serve the entire sector in the State, expressed desire to develop the specific subject area, willingness and ability to attract and develop an in-house multi-disciplinary staff working through the team approach, and ability to recruit and retain high quality staff in rws/s training.

In Gujarat and Karnataka the present institutional development activities are promising and could be supported, whilst in Andhra Pradesh, Kerala and Uttar Pradesh this development should first be initiated and then supported.

18. At the inter-state level, there is a requirement for an institution to be tasked with the development and implementation of exposure programmes and trainings for senior administrators and strategic management levels from the various states and with the coordination and support to training programme development in the states. Another felt need to be met at this level is that of professionals, e.g. trainers and subject-matter specialists, to meet with colleagues and external specialists, in order to exchange experiences and further develop their expertise.

This institute should be identified, preferably within one of the states in the NAP, and should have the facilities, experience and ambition to operate at the inter-state level. Given time, and interest shown from other states, this institution could develop national importance.

19. At the national level, the Rajiv Gandhi National Drinking Water Mission (RGNDWM) could be supported in their expressed wish to be better equipped towards HRD and training policy development for the rws/s sector. Further, the RGNDWM should provide the support required at its' level for the initiation and implementation of the training strategy outlined in this document, and for the necessary coordination and linkages with other training initiatives in the sector.

Another essential task for the Drinking Water Mission is to consider and promote a dedicated and permanent programme of education and training in integrated rws/s, at a selected and initially limited number of universities, polytechniques and other education and training institutes. Such an initiative, if set up in analogy with CPHEEO (Central Public Health and Environmental Engineering Organization) initiatives taken almost 4 decades ago, at carefully selected institutions, would provide an excellent opportunity for such institutions to develop a capability dedicated to the rws/s sector.

20. The need to develop training capability has been expressed by the institutes visited and is considered the most essential component of the strategy. The specific needs identified by these institutions can be grouped as follows:
- the development of training programmes, curricula and courses which reflect current developments in sustainable programme planning and management, project preparation and implementation, operation and maintenance, water supply and sanitation technology, people's participation and gender issues;
  - appropriate and in particular more participatory training methodologies for the various target groups in the envisaged training programmes. The introduction of modern training methodologies is required to increase the effectiveness of training that is too often thwarted by the hierarchical nature of training, and the inability of the trainers to view trainees as partners in learning;
  - knowledge and experience development in essential disciplines, such as hydrogeology, water resources development and management, low-cost technologies, village maintenance, management and financing systems, etc.;
  - multi-disciplinary team working for training programme development and implementation. If course programmes are developed by single-discipline staff, as is often the case now, they tend not to reflect the professionalism of the other disciplines needed in a really integrated training programme. Training in and exposure to multi-disciplinary team working in sector-specific course development are required.

The identified needs can be met through a comprehensive staff development support programme, that would consist of field orientation and exposure to get a grasp of realities and problems in the field, and subsequent training in the above mentioned areas. Field related activities could be in India, but in view of limited capability in sector-specific training and training development, the training needs can be fulfilled only very partially in India, and would require a substantial involvement of rws/s sector-oriented training institutions abroad.

### **Operationalization of the Strategy**

21. The strategy could be operationalized through a number of projects. Eight projects, all aimed exclusively at the development of capability in the areas of education and training, can be conceived of:
- projects 1 to 5. One project in each of the five states, consisting of an institutional, staff, training, and facilities development component, and aimed at the establishment of capability for the training of professional staff up to the operational management level.
  - project 6. A supplementary project in one of the five States, and integrated with the above project in that State, consisting mainly of additional staff development, and aimed at the establishment of capability for the training of professional staff above the operational management level, for inter-state exchanges between trainers and between subject-matter specialists, and for documentation and information support to the States.
  - project 7. A project at the National level, consisting mainly of staff development, aimed at the establishment of capability for HRD and training policy formulation.
  - project 8. A project at the National level, to assist the establishment and development of a dedicated and permanent programme of post-graduate

education and training in integrated rws/s at a selected and initially limited number of universities, polytechniques and other education and training institutes. This project would consist mainly of staff development.

The states to qualify for project 6 would be either Gujarat or Karnataka, depending on further investigations, and the role the NAP will play in a Karnataka project.

22. Institutional development and also training development are essentially process-type and human capacity development centered activities, and exact time plans are hard to arrive at without more detailed study and a comprehensive project formulation phase. In general however, this type of projects requires a long time and a long-term commitment from all parties. In the opinion of the Mission, and depending on conditions at the start of the project in the particular state and progress being made, projects 1 to 5 could take between four and eight years. Projects 6 and 7 could take 3 years, and project 8 will take at least five years.
23. Projects 1 to 6 would have to proceed sequentially through a number of steps, starting with institutional development. The completion of the institutional framework should be a pre-condition to the next steps; staff development should receive priority, but need not be completed to start other activities. A skeleton party of adequately trained staff should be in place, however, to formulate and manage training and facilities development.
  - a. ***Institutional framework***
    - a.1. Establishment of the presence of a conducive environment for training inputs
    - a.2. Assessment of suitable training institutes
    - a.3. Establishment of a formal institutional framework for training, with a host institution
    - a.4. Recruitment of additional staff to form multi-disciplinary team at the host institution
    - a.5. Create conditions to retain staff in the selected training institutions
  - b. ***Staff development***
    - b.1. Training of trainers in subject-specific areas, training methodology and curriculum development, including
    - b.2. Exposure of trainers to training programmes on low-cost environmental engineering and management, and participatory methods
  - c. ***Training development***
    - c.1. Development of an integrated training programme consisting of various courses for different target groups, development of course content, etc.
    - c.2. Development of monitoring and evaluation system for training results, application and impacts
    - c.3. Development of monitoring system for training capability development in the State
  - d. ***Facilities development***
    - d.1. Development of documentation centres
    - d.2. Acquisition of training equipment
    - d.3. Acquisition of documentation and (training) materials on integrated rws/s
    - d.4. Staged development of training infrastructure

24. In all the states under the NAP, most of the identified activities (listed under 23) have yet to be gone through, however the pace at which this will proceed, will be different for each state.
- in Gujarat, a project comprising all elements could progress relatively quickly through activities under (a), and could almost immediately move on to (b) and (c), whilst relatively few inputs are required under (d);
  - in Karnataka, a project should be linked in with the World Bank supported project, and training development support should be supplementary to this project. Some activities under (a) and (d) may be required in the establishment of the planned Karnataka water and sanitation training centre, but mostly activities will be in activities (b) and (c), to develop staff and adapt the training programmes for the specific requirements of the NAP;
  - In Kerala, a project will have to go through all steps (a) to (d), as facilities are absent and staff is small. However, the environment is receptive to training, initiatives for support in development have come up, and technical training activities are already considerable;
  - in Andhra Pradesh, a project will have to support ongoing developments, and currently development is in the very initial stages, with little progress made on any of the activities under (a) to (d). Here, institutional development may require considerable time, and a project will most likely have a longer duration;
  - in Uttar Pradesh, a project will have to go through all phases, although facilities (d) are already there. Activities under (a) to (c) will take considerable time however, and institutional arrangements may be time-consuming.
25. Project formulation on projects 1 to 8 could start in 1994 for all projects. If however the start of these projects has to be staggered, then the Mission would recommend to start with projects 1 to 5 in Gujarat, Kerala and Andhra Pradesh, and with project 7, and possibly 8 at the national level. Developments in Karnataka with the World Bank assisted training project should in the meantime be closely monitored.
26. The indicative budget requirement for Netherlands support for the projects, excluding the provision of buildings and furnishings, but including for staff development, documentation and training materials together with the necessary equipment, and external support (foreign and local) to the selected institutes, is between dfl. 7.5 and 10 mln.

## *1. Introduction*

Several policy papers (Country policy document India 1992-1995, Frameworks for Five-Year Collaboration) mention the intention to spend more funds from Dutch allocations to the Indian rws/s on institutional development and human resources development (HRD). So far, this intention has been operationalized by financing the participation of Indian staff in courses in the Netherlands. Training interventions are also undertaken as part of project implementation in India. Involvement of Indian training institutes and enhancing their capabilities for preparing various types of staff for an integrated approach of rws/s projects is not yet being developed. DAL/ZZ therefore decided to field a mission to investigate the possibilities for developing short trainings by Indian institutes (Terms of Reference: see Annexure 1).

The mission consisted of Mr. M.W. Blokland, sanitary engineer and associate professor in the International Institute for Hydraulic and Environmental Engineering (IHE) in Delft; Mrs. C. van Wijk, sociologist and programme officer at the IRC International Water and Sanitation Centre in The Hague and policy adviser to DGIS/DAL/ZZ, and Dr. J. Narain, Water Resources and Training Specialist for ETC-India Consultants in New Delhi, and former Vice Chancellor of Roorkee University.

The objectives of the mission were:

- \* to give an overview of current training activities and needs for the NA-programme;
- \* to advice on the desirability to strengthen the training capacity of in-house training institutes, possibly in coordination with other donors;
- \* to develop a strategy paper on training capacity development for, in first instance, Indo-Dutch rural water supply and sanitation projects;
- \* to identify Indian training institutes at which selected trainings can be carried out;
- \* to identify the requirements for developing the selected courses.

Priority should go to training for capacity building in identifying and formulating Netherlands-assisted integrated rws/s projects, while avoiding overlap of training activities and/or creating a parallel training structure.

### ***Methodology***

In the Netherlands, information on implemented trainings, training needs and possible Indian training organizations was obtained from interviews with the projects' bi-annual Review and Support Missions and review of documents. In India, discussions were held with Central and State Authorities dealing with HRD and the rws/s sector and project officials (see Appendices 2 and 3). Furthermore, use was made of formal training need studies for the water agencies in Andhra Pradesh, Kerala and Gujarat, a study on training needs of NGOs in NA-projects by ETC-India and the results of a follow-up survey of participants in the IHE trainings by the RNE.

A number of Indian training institutes were visited, selected on the basis of:

- their designation as training institutes for the water sector by Indian authorities (CPHEEO and ITN-India);

- reviews of sector training institutes by ODA (Overseas Development Administration) and the UNDP/WB (United Nations Development Programme/World Bank) Regional Group;
- expressed interest or actual involvement in planning and implementation of trainings related to an integrated approach in rws/s;
- recommendations from the RSMs as to general training climate and capacities;
- their location in states with NA-rws/s projects.

A summary of the findings and proposed training strategy was discussed with high-level authorities at the Ministry of Rural Development (Rajiv Gandhi National Drinking Water Mission) and in a meeting with other ESAs (External Support Agency) supporting training in the rws/s sector.

The draft document has been reviewed by GoN (Government of the Netherlands), GoI (Government of India) and ESAs after which a finalized concept has been prepared to be sent to all parties concerned for comments and to be followed by a decision on the formulation of a NA-training support programme in India.



## *2. HRD Policies and Programmes*

### **2.1 Government of India**

In India, the importance of Human Resources Development (HRD) has been felt for more than a decade now in the government and public sector agencies, with the realization that modern concepts need to be introduced in technical management and social aspects in all developmental activities. Although technical education at postgraduate, undergraduate and diploma levels has been providing academic programmes of the conventional type, field related research and Development in this sector has been insufficient and the relevance of existing academic programmes is questionable for fulfilling the needs of the sector. To meet the specific requirements of the water and sanitation sector, a variety of specialized training programmes have been conducted since the middle 1950's at a number of training institutes in the various regions of the country.

On the academic side, a total of over 100 government-sponsored graduate engineers have been given stipendiary support since 1956 to pursue postgraduate programmes at ten selected universities/ colleges in the country, and this has made for significant upgrading of the technical capability of the engineering staff in the system. However, the capacity of these programmes which are mainly sponsored by CPHEEO, has been limited and their orientation has been mostly on the urban sector.

In addition, the state engineering departments have set up their own in-house training institutes catering to the needs of the lower cadres of staff. The number and type of such programmes vary from state to state. In the rural water supply and sanitation sector, the specific training needs have been recognized only recently. It has been proposed that in the Regional Training Centres which have been identified, training courses should be developed that include non-technical aspects and pay more attention to sustainable service delivery. Those programmes that already exist appear to be more of the orientation type and do not include in-depth treatment of field-oriented subjects.

### **2.2 Government of the Netherlands**

In development cooperation, the Government of the Netherlands (GoI) will step up support to education. The volume of trainings in the Netherlands will remain the same, but training and training capability support in the countries of cooperation will be strengthened (A World of Difference, DGIS, 1991: 179-181).

The Government's policy plan on cooperation with India (1992-1995) similarly gives a greater weight to institutional and human resources development, to increase the efficiency and effectiveness of the programmes. Key principles to be pursued in the rural water sector are integration of community participation, hygiene education and sanitation; decentralized operation and maintenance, and monitoring and evaluation of the integrated approach and the functioning and use of the facilities. Inputs, monitoring and evaluation should all be gender-specific (Policy Plan 1992-5 India: 30-31).

In capacity building, emphasis is on maximally equipping villagers to maintain and manage affordable water supply and sanitation systems. Responsibilities for larger works will

remain with the project organizations. To equip the organizations for the changed approach to rws/s, training and support to strengthen the administrative capacity of government departments and professional organizations will be initiated or stepped up (Idem, *ibid.*: 39, 44).

### **2.3 External Support Agencies**

Other ESAs also support training and HRD in the rural water sector.

The World Bank has helped establish in-house training centres in Gujarat (Jalseva Training Institute) and Kerala as part of its rws/s projects. In Karnataka the Bank cooperates with SJ College of Engineering. The College established a training cell to develop, pilot-test and implement an integrated training programme for the World Bank supported rws/s project in 11 districts. In Maharashtra training has not yet been decided upon, while in Uttar Pradesh the programme is under formulation. For training, the World Bank preferably associates with the institutes which form part of ITN-India.

DANIDA (Danish International Development Agency) has carried out a large number of trainings as part of project implementation in Karnataka and elsewhere. Trainings included orientations on the project, sanitation and quality control; hydrology and geo-hydrology; water quality control and -testing; and leadership training for NGO staff and field - Angawadi- workers. Higher staff took part in a management course given by the Indian Institute of Management, Bangalore and in two courses on participatory techniques at ACDIL (Academy for Community Development and International Living), Goa. The latter was jointly with staff from other Danida-supported projects and in one course, Dutch-assisted projects.

Attempts to train higher level staff on the broader conceptual aspects of participatory rws/s projects did not succeed, because of restrictions on selection of courses and participants from DANIDA and the State Government. An exposure trip to participatory projects in Sri Lanka is now scheduled but, hampered by similar problems on the selection of candidates. The DANIDA project in Karnataka would greatly welcome a conceptual course on participatory rws/s project planning and implementation held in and with an Indian training institute at any location within India.

ODA supports general training for the Indian water and sanitation sector and training within a rws/s implementation project in Maharashtra. The general trainings for in-service personnel are in six subject areas, i.e. rural water project development, groundwater development, river basin development, urban water project development, management for urban public health engineers, and solid waste management. These short courses have been conducted first in the United Kingdom, and are now being gradually transferred to Indian institutes. The rural water project development course will be transferred to the AIHPH (All India Institute of Hygiene and Public Health) in Calcutta, the groundwater development course to GJTI in Gujarat, and the river basin development course to MERI in Maharashtra. For the rws/s implementation project in Maharashtra, ODA asked IRC to formulate a proposal to identify and support an Indian training institute for establishing a training course on management for sustainability of rural water supply and sanitation projects in Maharashtra. Training on participatory techniques and establishment of an up-to-date documentation unit will be part of the development of this training capability.

### 3. *Priority Training Areas in the NAP*

#### 3.1 **Priority training needs**

The magnitude of the training requirement for successful project implementation is maybe best illustrated by the case of the World Bank assisted rws/s project in Karnataka (1200 villages). A holistic approach taken to training has resulted in a training programme design for the first 280 villages that will touch all those involved in the project and that covers the entire project cycle, with emphasis on operation and maintenance.

The training programme is directed primarily at village populations and village-level functionaries, caretakers and artisans, and further at all professionals (community development and health workers, administrators, engineers, etc.) involved in the project. The training programmes will be conducted at the village level and at a large number of existing lower and higher level training institutes. They will be quite short (1-4 days), except for masons and mechanics. Higher-level staff receive little training (Annexure 4). The project will furthermore support an initiative to establish an independent Water Supply and Sanitation Training Institute, where the training capability developed during the project can be retained and put to further use.

Earlier comprehensive training needs analyses, conducted for the Kerala Water Authority (by North West Water of the United Kingdom) and the Gujarat Water and Sewerage Board (by ORG Consultants of India) under World Bank assisted projects have resulted in proposals for staff training programmes that are largely determining today's training calendars of the in-house training units. The training calendars consist of 25, resp. 65 courses (e.g. well logging and geophysical techniques, refresher course for clerks, stores management, mass awareness for prevention of wastage of water) Courses are of short duration, mostly skill oriented and directed at lower level staff and users (users only by GJTI). A training programme on managerial skills for higher level staff has been recommended in Kerala, but is not yet carried out.

The relevance of the training calendar in relation to training needs of the GWSSB office and field staff was discussed at the Gujarat Jalseva Training Institute, where it was concluded that, although the calendar is revised regularly, link with field problems and interaction with the GWSSB would have to be improved.

Training needs in the NAP are being systematically analyzed for the first time in the preparations for the Nalgonda (AP III) project, and first results now available on training requirements for the PRED show deficiencies in the areas of management, technical skills, and social orientation. Proposals for a training programme are being developed.

In Karnataka, training will also be taken up as an integral training component, but concrete proposals have yet to be developed. The NAP-Karnataka will closely monitor the developments in the World Bank assisted training project, to see what lessons can be learned from that experience.

In the other NAPs training was not an integral and pre-conceived component of the project design for the Netherlands assisted projects. Trainings needs have been identified and addressed only in reaction to perceived needs during project implementation. Most of the training needs concern (re)orientation on sustainable service delivery and integrated project approach, preparation of integrated projects, technical know-how in the fields of sanitary engineering, water resources planning and management, issues related to sustainable sanitation programmes, community participation, hygiene education, and the use of a gender-sensitive approach.

In addition, there are training needs from within the training sector, that relate to training programme design, course design, training methodologies, and exposure to recent rws/s sector development. A study conducted recently by ETC-India in the training needs of NGOs reveals the need for training in project preparation, management, monitoring and reporting.

The table below shows the priority training needs in the various states, as put forward by the RSMs, the WACO, ETC-India, and the different institutions visited by the Mission.

**Table 1: Priority Training Needs**

<i>Training Needs</i>	<i>Andhra Pradesh</i>	<i>Gujarat</i>	<i>Karnataka</i>	<i>Kerale</i>	<i>Uttar Pradesh</i>
Integrated rws/s projects					
- conceptual aspects of rws/s	x	x	x	x	x
- sanitation programme design	x				
- rws/s project preparation/ implementation	x	x	x	x	x
- community managed facilities	x	x	x	x	x
Subject matter development (Participation/Hygiene Education)					
- new developments	x		x		x
- professional exchange					
- design and management of programmes					
- communication strategies					
Subject matter development (Technical)					
- hydrogeology	x		x		x
- water resources development	x	x	x	x	
- sanitary engineering with focus on low-cost ws/s	x	x	x	x	
- computer aided design	x				
- basic technical knowledge (for social staff)	x				
Training for trainers					
- new developments	x	x	x	x	x
- training programme development	x	x	x	x	x
- course design and evaluation	x	x	x	x	x
- participatory training methods	x	x	x		

### 3.2 Training activities in the NAP

Trainings for the NAP take place at international and project level; there are no trainings for NAP at state/regional/national level in India. At the international level, there are two structural courses with participants from the NAP: the 11-months International Postgraduate Diploma Course on Sanitary Engineering at IHE for junior-level engineering staff and the 3-week IRC/MDF (International Water and Sanitation Centre/Management Development Foundation) Course on Management for Sustainability for multi-disciplinary sector staff at the managerial level. The post-graduate study programme at IHE includes an 8-week course on integrated low-cost rws/s (Table 2).

**Table 2: Training in the Netherlands**

<i>Course</i>	<i>Low-Cost Water Supply and Sanitation (final trimester of 11-months IHE course)</i>	<i>Management for Sustainability (IRC/MDF)</i>
Duration	8 weeks	3 weeks
Participants from India	15 (on a total of 30 - 40)	6 (on a total of 15-20)
Gender	male and female	male and female
Background	technical/institutional/financial/social	technical/social/health
Objectives	<ul style="list-style-type: none"> <li>- transfer of state-of-the-art knowledge on technologies and approaches in low-cost water supply and sanitation</li> <li>- development of skills in the preparation of a feasible proposal for an integrated water supply and environmental sanitation programme</li> </ul>	<ul style="list-style-type: none"> <li>- enhance insights in technical, social, organizational and environmental factors influencing sustainability of projects;</li> <li>- upgrade management skills on planning, implementing and maintaining sustainable systems</li> </ul>

Each year two IHE trainees stay on for a one year MSc course in a technical or managerial subject of their choice. This course includes fieldwork in India.

In total, 38 NAP staff, all male have attended the IHE diploma course, of which 5 have continued and obtained the MSc degree. Twenty-five, including 3 female staff have attended the IRC/MDF course. Limiting factors in female participation are the relatively small numbers of female engineers; the duration of the IHE diploma course (3 months is the maximum for women<sup>1</sup>); the level (IRC/MDF course is for senior staff only) and the association with NAP in day-to-day work.

The quality of the IHE diploma course was subject of a post-course evaluation of 22 alumni by the RNE. Much appreciated were the practical, field-oriented focus of the course, the balance between technical and non-technical subjects, the exposure to

<sup>1</sup> pers.com. Ms.S. Raval and Ms. K. Sambhawani, GWSSB

experiences and participants from other countries (at IHE participants from about 60 countries take part in the various courses). The duration of the course was thought to be just right. Less satisfactory is that only about half the alumni are involved in the NA-projects, and that, due to administrative and other constraints only some of the knowledge obtained can be put to good use.

Incidental international training activities included exposure trips to Indonesia and -planned- to Dutch water companies. Four female engineers took part in the 1989 INSTRAW/ESCAP (United Nations International Research and Training Institute for the Advancement of Women/Economic and Social Commission for Asia and the Pacific) Regional Seminar on Women, Water and Sanitation. The latter resulted in a pilot project for training women handpump mechanics in Uttar Pradesh.

At project level, trainings for project staff above village-level have been most numerous in Uttar Pradesh. So far, these concerned geohydrology; well drilling, technical aspects, handpump operation and maintenance, management information systems, computer use, system analysis and programming, environmental sanitation, health education, communication, objective oriented planning (for social staff), orientation of district level functionaries, techniques for population projection and induction training for social staff. Trainers are in-house staff or specialists from the Netherlands or India.

In Gujarat, in-project training has focused especially on operation and maintenance of distribution nets. Technical NAP staff can further attend some 40 general in-house courses on project preparation, implementation and operation and maintenance. All courses but one focus on technical aspects. In Karnataka training has so far been on-the-job, e.g. leadership training for village organizers. In Kerala, the social staff received a training in participatory techniques at ACDIL and PRIA (Society for Participatory Research in Asia). In Andhra Pradesh, workshops took place on sanitation and objective oriented project planning. Participants were technical and social staff together.

### **3.3 Target categories for training**

In each of the five states where NAP is carried out, several institutes cooperate amongst themselves and with the approximately 6000 communities involved in the programme, to prepare and implement the projects, and to make the arrangements and develop the capability for sustainable operation and maintenance and effective service delivery. In line with programme policy, ample consideration must be accorded to the fact that in the operational phase the assets will be individually or community managed, with a varying degree of input from engineering and other agencies, depending on the local situation.

Because of the nature and innovative approaches taken in the programme, training will have all stakeholders as target categories, and will have to include users, artisans, caretakers and functionaries at the village level, as well as those in the Ministries of Panchayati Raj and Rural Development, Health, Social Welfare, the Engineering Organizations (PRED in Andhra Pradesh, Jal Nigam in Uttar Pradesh, etc.), the Socio-economic units (or their equivalents) and the NGOs. The overall project staff associated with NAP is comprised of the following people:

1. Staff in NGOs and Government Departments and Programmes dealing with administrative, social, health and income-generation aspects. This group ranges from the Secretaries at the State level to the field supervisors at Mandal level, and numbers about 550, with about 300 field supervisors working at the Mandal level (that is assuming an average of 1 field supervisor for every 10 villages). The group also includes the supervisors fielded by the PSU in Uttar Pradesh (in other states these are NGO staff).
2. Professional staff in the Engineering Departments, including those deputed to the District Panchayat level (in Karnataka), dealing with project preparation and implementation. From Engineer-in-Chief to junior engineer, these number nearly 800 in all, with about 500 junior engineers working at the Mandal level or its equivalent. In Uttar Pradesh, because of the large spread of the programme there, work 500 out of the 800 engineers in the whole NAP.
3. Project support staff in the Socio-Economic Unit (Kerala), Project Support Unit (Uttar Pradesh), Netherlands Assisted Projects Office (Andhra Pradesh). Gujarat and Karnataka do not have these units yet. The support staff numbers about 50.
4. Villagers employed in the NAP for local tasks (organization, maintenance), members of village organizations dealing with water, sanitation and hygiene, sub-professional staff in the Engineering organizations (linesmen, operators, draftsmen, clerks, etc.), which in all number in the tens of thousands. The Mission recognizes training needs, particularly in skills training, at this level, but did not address these in the current report.

Looking across the organizations the following categories for training can be distinguished, and their role described:

1. The Strategic Apex. This group consists of the Secretaries of the various line Ministries, i.e. Panchayati Raj and Rural Development, Health and Social Welfare, the State level Training Commissioner, and the Member Secretary and Managing Director of the State Water Board (or equivalent in the case of Engineering Departments). These persons are the prime movers in authorizing and facilitating the operationalization of the Central Governments' innovative approaches to rws/s (under the VIIIth Plan) within the NAP, and in creating the enabling environment required by the various agencies for successful implementation of the projects, and more importantly, for the concurrent or subsequent institutionalization of these new approaches.

For the five states engaged in the NAP the *Strategic Apex numbers between 30 and 40 persons*, 10 of which would be engineers. Characteristically, in Government, tenure in these positions is short, for two reasons. First, transfers at this level are frequent, and second, the positions concerned are often held by incumbents approaching retirement age.

2. Strategic management. This group consists of the Directors of Rural Development, Panchayati Raj, Health and DWCRA, Directors of platform-type state-level NGOs, the Chief and Superintending Engineers in the Engineering agencies, Head of Socio-Economic Unit (PSU or NAPO), district level NGO Directors. This group has to promote and facilitate the operationalization of the integrated approach within and between their respective organizations.

For the five states of the NAP *the strategic management level numbers between 70 and 80 persons*, of which half would be engineers.

3. Operational management. This group consists of the District Collector and the District Development, Health and DWRCA Officers, the Executive and Deputy Executive Engineers, Head of the Regional Socio-Economic Unit (PSU or NAPO), and NGO Directors. This group has to operationalize the integrated approach within and between their respective organizations; each individual will carry day-to-day management responsibility (is accountable) for programme implementation in their designated geographical areas.

The NAP covers 43 districts in the five states, and the *operational management level includes between 450 and 500 persons*, of which two-third would be engineers.

4. Field supervisory staff. This group consists of field coordinators in the NGOs (and PSU), and Assistant and Junior Engineers (or equivalent), tasked with advisory and supervisory work in the villages. The tasks require close coordination between them for purpose of synchronization of activities, but also, several tasks have to be executed jointly.

The NAP covers 6000 villages in the five states, and the *field staff numbers between 700 and 800 persons*, of which two-third would be engineers.

### **3.4 The larger framework of HRD and the ensuing limitations of training**

Recent experience has shown that deficiencies have developed in the rws/s sector due to widespread investments in this sector which proceeded rapidly without adequate attention towards HRD. Many projects are suffering from poor design and construction, and above all, their operation lacks participatory management approach, necessary for sustainability in rural environment. The national policy is fully supportive to improving HRD in rws/s sector.

There are many limitations which continue to constrain the quality and status of training in this sector. Both long-term and short-term training programmes need to fit into a framework of HRD strategy so that there is a continuous process of staff development, upgrading of skills of trainees and flow of modern technology and innovations. For this purpose, the trainers need training in development and implementation skills. It has been observed that, guest faculty generally have a low conceptual knowledge with little experience of rws/s training and hardly any exposure to modern training techniques.

In the training programmes, technical aspects of rws/s take away most of the training time, and social aspects, particularly related to participatory management, receive minimum attention of the trainers. Actually most of the training institutes draw their faculty from the operational staff of rws/s Departments/Boards with technical qualifications and experience. Therefore, the training staff is generally found weak in social aspects and weaknesses, which could be removed by relevant training effort, continue in the system at the field level. Successful operation and management of the rws/s projects depend on an effective partnership between agency and communities in which communities are capacitated and have the authority to do day-to-day tasks.



On the gender issue, few training institutes have given adequate attention to include specific problems relating to changing male and female roles in rws/s activities, and there is hardly any documentation available.

Although considerable training activity has been generated in this sector in most of the states, the achievement is being measured purely on the basis of number of persons trained. There is no agency to evaluate, modify, upgrade and, in general improve the quality of training, which is left to the not-too enthusiastic trainers, often deputed to the training institutes as a 'punishment' for their earlier performance in the field. First, efforts by the donor agencies to assist the state governments in establishing high quality, need-oriented and well-designed training programmes are being initiated, but the coordination at the state level needs to be strengthened in order to organize training programmes that would realize the project objectives.

Staff development policy must focus on issues like training for leadership, team building for participatory management, code of ethics, quality consciousness, work commitment, etc - in essence, building up a work force which is upright, self-respecting, productive, efficient and committed to upgrading the quality of community life in rural areas.

Training issues relating to rws/s need to be addressed with a greater degree of urgency than in the urban sector, where considerable progress has already been made. The academic and research institutions in different states have, so far, not given priority to rural sanitary engineering, in which unique designs and solutions need to be developed in each region to meet its rws/s needs. In addition, the senior staff in this sector also requires higher qualifications and professionalism to meet the challenges.

In order to make the training programmes effective, it is necessary that the State Governments develop a sound personnel management policy for their staff in the rws/s sector, and integrate the role of postgraduate education and training programmes in that policy. The effectiveness of training benefits are dependent on:

1. Design of training courses based on Training Needs Analysis of target groups.
2. Use of appropriate training methodologies for the various target groups. The 'lecture method' seems to be most commonly used. Greater emphasis on participatory methods and audio-visual aids is needed.
3. Quality of Faculty, which is often not motivated or trained as "trainers" resulting in 'academic type' lectures. Application of technology and skills to live problems of the field, should form an important component of training for equipping the trainees to solve field problems themselves.
4. The management of posting and transfers in the Government departments is often based on considerations other than utilization of trained personnel in the rws/s sector (particularly faculty positions in training institutes).

It is necessary to fully utilize the existing academic and training institutions in the country and develop complementary training facilities at the state level and above. There are three main categories of education and training that require attention:

- i) Postgraduate diploma/degree courses in rws/s at Universities with a multi-disciplinary approach. Such courses do not exist at present. These courses may be supported by the Ministry of Rural Development (MRD) at selected institutions, and will be utilized by sponsored engineers/scientists from the State Government

- Department/Boards.
- ii) Training Courses for senior level officials in management and policy matters. These courses could be a short duration and given at prestigious institutions like IMIs, IRMA, ASCI etc. with a tailor-made curriculum suitable for rws/s Sector.
  - iii) Intensive Training Programmes for middle and junior level staff at the state training institutes (like GJTI), including induction, refresher and specialist courses designed on the basis of training needs analysis for each level and category of staff.

In the total perspective of HRD Strategy of the Department/Board, it would be necessary for the State Government to make policy decisions regarding selection and posting of trainees, and also encourage staff development in general and specialized areas on a continuous basis.

### **3.5 Parallel development in training for water management in irrigation sector**

For the past 15 years, World Bank, USAID (United States Agency for International Development) and the Dutch have been actively supporting the training of irrigation and agricultural staff for more effective distribution and management of water at the farm level. Farmers' organizations have been promoted with the help of NGOs to take over the total responsibilities for water management below the outlets, and also collect irrigation dues from farmers and maintain the fold channels in the farms. This participatory approach has been a major shift from the old system of putting the full responsibility on Government agencies. Bringing about attitudinal changes among field level functionaries of the Irrigation Department/CADA as well as the farmers is a major challenge of the training programmes.

Sofar, over a period of 13 years, twelve States (Maharashtra being the first in 1980) have established a state-level Water and Land Management Institute (WALMI), with infrastructure being provided mostly as a component of World Bank supported irrigation projects. Staff development of the faculty of the WALMIs was taken up separately, by USAID, under a 7-year (1985-1992), US\$ 50 mln programme (no infrastructure), executed by a 16-member team (with 8 expatriates) of an American consultant. The programme included both subject matter training and training of trainers and was mostly executed in the USA.

Under the Indo-Dutch Training Project (Project Management Unit), a 3-year project, undertaken by a Dutch Consultancy firm (350 manmonths of consultancy input, of which two-thirds by Indian consultants) specific attention has been given to prepare training materials (60 Modules + 13 Video films) for different categories of functionaries as well as farmers. The use of this material by all WALMIs is currently being promoted.

An excellent parallel can be drawn in the rws/s sector, where attitudinal changes are also needed and staff need to allow local men and women to participate and learn new skills during planning and construction so that they can play a greater role during the operational stage. A well-planned strategy is required to develop training methodologies with NGO participation in order to yield positive results.

## 4. Review of Indian Training Institutes

### 4.1 Preceding reviews (by others)

The Indian landscape of training institutions for the water and sanitation sector has been surveyed before, and this paragraph summarizes the preceding surveys.

As related in Section 2.1, the Indian Government has long ago established its programmes for post-graduate education at Indian Universities and Colleges. These programmes are conducted under the sponsorship of CPHEEO at ten institutions (see Table 3). The study programmes of the courses are oriented to the solution of the urban and industrial problems, and hardly, if at all, discuss water and sanitation technologies and approaches for application in urban slums and rural areas.

**Table 3: Institutions receiving CPHEEO sponsorship for M.Eng. programmes in sanitary engineering (urban orientation)**

<i>Name of the Institution</i>	<i>State</i>
1. All India Institute of Hygiene and Public Health, Calcutta	West Bengal
2. Victoria Jubilee Technical Institute, Bombay	Maharashtra
3. Visvesvaraya Regional College of Engineering, Nagpur	Madhya Pradesh
4. Birla Vishvakarma Mahavidyalaya, Vallabh Vidyanagar	Gujarat
5. Shri Jayamajendra College of Engineering, Mysore	Karnataka
6. Motilal Nehru Regional Engineering College, Allahabad	Uttar Pradesh
7. Shri J.S. Institute of Technology and Science, Indore	Madhya Pradesh
8. Anna University, Guiny, Madras	Tamil Nadu
9. Malviya Regional Engineering College, Jaipur	Rajasthan
10. Indian Institute of Technology, Bombay	Maharashtra

Training needs and opportunities for the urban sector were reviewed for the Ministry of Urban Development by the UNDP/World Bank Water Supply and Sanitation Programme-South Asia office. The target group for in-service training was estimated at 50,000 professionals and about 750,000 subprofessional staff.

Training capacity in formal educational institutions was found to be low and impact of training low. Post-graduate courses for professionals are over-emphasizing design and construction, and were found poorly utilized with 20 to 40% of places not taken up. Good progress was found to be made with in-house training activities in Madras (MMWSSB), Gujarat (GJTI), Kerala (KWA), and Bombay (MCGB), with Hyderabad (HMWSSB) starting up, and Uttar Pradesh (Jal Nigam) staying behind.

The 10 institutes named in Table 3 have provided the sector with about 1523 Master Degree holders since 1948, i.e. an average of about 3 graduates per State per year.

The need for dedicated training in the field of low-cost water supply and sanitation was realized during the Decade, and was taken up in 1986, when an Indian initiative to become part of the ITN for Water and Waste Management (ITN) received international support (from ODA, and to a small extent from the Dutch).

In order to establish an Indian network of training institutions, a survey was conducted in 1991 by ITN-India, covering a total of 41 institutions, a substantial number of which were visited for further scrutiny. Finally, seven institutions were recommended to become part of the initial network (see Table 4). Activities by the regional centres have been very limited thus far, and impact at field level is not yet felt.

**Table 4: Institutions selected for training in low-cost water supply and sanitation**

<i>Name of the Institution</i>	<i>State</i>
<i>National centre:</i>	
1. All India Institute of Hygiene and Public Health, Calcutta	West Bengal
<i>Western region:</i>	
2a. Gujarat Jalseva Training Institute, Gandhinagar	Gujarat
2b. Safai Vidyalaya, Ahmedabad	Gujarat
<i>Central region:</i>	
3a. Institute of Engineering and Rural Technology, Allahabad	Uttar Pradesh
3b. Motilal Nehru Regional Engineering College, Allahabad	Uttar Pradesh
<i>Southern Region:</i>	
4a. Shri Jayamajendra College of Engineering, Mysore	Karnataka
4b. Gandhigram Rural Institute	Tamil Nadu

The need for training of NGOs working in all sectors of the Netherlands development cooperation programmes in India was recently investigated by ETC-India, at the request of the Royal Netherlands Embassy in New Delhi. The study also included a survey of potential training institutes to serve the identified training needs.

The study proposes training in some specific management skills, i.e. proposal preparation; project management and monitoring; and environmental awareness and gender sensitization, and identified three suitable institutes to conduct and resource these trainings (Table 5).

**Table 5: Institutions identified for upgrading general management skills of NGOs**

<i>Name of the Institution</i>	<i>State</i>
<i>Training implementation:</i> - Centre for Organizational Development, Hyderabad - Tata Management Training Centre, Pune Training	Andhra Pradesh Maharashtra
<i>Materials/methodology:</i> - Society for Participatory Research in Asia, New Delhi	Delhi

## 4.2 Mission findings

The mission visited a large number of training institutes in the three states, which are or could be involved in training for sustainable rws/s projects. The following is a summary of the findings, keeping in mind that the limited time only allowed limited discussions and observations.

### **ANDHRA PRADESH**

#### ***Research, Development and Training Centre (RDTC)***

The Research, Development and Training Centre is the in-house training centre of the Panchayati Raj Engineering Department, which is in charge of rws/s.

<b>Characteristics of RDTC are:</b>
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- Accommodation:* Temporary (rented) building
- Staffing:* Deputy director; in the absence of a core group of trainers, trainings are executed by regular staff from the department and a few resource persons
- Equipment:* Limited training material, (mainly lecture notes) and equipment, library not adequate
- Activities:* 72 courses since 1986, all but one technical, lasting 4-12 days, and reaching a total of 1510 engineering staff
- Involvement in NAP:* No direct role. NAP social staff are occasionally asked to give a course lecture

The development of RDTC is in a primary stage. The centre has no permanent faculty with expertise in developing trainings which include current insights and training methodologies. Courses focus on technical skills training for lower staff and do not address other aspects of sustainable projects. Research and development activities have so far not been taken up. A training of trainers programme is under development.

***Regional Centre for Urban and Environmental Studies, Osmania University (RCUES)***

The NAP has contracted the Regional Centre for Urban and Environmental Studies (RCUES) of Osmania University, Hyderabad to support the development of RDTC. RCUES has done a training needs analysis with the PRED. They will now develop a training programme and do the first year's training for engineering staff in AP-III (see 3.1). After training the trainers of RDTC, RCUES will assist them to do the second year's training at RDTC. The total duration of the training support contract is 3 years.

**Characteristics of RCUES are:**

<i>Accommodation:</i>	Own institute
<i>Staffing:</i>	Director; 10 technical and administration specialists and access to Osmania University faculty; no experience with rws/s
<i>Equipment:</i>	Library
<i>Activities:</i>	Research, HRD planning and training
<i>Involvement in NAP:</i>	Participatory training needs analysis with PRED

RCUES has executed studies and trainings for the municipal water company of Hyderabad and various projects for the urban poor, which also had a gender element. Their work has a strong organizational focus. RCUES has diagnosed a lack of conceptual knowledge on a holistic and sustainable approach to rws/s as on of the problems of PRED staff and would like to develop their content knowledge on these subjects, as well as on gender aspects of rws/s projects.

Training needs of the NGOs involved in AP-III will be identified on-the-job by the NA project office. The office will then organize internal trainings or external courses to meet these needs.

***Centre for Organizational Development (COD)***

A proposal is under appraisal in which two Indian institutes, the Centre for Organizational Development in Andhra Pradesh and Tata Consultants in Gujarat will train NGOs working in all types of NA-projects. With external assistance these centres will give general trainings on project proposal preparation, project management, monitoring and evaluation and gender and environmental awareness. COD is a private foundation which mainly trains higher level staff from the corporate sector.

**Characteristics of COD are:**

<i>Accommodation:</i>	Self contained campus with hostel, lecture and meeting rooms, (max. 60 persons)
<i>Staffing:</i>	Director, Ass. Prof. 6 Research Assistants/Fellows, 1 visiting Prof, one programme officer (all male)
<i>Equipment:</i>	Audio-visual materials including video cameras (to register role plays), well-equipped library (especially management literature)
<i>Activities:</i>	Various courses on management training, including role effectiveness for women executives

COD has a self-contained campus with excellent facilities and uses modern training techniques. Although the quality of the courses could not be assessed in the time given, they might also be useful in combination with more content specific trainings, or for training-of-trainers.

## **KARNATAKA**

Karnataka has no in-house sector training institute. The Public Works Department (PWD) delegates rural engineers to the Zilla Panchayats (districts) where they deal with all rural engineering. For NAP, PWD will allocate 1 engineer to each project district who will work only on rws/s. Training of these and other project staff on integrated rws/s is budgeted for, but not yet operationalized.

### ***Training cell (Shri Jayamajendra College of Engineering) (SJCE)***

Meanwhile, the World Bank has contracted SJCE in Mysore as nodal agency to develop and implement the training for the World Bank supported rws/s project. Basis for the training is the integrated project approach (rws, community participation, health communication). The aim is to capacitate project staff and villagers to implement the project as designed by the World Bank. Training is first tested in a pilot training programme. Training at a more conceptual level which would make it also suitable for other projects, both ESA and Government of Karnataka-financed is currently not foreseen. SJCE has taken up the training work as a subcontractor under the College's general educational trust. For this purpose a special Training Cell has been established in SJCE.

<b>Characteristics of the cell are:</b>
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<i>Accommodation:</i>	Own premises in university
<i>Staffing:</i>	1 director: 6 core trainers (M), technical background
<i>Equipment:</i>	Training materials (readers, transparencies, flipcharts, videos on technical and social topics) prepared and reviewed by Indian specialists at national level and translated into the local language. For documentation relying on college libraries (technical only)
<i>Activities:</i>	Training of 10 teams of 4 trainers. Each team stays three times one week in a project village, to (1) give project orientation, (2) train artisans and give health education and (3) train caretakers, mechanics and users on operation and maintenance

SJCE draws additional support from 4 polytechnics (1 for women only), the Administrative Training Institute/State Institute of Rural Development (see ATI/SIRD page 18/19) and some 35 other organizations. The programme is coordinated by a training advisory committee. GoK has invited DANIDA's Chief Advisor as co-reviewer on this committee. Points for strengthening mentioned during the first reviews were the cooperation between the training programme and the programmes for participation and mass communication, and the quality of the mass communication programme, the consultants not being specialists in social communication but in commercial marketing. Training materials are limited on social and gender aspects and do not reflect developments outside India. SJCE itself is a CPHEEO training institute for sanitary engineering and the designated ITN training centre for South India.

### Characteristics of SJCE are:

<i>Accommodation:</i>	University Building
<i>Staffing:</i>	2 professors; 2 ass. prof. (away for PHD), 6 lecturers (5 M/1F). One lecture post not filled
<i>Equipment:</i>	Various laboratory and audiovisual equipment. Library (technical)
<i>Activities:</i>	CPHEEO sponsored MSc, short and refresher courses in Environmental Engineering. BSc Course in environmental engineering as from 1993
<i>Involvement in NAP:</i>	No relationship

SJCE is interested to take up training in rws/s for a limited time. They cannot insert the knowledge gained in their own curriculum. This is determined by CPHEEO (urban courses) and the University. The latter does not yet see a need for human aspects in sanitary engineering. The only course which deals with human aspects is Environmental Impact Assessment. New training techniques reported to be part of the training for the World Bank assisted programme are not used in the college courses.

SJCE's training cell seems quite committed to the training work for village-based rural water supply and has also prepared some training materials for ITN. Development of technical aspects, such as the more VLOM-suited India Mark III pump, are covered in this material, but the more managerial aspects are not, e.g. the selection of mechanics, involvement and training of women mechanics and village financing and financial management systems. SJCE would like to get exposure to developments in this and related subject areas in other parts of India as well as elsewhere.

At the short term these needs could be met and the implementation and results of the village trainings followed closely. At the longer term and depending on the development of a permanent institutional capacity for such training, the cell could be assisted to develop into a broader training organization for participatory rws/s projects which can also serve the needs of other rws/s projects in the state.

#### ***Karnataka Water and Sanitation Training Institute***

For the long term institutionalization of training capabilities in integrated rws/s there is a commitment from the GoK, the World Bank and the state water sector to set up a state sector training institute. The institute will serve both the urban and rural sector. GoK is particularly emphasizing the importance of avoiding duplication and parallelism in ESA support to sector training.

#### ***Administrative Training Institute and State Institute of Rural Development (ATI/SIRD)***

The ATI and the SIRD are two of SJCE's resource centres for training programmes. The two institutes share one campus in Mysore. District training centres exist in 16 of the 22 districts.



### Characteristics of ATI/SIRD are:

- Accommodation:* Conference room, lecture rooms, small group rooms, hostels for 50 and 150 persons
- Staffing:* 1 joint director, 11 faculty staff, incl. 2 gender specialists (M/F).  
No in-house expertise on rws/s
- Equipment:* Audiovisuals, computer training centre, library, including well-stocked gender section on non-rws/s aspects. Three other ATIs also deal with gender training: in Uttar Pradesh, Rajasthan and Madhya Pradesh
- Activities:* Facilitating institute for a wide range of training courses, incl. rws/s for higher, executive, district and block levels (see Annexure 4)

ATI organizes both its own courses and courses on request, using external specialists from NGOs for subjects outside their own specializations. They are also a venue for external courses.

ATI's gender department in particular seemed well-developed in all kind of subject areas, except for rws/s. If the present training activities for the World Bank-supported project would in future be extended to cater for some of the training needs of the NAP as well, expansion of its gender expertise to the W/S sector and exposure to women's involvement in the project is advisable.

## GUJARAT

### *Gujarat Jalseva Training Institute (GJTI)*

The GJTI is the in-house training institute of the Gujarat Water Supply and Sewerage Board. It was established in 1988 with a grant from the World Bank.

### Characteristics of GJTI are:

- Accommodation:* Conference hall, seminar rooms, hostel for 100
- Staffing:* Director in the rank of Chief Engineer, 2 joint directors (S.E.), 7 senior trainers, 10 training officers, 5 ass. training officers (M); Nine members (soon 11) trained abroad in training skills or content courses; 7 still in position (1 transferred, 1 deceased)
- Facilities & Equipment:* Audiovisuals, remote sensing and geologic information system, Mechanical workshop, water quality testing laboratory, leak detection equipment
- Activities:* 50 training courses, each on average twice a year, average duration 2-3 days, courses held in field when peak times in engineering, target groups mainly lower levels technical staff; Studies, in-house water quality testing and (shortly) leak detection, using 2 mobile detection sets)
- Involvement in NAP:* Linesmen trainings, co-development of a training manual on operation and maintenance

GJTI has to take care of the training needs of staff of the GWSSB, municipalities and Panchayats. In addition it runs courses sponsored by CPHEEO and Ministry of Urban Development on source finding and low cost sanitation; UNICEF on hydrology, handpump location and repairs; Ministry of Rural Development and Technology Mission on defluoridation and water quality monitoring and the British Council on groundwater development, and has hosted a water conference of 7 SAARC countries. Among the regional key institutes in ITN-India. GJTI was selected to be the first to be developed. The budget from Government of Gujarat is some 85 lakhs Rs. (US \$ 30,000) per year.

GJTI works under the control of the GWSSB. The latter recruits and posts the training staff from its regular manpower and determines the curriculum. To motivate regular staff to take up a training position, GWSSB gives 20% extra salary to core faculty, plus access to foreign training and staff quarters at the campus or in Gandhinagar. In addition, those wishing to make training their career are in principle not transferred. This does not forestall that part of the trainers take up a training job for other reasons and do not have the commitment and attitude required and that retaining good trainers is a problem. In addition to its own faculty, GJTI has funds to call in training expertise from all parts of India. Presently, some 40% of the trainings are given by guest lecturers.

All faculty presently have a technical background and courses are of a technical nature only. Courses on operation of single village schemes and handpump maintenance cover technical aspects only, not social and managerial aspects, such as selection of candidates, management and financing of single village schemes and formation and training of village water committees. The only course with a social nature, village awareness, is given by technical staff. Documentation is mainly on technical aspects of rws/s and difficult to retrieve (no completed categorization system). Furthermore, training development is not yet linked to regular training needs assessments on the one hand and evaluation of performance and impact on the other.

To overcome its constraints and develop into a professional training centre for the sector, GJTI aspires to become more autonomous in the day-to-day management of the institute, recruiting and retaining its own staff and developing its curricula under a Board of Governors. The GWSSB's socio-economic unit will be placed in GJTI and its social specialist get a task in introducing and coordinating training in social aspects beside many other tasks. Moreover, GoI has requested GJTI to support the establishment of a national training institute for rws/s, for which 19 acres of land have been donated in the vicinity. GoI will also pay 1/3 of the recurrent costs of this centre. Three of GJTI's trainers have taken part in trainings on participatory rural water supply and sanitation programmes at IHE or IRC/MDF. This, as well as the courses attended by other GWSSB staff in Bradford and Loughborough raised the director's interest in developing the curriculum of Jalseva in this direction. He has recently visited the Netherlands to assess possibilities for obtaining technical assistance for this purpose. Following the mission, GJTI organized a meeting with other training institutes and NGOs involved in rws/s in Gujarat, to discuss the promotion of a multi-disciplinary training group and faculty for rws/s in Gujarat.

#### ***Institute of Rural Management, Anand (IRMA)***

The IRMA was established at Anand in 1979 with the support of the Government of India, the Government of Gujarat, the National Dairy Development Board and the erstwhile Indian Dairy Corporation.

IRMA's overall mission is to promote sustainable processes of development and equity in rural society. IRMA aims to achieve this through excellence and relevance in education, training and practical research into the processes of rural development. It seeks to foster professional management and people orientation in co-operatives and rural development agencies.

In specific terms, the Institute's aims are to:

- a) impart relevant education and training to young men and women for managing income generating and development activities for and on behalf of rural people;
- b) offer training courses for policy makers, directors, general managers, and those in charge of specific managerial responsibilities in rural enterprises and projects;
- c) conduct research on operating problems in the rural sector in order to help improve the management of rural enterprises and projects; and
- d) undertake basic research into the processes of rural management and augment the existing body of knowledge on the subject.

<b>Characteristics of IRMA are:</b>
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<i>Accommodation:</i>	Own institute
<i>Staffing:</i>	36 professionals for training, research and consultancy
<i>Activities:</i>	two year post graduate programme in rural management (90 participants/year)
	one-year programme for development practitioners on professional management skills
	12-week general management programme for mid-career orientation and training of senior managers in rural producer cooperatives
	6-week management appreciation programme on management principles, for practising NGOs

In addition to the above, about 20 specialized short duration Management Development Programmes, training seminars and workshops bring a large number of rural development professionals every year for specialized training in management functions, such as marketing, finance, production, field operations, human resources management.

Besides teaching and training programmes, IRMA's 36 strong faculty currently devote 35-40 per cent of their time to research, consultancy and case writing. Current sectoral research programmes include oilseeds, dairying, weaving, forestry, crafts, management of natural resources such as ground and surface water, commons and wastelands, inland and marine fisheries; and functional management issues such as finance, personnel, marketing, operations management, organization design and structure. During December 1992, IRMA organized a Symposium on Management of Rural Co-operatives based on an year-long network research on various aspects of the same subject.

IRMA gives the impression of a good professionally run institute in the non-government sector, which could develop effective management courses for training senior and middle level officials of the state governments involved in the rws/s programmes. They have a long experience of rural management problems and would be in a position to organize training programmes, given adequate time for preparation.

**Sardar Patel University, Vallabh Vidyanagar** (Faculty of Engineering and Technology)  
Sardar Patel University is one of the ten academic institutions in the country recognized by Ministry of Urban Development (MUD) for conducting Master of Engineering course in Public Health/Environmental Engineering (PHE) (see Table 3). This PHE Training Programme was started as part of the Health Plan in 1956. The postgraduate course is open to engineering graduates with a minimum of five years experience in managing water supply and waste water treatment, and the selection of trainers is made by CPHEEO at the national level.

The course syllabus (in Annexure 6) consists of two semesters of course work of conventional courses with dissertation, seminar and two electives in the third semester. The faculty strength in this discipline is seven, which caters for both the postgraduate and undergraduate programmes. The thrust of the courses is towards urban and industrial applications, and the course content does not appear to address rural water supply and sanitation problems.

#### ***Sardar Patel Renewable Energy Research Institute***

In close vicinity of the Faculty of Engineering and Technology of Sardar Patel University, this institute is located with an impressive field laboratory and working models, field laboratory and working models, showing their research and development efforts. The important devices/ programmes are listed below:

#### ***Solar Thermal Division***

1. Zeolite - water solar Refrigerator
2. Solar Drier (for spices)
3. Solar Water Heaters

#### ***Bio-Gas Division***

4. I.C. Engine Performance
5. Methane Fermentation
6. Biogas plants using various solid wastes

#### ***Extension Division***

7. Integrated Rural Energy Planning Programme - Planning Commission 1990
8. STARD Programme of DST
9. Development activities in 16 villages - Solar Water Heaters, Solar cookers, smokeless stove, NGO training.

#### ***District Planning***

10. Computerized data base on Rural Energy

The Institute appears to be well-oriented to research and development work for non-conventional sources of energy, some of which could have rural application, particularly in remote villages which may not be reached by the electricity network. However, there was not enough evidence of extension work, pilot projects and transfer of technology to the field.

In spite of the nearness of the Faculty of Engineering and Technology, there appeared to be little co-ordination or interaction of this Institute with the University faculty, research scholars and students, who could be exposed to the research and Development work at the Institute through special lectures or elective courses at UG/PG levels.

### ***Environmental Sanitation Institute (ESI)***

ESI was established in 1963 primarily to impart training under the Eradication of Nightsoil Scavenger Programme. Currently, the Institute's Orientation in Low-Cost Sanitation is a multi-layered programme catering to the needs of rural masses, slum dwellers and economically weaker urban communities, aiming to train masons, sanitary workers, sanitary inspectors, overseers, engineers, student community, social workers and policy makers with support from national and international funding agencies like Ministries of Agriculture and Rural Development, Gujarat Water Supply and Sewerage Board, World Health Organization (WHO), UNDP, UNICEF, etc.

<b>Characteristics of ESI are:</b>
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<b>Accommodation:</b>	Own institute with meeting rooms, demonstration yard and output monitoring cell
<b>Staffing:</b>	Director; staff of ten (?) for training and monitoring
<b>Equipment:</b>	Audio-visuals, hygiene education materials (one way), sectorial models, library
<b>Activities:</b>	Training (for construction), monitoring (of completion), design, hygiene promotion

Concepts and approaches of the Institutes can be summarized as below:

1. Motivation and demonstration of appropriate, action-aimed sanitation technology for developing countries.
2. Eradication of inhuman practice of nightsoil transport as headload.
3. Development of human resources for popularization, acceptance and implementation of low-cost sanitation programme in a holistic health care fabric.
4. Creating and encouraging voluntary agencies (NGOs) for integrated preventive health practices.
5. Catalyzing associations, agencies and agents connected with concepts, concerns and convictions on low-cost sanitation technologies.
6. Publishing literature on low-cost sanitation practices in local language(s).
7. Producing audio and video cassettes and telefilms on low-cost sanitation and related topics for mass communication.
8. Networking with national and international agencies for effective implementation of sanitation programme.
9. Generating socio-cultural revolution in sanitation services leading to better quality of life in developing countries.

A total of 106 NGOs have been involved in the Institute's programme network in 1802 villages of 117 blocks of 18 districts in Gujarat state. Activities carried out include:

* Training camps	1,595
* Training programme for engineers in 13 States	80
* Trainees	78,064
* Water seal latrines	17,500
* Soakpits	62,000
* Bathing platforms	41,000
* Urinals	525

* Ventilators	50,000
* Conversion of dry latrines to waterseal latrines	1,80,000
* Smokeless stoves	48,000
* Latrines constructed in 1442 villages under GWSSB through 98 NGO World Bank scheme (1989 to 1992 July)	42,000
* Latrines constructed in 55 villages under GWSSB and WB IDA-1280	29,949
* Latrines constructed in Urban Area under AMC and WB IDA-1643-IN	1,428
* Sanitation Packages under ICDS project under Indo-Dutch Project	403
* Water Awareness Project under World Bank constructed soak-pits	142
	1000

The Institute is well-oriented to large scale implementation of field projects by channelizing funds as well as appropriate technology in the sanitation sector. Further development areas are self-reliant sanitation programmes with a gender focus and modern hygiene education methods.

#### ***CHETNA, SEWA and SEWA Academy (NGOs)***

Among the NGOs visited, expertise on social and behavioural aspects of rws/s is most widely found in SEWA and CHETNA.

CHETNA is a state-level NGO specialized in training on health and hygiene.

<p><b>Characteristics of CHETNA are:</b></p>
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- Accommodation:* Small centre for own training work; most training in the field
- Staffing:* 20 professionals (F), 6-8 involved in NAP
- Equipment:* Audiovisuals, training materials for own target groups, library with librarian and large section on gender
- Activities:* Training courses for NGO and government fieldworkers in health and childcare (angawadi workers)
- Involvement in NAP:* Hygiene awareness campaign in GU-I

CHETNA has decided to concentrate on its work as a training organization in health and hygiene for organizations and government staff in Gujarat and Rajasthan. However, changed hygiene not only requires effective educational programmes, but also a reliable and accessible water supply and a sustainable sanitation programme. In this interface between technology and behaviour Chetna has developed considerable knowledge for training. This is not yet used in a structural manner.

SEWA (Self Employed Women's Association) deals with organizing and enabling women to take better charge of their lives, economically (income projects) as well as organizationally (forming and managing women's organizations and projects).

### Characteristics of SEWA are:

- Accommodation:** Centre for own training work; most training in the field. Separate training department (SEWA Academy)
- Staffing:** 50 professionals (F), of which 25 involved in NAP
- Equipment:** Audiovisuals, training materials for own target groups, women groups are trained to make own training materials, incl. videos.
- Activities:** Project implementation (economic); vocational training (crafts) and training for capacity building (organization, leadership, management, incl. financial management)
- Involvement in NAP:** Income-generation programme for women and some action research on water committees in GU-I

SEWA has acquired considerable professional expertise on community participation and gender aspects of rws/s, but the GWSSB is slow in using this in its institutional training programme. SEWA stressed the importance of participation in the design and evaluation of training curricula on participatory rws/s. Furthermore, trainings should be field based and two-way and village women -through an upward representation system already established- be involved in curricula development, e.g. as members of a multi-layered review group. Deputation of a SEWA staff member to GJTI was one option suggested to ensure an equitable and professional integration of community participation and gender aspects.

#### ***Gandhi Labour Institute (GLI)***

Gandhi Labour Institute is a research and training institute to serve the interests of unorganized and organized workers in urban and rural area. One of its professors, Ms. I. Hirway, is engaged with Mahiti, a women's NGO dealing with improving traditional water harvesting systems, in a state-level study on traditional and modern systems of rural water supply. The underlying hypothesis is that traditional systems and knowledge are a valuable resource, which is getting lost instead of being utilized in an holistic approach to water source development and preservation. The organization could be a resource for trainings on sustainable water supply projects and holistic project preparation.

#### ***Foundation for Public Interest (FPI)***

FPI is a small NGO (6-8 technical and social professionals, 3 of them women), under directorship of the son of the founder. It is engaged in research and training on a wide range of subjects. They work with NGOs and Government agencies, a.o. in a project on integrated watershed management. With GWSSB they have done three workshops on community participation in rural water supply. Documentation of experiences is a problem. So is retainment of staff, as their qualified staff is in demand in corporate businesses. The organization desires to remain flexible and sees mainly a role for itself as a training resource.

#### ***Unnati***

Unnati is a training NGO. It has 6 professional staff (2M/4F) and works with some 40-50 NGOs in Gujarat, Rajasthan and Maharashtra. They focus on organizational strengthening, women's empowerment, workers education and the impact of the New Economic Policy. They have no experience with rws/s. Unnati is associated with the Society for Participatory Research in Asia.

## **NEW DELHI**

### ***Society for Participatory Research in Asia (PRIA)***

PRIA gives trainings in participatory research and training methodologies, has a large reference centre and publishes books, newsletters and training materials on participatory methods. Target groups are NGOs and, since recent, Government staff. Subject areas in which PRIA specializes are natural resources, including land and water protection, occupational health, and women's empowerment.

<b>Characteristics of PRIA are:</b>
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<i>Accommodation:</i>	Own research and training centre on outskirts of New Delhi
<i>Staffing:</i>	12 professionals (8M/4F)
<i>Equipment:</i>	Training materials, large library, with librarian and substantial gender section
<i>Activities:</i>	Training of trainers on the use of participatory training methods; a management course for NGOs based on participatory techniques; training on systematic accounts keeping and village eco-system planning; publications, training materials development

The organization would be a useful resource institute for training in participatory techniques and for helping develop training materials for village financial management, village water resources management planning and gender issues.

### **4.3 Conclusions**

Unlike the irrigation sector, where no training institutes existed, the water sector already has formal sector training institutes at state level. As far as could be established during such a short mission, some of these institutes, and in close cooperation with social agencies, could develop the kind of programmes that the rws/s sector is lacking.

The best potential appears to exist in Gujarat Jalseva Training Institute, both with regard to interest and institutional support. However, much development is still needed. The institutional set-up is not yet multidisciplinary; faculty is technical and only partly trained as trainers and there is not structural linkage with NGO expertise on participation and gender aspects. Hence, formation of training group was discussed which unites training capabilities from various organizations dealing with technical, social and health aspects of rws/s was discussed. This resulted in a first meeting of potentially collaborating organizations directly after the end of the present mission. Staff development further requires training in training skills, content knowledge and curriculum development. Documentation and training materials need to be compiled and developed, especially on social aspects. The link with the field, which now only consists of using field staff as occasional trainers, should be strengthened.

In Andhra Pradesh it is to be seen if RCUES can capacitate RDTC into the envisaged training centre for better managerial skills and a different approach to rural water supply, since the institutional base for training and for application of the integrated approach is narrow. As a capacitating institute RCUES has development needs itself, as they have no



previous experience with rural water supply, nor does the university from which they draw their additional staff. Here, close monitoring of development and basic exposure to developments in the rural water sector are indicated.

Support to the current training set-up in Karnataka is warranted by the intention to incorporate the expertise gained through the World Bank Training Cell and its associated agencies into an autonomous training institute for the rural and urban water sector. Content-wise, knowledge development is now limited to one particular model of a rural water supply project, namely that followed by the World Bank. Training therefore has of necessity a limited character, namely promotion and skills training for the particular project. To be able to train for creative problem solving (i.e. not one standardized model), exposure to broader thinking and experiences in the rural water sector, e.g. through access to documentation and training of trainers, is required.

In Uttar Pradesh and Kerala, suitable training institutes or combinations of institutes are yet to be identified.

#### ***Higher level functionaries***

Trainings at state level cater especially for the operational levels of project staff. Higher level functionaries in the administration, engineering agencies, social and health departments and NGOs are smaller in number and require a different approach. For them interstate workshops would be more suitable, preferably with external assistance from influential persons in the sector and focusing on how to enhance sustainable rws/s and where to develop further their particular subject areas. Organizing such interstate workshops seems at present not yet viable for any of the training institutes visited.

The same goes for acquisition and exchange of materials. The present institutes do not have this capacity and there is no good mechanism whereby training institutes keep up their knowledge on rws/s developments in general. Hence an alternative organization will have to be identified, which could organize interstate workshops and collect, review and diffuse information on a short term, as well as assist in the development of these capabilities within one of the state training groups on longer term.

Organizations such as PRIA and ACDIL (see Annexure 5) seem to have the required capacity and experience to provide training in participatory research and training techniques.

Knowledge on gender issues in rws/s can be found with several NGO's, e.g. SEWA and Chetna, but needs to be more structurally made use of in trainings and field programmes. Other institutes which give trainings on gender, such as ATI and IWID have good general knowledge and documentation, but lack sector-specificness. An update on this point as well as exposure to field projects is needed if these institutes are to be involved in institutional training programmes for the NAP.

## 5. A Revised Training Approach

### 5.1 Discussion

Both the Indian and Dutch Government have policies which support integrated and participatory rural water supply and sanitation projects, including HRD for these projects. Operationalization of HRD is at yet in its infancy. It is limited to training in the Netherlands, with an output of 18 persons per year, of whom only a part (about 50%) has been posted back in a position where they can directly apply the training in the NAP.

Project-related training in India is ad-hoc, serving immediate needs which arise in a particular context. The training does and cannot cover wider subject areas and broad conceptual aspects. Because it uses outside trainers, it does not build training capabilities in the rws/s sector itself.

A drawback is further that Indian technical colleges do not give training in environmental health engineering for diploma level. Initial training, also of those working in environmental health engineering, is on civil engineering only - *i.e.* the construction of infrastructural works. Environmental health aspects, such as the link between water and health, water quality, drainage and sanitation, and socio-organizational aspects, such as community participation, community management, gender issues, maintenance systems and financing of recurrent costs are not covered.

For post-graduate level, a special course in environmental health engineering is available at selected Indian universities. This course has produced some 1500 sanitary engineers over almost 40 years. However, the course only covers technology for major urban areas and does not include the managerial and human aspects which current thinking sees as co-essentials for sustainable projects in rural and low-income urban areas.

This means that a large gap exists between the work of rural engineers according to the national policies and their training. The trainings in the Netherlands fill this gap to some extent and are much appreciated. However, they cannot meet the total requirements of the NAP for manpower trained in integrated sanitary engineering. Neither do they address the training gap in India. And since the formal engineering education in India does not address the training needs of the rural water sector, the burden falls on the sector itself to fill this gap. This challenge the sector has gradually come to consider at the central level, but training for integrated rws/s has not yet been taken up in such a way that it has an impact in the field.

Nevertheless, at decentralized level, several states have begun to develop their own rws/s training capabilities, either through in-house training centres, e.g. in Gujarat and Kerala, or by bringing in external training institutes, such as RCUES in Andhra Pradesh and SJ College of Engineering in Karnataka.

Potentials for the private training sector have also been identified, e.g. COD and Tata consultants. These are initiatives which start from the needs at implementation level and deserve to be supported on the basis of the demand and pace of these institutes themselves.

## **5.2 Outline of a training support strategy**

Training in The Netherlands, while limited in size, brings exposure to conceptual thinking and experiences with participatory rws/s projects in other countries. It should therefore be kept in the NAP at its present level.

The Indian participants in these courses should preferably, or perhaps even for some time exclusively, come from the training sector, to build up local training capabilities at a higher speed. Participating trainers should further be allowed some extra time and professional support at the end of the course to enable them to fit the acquired learning into their own training programmes and collect supplementary training materials.

For training capability development in India, three areas for support are identified at the state level:

- establishing a viable institutional base for integrated training on technical, social and managerial aspects of rws/s;
- building up training capabilities of the training organization;
- improving training materials and infrastructure.

### ***Establishing an institutional base***

For the institutional base, a group of institutions has to be found with field experience in rws/s and training expertise on all aspects and levels of integrated rws/s projects, from gender-specific and participatory village planning, operation, maintenance, management and financing, to planning design and management of centralized systems and management and control of water resources. This group of institutions should enter into the necessary formal agreements for the joint conceptualization, development and implementation of a sector-related programme of trainings. Technical, social and managerial aspects should get equal attention and no single institute should dominate the programme.

The aim of the programme is to equip technical and social staff for jointly preparing and implementing rws/s projects that focus on high quality construction, sustainable water sources and technologies, a measurably reliable functioning and actual use of the facilities and measurably improved hygiene practices.

For practical reasons, the overall responsibility for the training should rest with one host institution, but without monopolization of the design and execution of the training programme. The host institution should be selected on the basis of credibility with sector institutions, sector-related training experience, capacity to serve the entire sector in the State, expressed desire to develop all subject areas and cooperate on an equal basis with the other organizations in the training group, willingness and ability to attract and develop an in-house multidisciplinary staff working through the team approach, and ability to recruit and retain high quality staff in rws/s training. The target groups for training by a state level group of institutes would be the operational management and supervising staff which deals with technical, social and health/hygiene activities in the NAP.

In Gujarat and Karnataka, the present institutional development activities towards multi-disciplinary training are promising and deserve to be supported. In Andhra Pradesh, Kerala and Uttar Pradesh the institutional development is only just starting to get off the ground and should first be assessed and, if viable, supported.

### ***Training capability***

Once the institutional base has been created, training capability has to be strengthened. The need to develop training capabilities has been expressed by the institutes visited. It is the most essential component of the strategy. Specific training needs indicated by the institutes can be grouped as follows:

- development of training programmes, curricula and courses which reflect current issues and insights in sustainable programme planning and management, project preparation and implementation, operation and maintenance, and new developments in rural water supply and sanitation technologies, water resources management, people's participation and gender aspects;
- appropriate and more participatory training methodologies for the various target groups in the envisaged training programmes. The introduction of modern training methodologies is required to increase the effectiveness of training. New training should not have a hierarchical character and trainers need to view trainees as partners, not subjects, in learning;
- knowledge and experience development in essential disciplines and topics, such as hydrogeology, water resources development and management, sanitary engineering and village-based maintenance, management and financing systems;
- multi-disciplinary team working for training programme development and implementation. If course programmes are developed by single-discipline staff, as is often the case now, they tend not to reflect the professionalism of the other disciplines needed for integrated training and in integrated implementation projects. Training in and exposure to multi-disciplinary team working in sector-specific course development are required.

The identified needs can be met through a comprehensive staff development programme, that would consist of field orientation and exposure to get a grasp of realities and problems in the field and subsequent training in the above mentioned subject areas. Field related activities could be in India, but in view of limited capability in sector-specific training and training development, a substantial involvement of sector-oriented training institutions abroad is required.

For the development of training capabilities at state level, a staggered, demand based and conditional support strategy is proposed, implying that the amount and timing of support are adapted to the varying level and speed of development in each state. Conditions for increasing the support would be the development of a viable organizational training set up, and evidence that trainings and fieldwork are linked and training is applied in the field and contributes to project results. Thus, large investments for infrastructure would depend on development of the training organization and the application and results of the training in the field.

### ***Training at higher level***

The smaller group at higher managerial levels (Apex and strategic management) has its own demands. Rather than in training per se, their interest is likely to be in workshop-type sessions, in which fundamental issues, such as designing for sustainability, decentralized maintenance, financing of recurrent costs and water resources management are addressed and access is given to information on problem solving approaches elsewhere.

For this target group, special demand based workshops and seminars will have to be developed, and possibly external resource persons of a high experience and credibility

invited. The workshops or seminars would be organized by a yet to be identified institution at interstate level.

Another felt need to be met at the interstate level is that of the professionals, i.e. trainers and subject matter specialists, to meet with colleagues and external resource persons in order to exchange experiences and further develop their expertise. Specific subjects need to be identified with the user groups, but could include participatory research and field work methods (PRIA, ACDIL and gender approaches (PRIA and IWI)). The guide developed by the Inter-Asia workshop on gender approaches in rws/s projects would be a useful resource.

At the joint ESA meeting held in New Delhi to discuss training and share the findings of the mission, other ESAs dealing with rws/s have expressed an interest for their senior administrators, strategic management levels and subject specialists to join in such higher level seminars/workshops.

The organizing institute would preferably be identified within one of the states in the NP and should have the facilities, experience and ambition to operate at the inter-state level. Given time, and interest shown from other states, this institution could develop national importance.

The events themselves would not necessarily be held at this institute, but could also be organized at suitable venues elsewhere in the country.

***Support to and by the national level***

At the national level, the Rajiv Gandhi National Drinking Water Mission could be supported in its expressed wish to be better equipped towards the development of human resources and training policies for the rws/s sector. One option would be to use already allocated funds for the establishment of a training coordination unit for technical assistance to the HRD section of the Drinking Water Mission. These funds will be available until March 1994.

In its turn, the Drinking Water Mission could provide the support required from the national level for the initiation and implementation of the training strategy outlined in this document, and for the necessary coordination and linkages with other training initiatives in the sector.

Another essential task for the Drinking Water Mission would be to consider and promote a dedicated and permanent programme of education and training on integrated rws/s at a selected number of universities and colleges. Such an initiative, if set up in analogy with the CPHEEO initiatives for the urban water sector taken almost 4 decades ago, and at carefully selected institutions, could encourage Indian sector training institutes to develop multi-disciplinary and up-to-date post-graduate specialization for those working in the rural water supply and sanitation sector.

The above-mentioned strategy components at state, interstate and national level would together constitute a long term (some 6-8 years) programme for training support to the rws/s sector in the five states in India. A policy decision on the desirability of such a support programme is a first requirement. How such a programme could be operationalized is indicated in the final chapter of this document.

**Table 6: Schematic overview of a training programme for the NA-rural water and sanitation project in five States**

LEVEL	ORGANIZATIONS	TARGET CATEGORIES	SUPPORT
National	Ministry of Rural Development, Rajiv Gandhi National Drinking Water Mission	Post graduate engineers working in rws/s	Technical assistance in developing sponsored post graduate course on new approach rws/s and in formulating national training policies for rws/s
Inter-state *)	Training institute which can develop workshops/seminars for Strategic Apex and Management, content specialists and trainers	Strategic Apex in NAP (40)  Strategic Management in NAP (80)	Technical assistance to create institutional capacity for higher workshops/seminars. Facilitation and content inputs from key Indian and international rws/s specialists.
State	Group of technical and social institutes and organizations who jointly develop, implement and evaluate training programmes in new approaches to rws/s	Operational Management (7-800)  Field supervisory staff (7-800)	Assistance, as and when required, to form institutional set-up, plan training curricula, acquire/develop materials, organize trainers' training, strengthen training infrastructure and evaluate trainings and training impact

\*) Other ESAs interested to join.

## 6. Indicative Proposal for Training Support

### 6.1 Background

The Government of the Netherlands gives assistance to rws/s projects in Andhra Pradesh, Gujarat, Karnataka, Kerala and Uttar Pradesh. The projects' character has changed from purely construction to an integrated approach, with development of village participation, environmental sanitation and hygiene education and a growing attention to gender aspects, operation and maintenance and financing.

Training is playing an increasing role. However, development of Indian organizations for training is not taking place and training for an integrated approach is still limited:

- The formal Indian education system does not include training on rws/s for undergraduate staff. Postgraduate courses have an urban bias and do not include social aspects;
- The water agencies' own training institutes give training on mainly technical subjects and for lower level staff. Recently one or two initiatives for social courses have come up but these lack in professional substance. Expertise on community participation and gender specificness built up by NGOs and project offices does not get fully utilized;
- Training in the projects increases but focuses on immediate problem solving with a limited group - no structural training takes place;
- Some staff attend international courses in the Netherlands, but their numbers are few and impact is limited. Participation of social staff and women is low;
- ITN trainings on new technologies and approaches in rws/s have not materialized on the scale envisaged and have not had an impact on field implementation.

Enhancement of Indian training capabilities on integrated approaches for more sustainable rural water supply and sanitation projects is thus desirable.

### 6.2 Objectives, strategy and organization

#### *Objectives*

The broad objectives of a training support project are to combine and strengthen Indian capabilities for training on approaches and elements of more sustainable rws/s services, and thus contribute to the sustainability of NA-rws/s projects in India.

The immediate objectives are:

- to assist Indian training institutes in five states to develop, establish, implement and evaluate integrated and multi-disciplinary trainings for the various types and levels of functionaries involved in NA projects;
- to establish capability development and exchange opportunities on conceptual and professional issues for sector staff and subject specialists at interstate level;
- to support the GoI in HRD and training policy formulation, including the establishment of training courses sponsored by the Ministry of Rural Development in selected universities offering graduate training on drinking water supply and sanitation.

### ***Strategy***

At present, each state is making its own organizational arrangements for training activities in the rws/s sector. It is proposed to support these developments as and when required by the organizations themselves (demand-based approach). No premeditated choice is made for engineering training institutes, but where these institutes are taking the lead, as in Gujarat and Karnataka, specific efforts should be made to give social organizations and staff a more equal role in curriculum development and training. Areas for support concern staff development and exchange; curricula and course content development; training on training methodologies; library and documentation support; and teaching equipment and infrastructure support.

The above-mentioned strategy for demand-based support requires a long-term and flexible approach, in which the degree of support, in particular concerning larger investments such as training infrastructure, is linked to sufficient progress and results in other aspects of training. The latter concerns both the development of the training organizations themselves and the institutional support given to training and training application by the implementing agencies.

### ***Operationalization***

At a first indication the following organizations will be suitable to implement the **state-level trainings**: the Gujarat Jalseva Training Institute with SEWA/SEWA Training Academy, Chetna and perhaps other NGOs in Gujarat; the Research, Development and Training Centre of the PRED in cooperation with the Regional Centre for Urban and Environmental Studies of Osmania University in Andhra Pradesh; and the Training Cell and SJ College of Engineering, Mysore, with various social and managerial training centres in Karnataka. In Kerala and Uttar Pradesh the choice of organizations has not yet been established.

These organizations would deal in the first place with training of project staff at the executive level (engineers, social staff and district administrators engaged with the NA-projects and dealing also with training of village functionaries and -staff). An appropriate organizational set-up, which ensures that social aspects get adequately covered as part of, and not parallel and as add-on to technical aspects, needs to be worked out.

External support from development-oriented training institutions will be required for training staff development, for support in the development of the training programmes, and for development of facilities.

The **interstate level training** will be given to three different categories: senior administrators and strategic management levels in the water agencies and NGOs; subject professionals dealing with one specific component of the implementation projects, and trainers in the training institutes.

Since the capacity for the envisaged trainings is not yet found in any of the states level institutes, these trainings will have to be conceived, developed and implemented with external support.

### ***External support***

The institutions have expressed their need for external support. Such support can be obtained within India, whilst also foreign inputs are required.



The services of Indian consultants are envisaged for a variety of tasks, i.e. logistical support and coordination, training materials support and participatory training methodology. Several Indian training institutes seem well-equipped to give training of trainers, e.g. on participatory methods and participating training materials development (ACDIL, PRIA) and on practical skills development for report writing, project management and project monitoring. For the last three items, close cooperation with the trainings proposed by ETC-India is required (see section 6.4). Foreign support is required to provide international exposure, staff development, and course development.

### **6.3 Activities and target groups**

For the development, implementation and evaluation of the training programme, the following activities are foreseen:

#### ***in Gujarat:***

Organization of the institutional set-up for state level training activities

Training of trainers in the Netherlands on content matters, training methodology and curriculum development

Support to development of an integrated training programme in GJTI

Assistance in development of training materials and update of GJTI's documentation centre (technical, participation, health, gender, water resources aspects; proper retrieval system)

Acquisition of training equipment

Establishment of monitoring and evaluation system for training results, application and impacts

#### ***in Andhra Pradesh and Karnataka:***

Documentation and materials on integrated rws/s (technology, participation, hygiene education, gender)

Exposure of technical and social trainers to training on low-cost environmental engineering and management for sustainability in the Netherlands

Monitoring of development of the training capabilities in the state

At a later stage: provision of support for the same activities as in Gujarat, as and when required for training related to the NA-implementation project

***in Kerala and Uttar Pradesh:***

Assessment of suitable training institutes

Establishment of suitable organizational framework

Development of training infrastructure (in stages)

Provision of support for the same activities as in Gujarat, as and when required for training related to the NA-project

Target groups for training are various departments and agencies involved in the implementation of the NA-rws/s projects, such as Engineering Authorities/Departments, Department of Health and Social Welfare, District Authorities<sup>2</sup> and NGOs. The scope of these target groups is given in section 3.3.

## **6.4 Linkage with GoI, GoN and other ESA sectoral and multi-sectoral training programmes**

### ***GoI***

All training organizations identified in 6.3 also form part of GoI selected institutes for training for the rws/s sector. As such, the proposed project will contribute to the implementation of Indian policies on rws/s and Indian strategies for human resource development in the sector. Close coordination and cooperation is foreseen through Indian consultancy services for this purpose.

### ***GoN***

Recently, GoN also identified a training programme for multi-sector development. This programme will train NGOs and Government staff involved in NA-projects in all sectors for selected general (i.e. non-sector tied) skills:

- how to prepare a proper project proposal
- how to manage, monitor and evaluate a project
- how to include gender and environmental aspects

Implementors will be the Centre for Organization Development in Hyderabad and Tata Consultants in Gujarat, with technical support from ETC-India.

It is foreseen that trainers from the sector-specific training institutes will take part in these trainings. This will help them to develop their own expertise as trainers in these areas and allow them to use the modules of these courses as one of the inputs in developing sector specific materials.

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<sup>2</sup> E.g. District Collector, District Development Officer, Health Officer, District Coordinators of programmes for Integrated Child Development Services/Development of Women and Children in Rural Areas

### ***Other ESAs***

ODA, DANIDA and the World Bank support rws/s implementation projects in Maharashtra (ODA), Karnataka, Orissa and Tamil Nadu (DANIDA) and Karnataka, Maharashtra, Gujarat and Uttar Pradesh (World Bank). World Bank and DANIDA supported projects in Kerala are being phased out.

In the states where NA and other ESA-supported rws/s projects exist side-by-side, training capabilities will be developed in a single group of institutes, so as to avoid scattering of resources and development of parallel training capabilities.

The organization of a training support project was discussed at an ESA meeting in New Delhi. Here, other ESAs expressed an interest in joining the trainings at interstate level, since project concepts and problems with higher level support for integrated and sustainable rws/s projects are common among all ESAs. Final views on the proposed strategy and inter-ESA collaboration will be obtained at a follow-up meeting on training for rws/s.

## **6.5 Time-frame and budget indication**

The total period over which the anticipated 8 training support projects could be carried out may be 8 years or more. Considering the time required for project identification, formulation and appraisal, the first projects could make a modest start in 1995. The indicative budget requirement for Netherlands support for the projects, excluding the provision of buildings and furnishings, but including for staff development, documentation and training materials together with the necessary equipment, and external support (foreign and local) to the selected institutes, is between dfl. 7.5 and 10 mln.

## **6.6 Appraisal**

For the relationship with GoI and GoN policies, reference is made to chapter 2. The target groups of the training are not the final target groups of those whom the trainings should ultimately benefit, i.e. the users of the rws/s systems. Nevertheless the training should ultimately benefit these users, by contributing to more sustainable water supplies and sanitation programmes and by creating more scope for community management. Gender and environmental aspects (protection of water quantity and quality) will be integral parts of the training. Indian organizations dealing with training on gender and environmental issues will take part in curriculum development and training of trainers. Training activities will further be implemented partly at field level in close and equitable interaction with project fieldstaff, members of village water committees and other village women and men.

The training itself will have no direct impact on poverty, but well-functioning water supplies are a pre-condition for economic development. Easy access to a reliable water system is further essential to give women time for other activities, including economic projects where these are present.

To enhance the feasibility and sustainability of the training, a project strategy has been chosen whereby initiation and intensity of work are adapted to demand and organizational capability in the training institutes, as well as the overall institutional climate in which training is to take place and its results applied. Moreover, implementation in the states will be in stages, whereby entering of a new stage depends on the results obtained in the previous one. Regular monitoring and evaluation will give information on results, application and impact of the training.

## **ANNEXURES**

## ***SHORT MISSION ON CAPACITY BUILDING FOR SHORT TRAINING COURSES IN INDIAN TRAINING ORGANIZATIONS FOR NA - RURAL WATER PROJECTS***

### ***TERMS OF REFERENCE***

#### **Introduction**

Both the 1992-1995 country policy document (India) and the Frameworks for Five-Year Collaboration formulated with individual states mention the intention to spend more funds from Dutch allocations to the Indian rural water supply sector on institutional and human resource development.

So far, this intention has been operationalized by financing the participation of Indian staff in courses in the Netherlands (IHE and IRC/MDF). These courses reach only a small group of predominantly male staff, of whom almost all have an engineering background. Some training interventions are also undertaken or coordinated by the Review and Support Missions in India, but these have as aim to meet an **ad-hoc** training need of a particular implementation project.

Development and strengthening of Indian training capacities which can prepare various types of staff for an integrated approach of rural water supply and sanitation projects is not yet being developed.

To better meet the need for training which reflects the integrated and innovative character of the Indo-Dutch projects and whose results can be applied directly and by a large(r) group, in first instance within the Indo-Dutch projects, DAL/ZZ has decided to field a mission to investigate the possibilities for developing short trainings by Indian institutes.

#### **Objectives of the Mission**

The objectives of the mission are:

1. To give an overview of current training activities and needs for the NA-programme;
2. To advice on the desirability to strengthen the training capacity of in-house related training institutes, possibly in coordination with other donors;
3. To develop a strategy paper on training capacity development for, in first instance, Indo-Dutch rural water supply and sanitation projects;
4. To identify Indian training institutes at which selected short trainings can be carried out;
5. To identify the requirements for developing the selected courses.

Priority will go to training towards capacity building for identifying and formulating Netherlands-assisted integrated rural water supply and sanitation projects. Special attention will be paid to avoiding the creation of overlapping training activities and/or a parallel training structure.

## **Tasks**

- To give an overview of present training activities related to the NA-projects;
- To inventorize the training activities on rural water supply, sanitation, community participation and hygiene education offered by the main national, regional and state-level training institutes and the in-house training institutes of the counterpart organizations;
- To identify in what areas and at what levels gaps exist that are not filled by the current training programmes;
- To make explicit what factors other than training limit the application of new knowledge/skills/attitudes in the field;
- To liaise with RSMs, the central authorities and donors to identify the subject areas and target groups for which short trainings would be most useful as one of the inputs for the development of implementation capacities;
- To relate the findings to the HRD policy and the ongoing and planned training programmes in the Indian rural water supply sector;
- To identify a few key courses and describe the objectives, duration, level (national/regional/state), target groups and numbers and types of trainees;
- To identify, assess and rank training institutes in India that have adequate experience and a good reputation for organizing sector-related training
- To visit selected training institutes and assess the potential for development and operationalization of the course.

## **Methodology**

The existing training activities, programmes and needs will be described on the basis of existing documents and discussions with RSMs and selected resource persons, including those involved in the British training support to the Indian water sector. On the basis of these activities, a first overview will be prepared and potential institutes for selected short trainings in key areas identified.

Suitable training institutes will be identified in consultation with the RNE and with the assistance of Central and State-level authorities and the donor community, particularly the Overseas Development Administration and the British Council (UK) and possibly the UNDP/WB Regional Water and Sanitation Group, drawing on their knowledge and experience, particularly in the ITN-India project.

After consultation with the RNE some 5 of these institutes will be contacted for a visit to discuss the potential development and implementation of trainings for the NA-programme. Overlapping training requirements in other donor-assisted rws/s programmes and interest to participate in the identified courses will be inventorized by means of visits to the central offices of ODA, DANIDA, UNICEF, the World Bank and others.

During the visits to the selected institutions, information will be collected on the relevant staff sections, facilities and training experience. Also, in open discussions, the willingness and ability of the institutes to develop and execute the desired courses will be assessed and requirements for external support will be described.

The direct output of the mission will be a strategy document on short-term trainings for the NA-projects and a first outline for the development of some 3 selected courses. Furthermore, the paper will indicate how ongoing trainings in the Netherlands will relate to the proposed courses in India.

The report containing these outputs will be submitted to review in the Netherlands (DAL/ZZ, RSM) and India (RNE, Indian authorities, donors) during a pre-defined period, after which the Mission's team will prepare the final document.

### **Composition and duration**

The work will consist of 4 weeks' preparations and rounding-off (consultations and desk-study) in the Netherlands and a 2-week mission in India. It will be carried out by Ms. Christine van Wijk, Programme Officer (Community Participation) at IRC and Mr. Maarten Blokland, Associate Professor in Sanitary Engineering at IHE. In India, the team will be expanded with an independent Indian training consultant, who will be identified in consultation with the WACO. The mission will be in India from 12 to 26 September 1993 and debrief to the WACO at the RNE before its departure.

### **Reporting**

The mission will send a copy of their draft report to all parties concerned within 2 weeks after their return to The Netherlands. A final report which incorporates the comments from review in the Netherlands and India will be completed and sent to DAL/ZZ and RNE no later than three months after the mission's return to the Netherlands.



## MISSION ITINERARY

- 12.9.93 Travel Amsterdam to New Delhi (Mrs. van Wijk, Mr. Blokland)
- 13.9.93 New Delhi
- Royal Netherlands Embassy
  - Ministry of Human Resources Development
- 14.9.93 New Delhi
- Ministry of Rural Development
  - UNDP/WB Regional Water and Sanitation Group
- Travel Delhi to Hyderabad
- Hyderabad
- Netherlands Assisted Project Office
- 15.9.93 Hyderabad
- Panchayati Raj Engineering Department - Research, Development, and Training Centre
  - Osmania University - Regional Centre for Urban and Environmental Studies
  - Centre for Organization Development
  - University of Hyderabad - Department of Sociology
- 16.9.93 Travel Hyderabad to Bangalore
- Bangalore
- Project Support Unit, NAP
- 17.9.93 Travel Bangalore to Mysore
- Mysore
- JSS Mahavidyapeetha Foundation
  - SJ College of Engineering
  - Administrative Training Institute (ATI) and State Institute of Rural Development (SIRD)
- Travel Delhi to Bangalore by Dr. Narayn who joins the Mission from 18 September onwards
- 18.9.93 Travel Mysore to Bangalore
- Bangalore
- DANIDA, GoK/Danida rws/s project
  - Department of Rural Development and Panchayati Raj
- 19.9.93 Travel Bangalore to Ahmedabad
- 20.9.93 Ahmedabad/Ghandinagar
- Gujarat Water Supply and Sewerage Board
  - Gujarat Jalseva Training Institute
  - State Government
  - Environmental Sanitation Institute

- 21.9.93 Ahmedabad  
- Chetna  
- SEWA  
- FPI  
- Gandhi Labour Institute  
Travel Ahmedabad to Anand  
Anand  
- Sardar Patel University, BVM Engineering College  
- Sardar Patel University, Department of Sociology  
- Sardar Patel Renewable Energy Research Institute  
- Institute for Rural Management Anand  
Travel Anand to Amehdabad
- 22.9.93 Ahmedabad  
- Ummati  
- Gujarat Jalseva Training Institute  
Travel Ahmedabad to New Delhi
- 23.9.93 New Delhi  
- Royal Netherlands Embassy  
- Ministry of Rural Development  
- Donor Meeting (UNDP/WB RWSG, RNE, BHC, BC, ODA, DANIDA)
- 24.9.93 New Delhi  
- ETC India  
- PRIA
- 25.9.93 New Delhi
- 26.9.93 Travel Delhi to Amsterdam



- Panchayati Raj Engineering Department
  - Mr. Ramchandra Reddy Deputy Director, Research, Development, and Training Centre
- Regional Centre for Urban and Environmental Studies, Osmania University
  - Dr. D. Ravindra Prasad Director
  - Dr. V. Laxmipathi Head of Faculty
- Centre for Organization Development
  - Dr. B.L. Maheshwari Director
- University of Hyderabad
  - Prof. V. Kochar Head, Department of Sociology  
University of Hyderabad

### **KARNATAKA STATE BANGALORE**

- Department of Rural Development and Panchayati Raj
  - Mr. Pandey Secretary
- Project Support Unit, NA rural water and sanitation project
  - Mr. Jan van Griethuyzen Teamleader
  - Mr. Gulam Ahmed Adviser NAP and WB assisted projects, former Engineer-in-Chief PHED
  - Ms. S. Devi Sociologist
  - Mr. Narayan Swami Training Officer
- DANIDA, GoK/Danida RWSS project
  - Dr. (Ms.) S. Abeyratne Chief Adviser

### **MYSORE**

- JSS Mahavidyapeetha Foundation:
  - Prof. M.H. Dhananjaya Director (Technical), Head of the Training Cell for the World Bank supported rws/s project
- SJ College of Engineering:
  - Dr. M.S. Jayadeva Principal
  - Dr. T.P. Halappa Gowda Head, Centre of Environmental Science and Technology and Professor of Environmental Engineering
  - Mr. M. Mahadevaswamy Senior Lecturer Environmental Engineering
  - Ms. P.V. Parvathi Technical Assistant
- Administrative Training Institute (ATI) and State Institute of Rural Development (SIRD)
  - Mr. Philipose Matthai Director General
  - Mr. P. Matthai Director SIRD
  - Mr. K. Vijaya Kumar DWCRA (Gender)
  - Mr. K. Sundar Naik Co-operatives

**GUJARAT STATE  
AHMEDABAD/GANDHINAGAR**

- State Government:
  - Mr. C.R. Samajpati                      Commissioner of Training and Ex-Officio Additional Chief Secretary
  
- Gujarat Water Supply and Sewerage Board
  - Mr. P.M. Modha                      Member Secretary
  - Mr. N.V. Pathak                      Superintending Engineer (Planning and Monitoring)
  - Ms. S.A. Raval                      Ass. engineer, Narmada Cell
  - Ms. K. Smbhawani                      Ass. engineer, Monitoring Cell
  
- Jalseva Training Institute:
  - Mr. J.M. Barot                      Director
  - Mr. R.N. Shukla                      Senior Training Officer
  - Mr. S.N. Bhatnagar                      Training Officer
  - K.M. Shah                      Financial Controller
  
- Chetna
  - Ms. A. Samajpati                      Coordinator
  - Ms. M. Shukla                      Programme Officer
  
- SEWA
  - Ms. R. Jhabvalla                      Director
  - Ms. R. Nanavaty                      Coordinator, Banaskhanta project
  
- FPI
  - Mr. M.R. Bhatt                      Director
  
- Gandhi Labour Institute
  - Dr. (Ms.) I. Hirway                      Professor of Economics
  
- UNNATI
  - Ms. A. Desai                      Programme Officer
  - Ms. G. Verma                      Programme Officer
  
- ANAND**
- Sardar Patel University, BVM Engineering College
  - Dr. B.P. Swadas                      Principal and Professor of Environmental Engineering
  - Mr. J.H. Patel                      Professor of Environmental Engineering
  
- Sardar Patel University, Department of Sociology
  - Dr. J.D. Thaker                      Head of Department, Professor of Sociology
  
- Sardar Patel Renewable Energy Research Institute
  - Dr. C.S. Rao                      Director
  
- Institute for Rural Management Anand (IRMA)
  - Dr. Shah Tuhshaar                      Director
  - Mr. Suman Nair                      Chief Administrative Officer

## OVERVIEW OF PLANNED TRAININGS FOR PHASE I OF WORLD BANK SUPPORTED RWS/S PROJECTS IN KARNATAKA

Duration(Days)/No.of Programs/No. of Participants

### 1. ADMINISTRATIVE TRAINING INSTITUTE, MYSORE

Training Programmes to be organized :

- \* Programme for Senior Administrative Personnel  
[Trng. Prgrm. No.10] 1/One/30
- \* Programme for Voluntary agencies and Social workers  
[Trng. Prgrm. No.11] 2/One/30

### 2. DISTRICT TRAINING INSTITUTE, MYSORE

Training Programmes to be organized:

- \* Training of Project Facilitators (Water Supply & Sanitation)  
[Trng. Prgrm. No.2(A)] 2/One/18
- \* Village Development Committee (Water Supply & Sanitation)  
- Training to Members [Trng.Prgrm.No.3(A)] 2/Ten/300
- \* Village Development Committee - Training to Members  
(After Construction - Training in follow up activities)  
[Trng. Prgrm. No.3(B)] 4/Ten/300
- \* Orientation of Primary School Teachers (Water Supply & Sanitation) [Trng. Prgrm. No.4(A)] 2/One/60

### 3. DISTRICT TRAINING INSTITUTE, SHIMOGA

Training Programmes to be organized :

- \* Training of Project Facilitators (Water Supply & Sanitation)  
[Trng.Prgrm. No.2(A)] 2/One/16
- \* Village Development Committee (Water Supply & Sanitation)  
- Training to Members [Trng.Prgrm. No.3(A)] 2/Ten/300
- \* Village Development Committee - Training to Members  
(After Construction - Training in follow up activities)  
[Trng. Prgrm. No.3(B)] 4/Ten/300
- \* Orientation of Primary School Teachers (Water Supply & Sanitation) [Trng. Prgrm. No.4(A)] 2/One/60

### 4. DISTRICT TRAINING INSTITUTE, GULBARGA

Training Programmes to be organized :

- \* Training of Project Facilitators (Water Supply & Sanitation)  
[Trng.Prgrm. No.2(A)] 2/One/22
- \* Village Development Committee (Water Supply & Sanitation)  
- Training to Members [Trng.Prgrm. No.3(A)] 2/Ten/300
- \* Village Development Committee - Training to Members  
(After Construction - Training in follow up activities)  
[Trng. Prgrm. No.3(B)] 4/Ten/300
- \* Orientation of Primary School Teachers (Water Supply & Sanitation) [Trng. Prgrm. No.4(A)] 2/One/60

5. DISTRICT TRAINING INSTITUTE, BANGALORE  
DISTRICT TRAINING INSTITUTE, MANDYA  
DISTRICT TRAINING INSTITUTE, BELGAUM  
DISTRICT TRAINING INSTITUTE, RAICHUR  
DISTRICT TRAINING INSTITUTE, BELLARY

- \* Village Development Committee (Water Supply & Sanitation) - Training to Members [Trng. Prgrm. No.3(A)] 2/Ten/300
- \* Village Development Committee - Training to Members (After Construction - Training in follow up activities) [Trng. Prgrm. No.3(B)] 4/Ten/300
- \* Orientation of Primary School Teachers (Water Supply & Sanitation) [Trng. Prgrm. No.4(A)] 2/One/60

6. DISTRICT TRAINING INSTITUTE, DAKSHINA KANNADA  
DISTRICT TRAINING INSTITUTE, BIDAR

- \* Village Development Committee (Water Supply & Sanitation) - Training to Members [Trng. Prgrm. No.3(A)] 2/Ten/300
- \* Village Development Committee - Training to Members (After Construction - Training in follow up activities) [Trng. Prgrm. No.3(B)] 4/Ten/200
- \* Orientation of Primary School Teachers (Water Supply & Sanitation) [Trng. Prgrm. No.4(A)] 2/One/60

7. SRI JAYACHAMARAJENDRA COLLEGE OF ENGINEERING, MYSORE

Training Programmes to be organized :

- \* Awareness Programme to Senior Engineers [Trng. Prgrm. No.5] 1/One/7
- \* Awareness Programme to Engineers [Trng. Prgrm. No.6] 3/Three/90
- \* Training in Construction Methods [Trng. Prgrm. No.7] 5/Ten/300
- \* Training of Masons [Trng. Prgrm. No.8-A] 8/Four/60
- \* Training of Pipelayers and Labour [Trng. Prgrm. No.8-B&C] 3/Four/120
- \* Training in Follow up activities - for Engineers [Trng. Prgrm. No.12-A] 3/Two/70
- \* Composite Mechanics [Trng. Prgrm. No.12-B] 28/Two/40
- \* Training of Valvemen and Helpers [Trng. Prgrm. No.12-C] 2/One/30
- \* Caretaker Programme [Trng. Prgrm. No.12-D] 2/One/30

In addition, Sri Jayachamarajendra College of Engineering, Mysore will organize TRAINING THE TRAINERS programme in :

- \* Awareness Programme to Engineers; 1/One/15
- \* Training in Construction Methods; 2/One/30
- \* Training of Masons; 3/One/30
- \* Training of Pipelayers and Labour; 1/One/30
- \* Composite Mechanics; 3/One/30
- \* Training of Valvemen and helpers; 1/One/30
- \* Caretakers Programme. 1/One/30

**8. KARNATAKA REGIONAL ENGINEERING COLLEGE, SURATHKAL**

Training Programmes to be organized :

- \* Awareness Programme to Engineers [Trng. Prgrm. No.6] 3/Three/90
- \* Training in Construction Methods [Trng. Prgrm. No.7] 5/Ten/300
- \* Training of Masons [Trng.Prgrm.No.8-A] 8/Two/30
- \* Training of Pipe Layers and Labour [Trng. Prgrm. No.8-B&C] 3/Two/60
- \* Composite Mechanics [Trng. Prgrm. No.12-B] 28/Two/40
- \* Training of Valvemen and Helpers [Trng. Prgrm. No. 12-C] 2/One/30
- \* Caretaker Programme [Trng. Prgrm. No. 12-D] 2/One/30

**9. P.D.A. COLLEGE OF ENGINEERING, GULBARGA**

Training Programmes to be organized.

- \* Awareness Programme to Engineers [Trng. Prgrm. No.6] 3/Three/90
- \* Training in Construction Methods [Trng. Prgrm. No.7] 5/Ten/300
- \* Training of Masons [Trng.Prgrm.No.8-A] 8/Four/60
- \* Training of Pipe Layers and Labour [Trng. Prgrm. No.8-B&C] 3/Four/120
- \* Composite Mechanics [Trng. Prgrm. No.12-B] 28/Two/40
- \* Training of Valvemen and Helpers [Trng. Prgrm. No. 12-C] 2/One/30
- \* Caretaker Programme [Trng. Prgrm. No. 12-D] 2/One/30

**10. P.E.S. COLLEGE OF ENGINEERING, MANDYA  
R.V. COLLEGE OF ENGINEERING, BANGALORE  
GOGTE COLLEGE OF ENGINEERING, BELGAUM  
GURUNANAK DEV ENGINEERING COLLEGE, BIDAR  
KLE SOCIETY ENGINEERING COLLEGE, RAICHUR  
VIJAYNAGAR ENGINEERING COLLEGE, BELLARY  
JNN COLLEGE OF ENGINEERING, SHIMOGA**

Each of them will organize the following Programmes.

- \* Training in Construction Methods [Trng. Prgrm. No.7] 5/Ten/300
- \* Training of Masons [Trng.Prgrm.No.8-A] 8/Four/60
- \* Training of Pipe Layers and Labour [Trng. Prgrm. No.8-B&C] 3/Four/120
- \* Composite Mechanics [Trng. Prgrm. No.12-B] 28/Two/40
- \* Training of Valvemen and Helpers [Trng. Prgrm. No. 12-C] 2/One/30
- \* Caretaker Programme [Trng. Prgrm. No.12-D] 2/One/30



11. PUBLIC HEALTH ENGINEERING DEPARTMENT

Training programmes to be organized :

- \* Awareness of the Integrated Water Supply & Sanitation Project [Trng. Prgrm. No.1] 1/Two hundred and eighty/280 Villages
- \* Training for Administration, Accounts and Store People in Public Health Engineering Department  
[Trng. Prgrm. No.9-A] 1/Two/44  
[Trng. Prgrm. No.9-B] 2/Two/41  
[Trng. Prgrm. No.9-C] 3/Two/39

12. PUBLIC HEALTH INSTITUTE, BANGALORE

Training Programmes to be organized :

- \* Training of Project Facilitators (Health & Hygiene) [Trng. Prgrm. No.2(B)] 2/One/18
- \* Orientation to primary school Teachers (Health & Hygiene) [Trng. Prgrm. No. 4(B)] 2/Two/60
- \* Awareness of the Integrated Water Supply and Sanitation Project [Trng. Prgrm. No. 13] 1/One/25
- \* Awareness of the Integrated Water Supply and Sanitation Project [Trng. Prgrm. No. 14] 2/One/30

13. DISTRICT HEALTH LABORATORY, GULBARGA  
DISTRICT HEALTH LABORATORY, SHIMOGA

Training Programmes to be organised :

- \* Training of Project Facilitators (Health & Hygiene) [Trng. Prgrm. No. 2(B)] 2/One/16 to 20
- \* Orientation to Primary School Teachers (Health & Hygiene) [Trng. Prgrm.No.4(B)] 2/Two/60

14. DISTRICT HEALTH LABORATORY, MANDYA  
DISTRICT HEALTH LABORATORY, MYSORE  
DISTRICT HEALTH LABORATORY, DAKSHINA KANNADA  
DISTRICT HEALTH LABORATORY, BELGAUM  
DISTRICT HEALTH LABORATORY, RAICHUR  
DISTRICT HEALTH LABORATORY, BELLARY  
DISTRICT HEALTH LABORATORY, BIDAR

Each will Organize Programme :

- \* Orientation to Primary School Teachers (Health and Hygiene) [Trng. Prgrm. No. 4(B)] 2/Two/60

15. DISTRICT HEALTH & FAMILY WELFARE DEPARTMENT, BANGALORE  
DISTRICT HEALTH & FAMILY WELFARE DEPARTMENT, MANDYA  
DISTRICT HEALTH & FAMILY WELFARE DEPARTMENT, MYSORE  
DISTRICT HEALTH & FAMILY WELFARE DEPARTMENT, DAKSHINA KANNADA  
DISTRICT HEALTH & FAMILY WELFARE DEPARTMENT, SHIMOGA  
DISTRICT HEALTH & FAMILY WELFARE DEPARTMENT, BELGAUM  
DISTRICT HEALTH & FAMILY WELFARE DEPARTMENT, GULBARGA  
DISTRICT HEALTH & FAMILY WELFARE DEPARTMENT, RAICHUR  
DISTRICT HEALTH & FAMILY WELFARE DEPARTMENT, BELLARY  
DISTRICT HEALTH & FAMILY WELFARE DEPARTMENT, BIDAR

Each of them will organize the following programme.

- \* Village Development Committee - Training to Members  
(Health & Hygiene) [Trng. Prgrm. No. 3(C)] 3/Ten/300

## REPLIES TO MAIL SURVEY

### Training on Community Participation/Gender/Women's Involvement

1.

**Academy for Community Development and International Living (ACDIL)**  
**Alto Betim**  
**Goa 403 521            Tel: 7525 (Panjim Exchange)**

**Ms. L. Rangel Ribeiro, Director**

ACDIL is the executive arm of the International Education and Fellowship Trust, a registered NGO. ACDIL carries out courses in vocational training, community development, leadership, health and nutrition. It has a GoI recognized course to train Angawadi (creche) workers and has trained 3000 AWs between 1980 and 1993. ACDIL also executes the DWRCA project in Goa for the state Government.

ACDIL has held two workshops on participatory techniques for the national level managerial and supervisory staff and state-level trainers of angawadi workers. In 1991/92, it organized two workshops on participatory techniques for Danish and Dutch funded w/s project staff from Andhra Pradesh, Goa, Karnataka, Kerala, Orissa, Tamil Nadu and Uttar Pradesh. The process was documented on video, of which copies were received on loan.

ACDIL uses existing training materials, including w/s (Lyra Srinivasan's Tools for Community Participation) and develops new materials. It has expertise, and is interested in:

- conducting Training of Trainers workshops in participatory techniques; further develop innovative and evocative materials related to a.o. water and sanitation;
- make kits available at low cost and provide orientation to artists/ producers and users on material development and use;
- Share ACDIL experiences with participatory techniques through publications, e.g. a trainers manual, newsletter articles.

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2.

**Tata Institute of Social Science**  
**Postbox 8313**  
**Sion-Trombay Road**  
**Deonar**  
**Bombay 400 088            Tel: 556 3290**

**Ms. Chhaya Datar, Head Women's Study Unit**

Tata Institute has collected information for village profiles and trained government staff on community participation/ women's involvement for ODA-supported rws/s project. No

specific training materials have been developed. Application of the training is slow due to conceptual and managerial constraints among implementing project organizations.

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**3.**

**Initiatives Women in Development (IWID)**  
**E2, B Block, 4th Floor, Parsn Paradise Apartments,**  
**109 G.N. Chetty Roal, T. Nagar**  
**Madras 600 017**

**Ms. Ranjani K. Murthy**

IWID, with a staff of five trainers/researchers, gives courses on gender and development to male and female staff from NGOs and to a lesser extent government offices. Focus is the position of women in society and of women staff in NGOs. The aim is to raise awareness on gender inequalities and the underlying socio-cultural mechanisms. IWID also offers training of trainers. A programme for AFPRO, an NGO dealing with groundwater and sanitation, is scheduled.

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**4.**

**Research Centre for Women's Studies (RCWS)**  
**Vithaldas Vidyavihar**  
**Santacruz (west)**  
**Bombay - 400 049**                      **Tel:6126648, 6128462/93, Ext. 18**

**Dr. Divya Pandey**

Besides research and consultancies, RCWS trains university teachers in women's studies in social sciences and offers guest lecturers. The Centre carried out a social feasibility study on sanitation for PROWESS. Five field assistants work in women's involvement in the Dutch-supported Kharland reclamation project in Raigad district, Maharashtra. Training modules on health, education, income generation and leadership for women are under preparation.

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**5.**

**National Institute for Rural Development (NIRD)**  
**Rajendranagar**  
**Hyderabad - 500 030**                      **Tel:254001-4**

**Dr. B.C. Muthayya, Dy. Director general i/c**

The NIRD is an apex organisation under the Ministry of Rural Development engaged in research, training and consultancy on rural development. The institute offers about 50 training programmes every year (duration from 4 days to 6 months), and reports to be in a position to offer courses in the areas of community participation, women's issues, project management systems, communication, water resources management and environmental protection.

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## **Training on Sanitation and Hygiene Education**

**1.**

**Faculty of Rural Health and Sanitation  
Gandhigram Rural Institute  
Ambathurai RS 624 309  
Dindigul Anna District  
Tamil Nadu**

**Tel: 2371**

**Fax:+91-4557-2323**

**Dr. S. Ponnuraj, Dean and Faculty Head**

The faculty offers 12-months courses for the Certificate in Sanitary Science and the Diploma in Sanitary Science. One-week courses (in vernacular language) are given on low cost sanitation, handpump caretaking, water quality analysis, community participation, hygiene education and communication. Trainees are Government officials, NGO staff and grassroot groups. GRI's faculty is in public health and sanitary science (1), public health engineering (1), health education (1), microbiology (1), entomology (1), plus 2 sanitarians, 1 mason, 2 laboratory technicians and 4 field staff.

We received the outline and programme for the course on environmental sanitation. The course uses a broad definition of environmental sanitation, including protection of water sources and supply of safe water. Topics include: definition and scope environmental sanitation; health aspects; sources of water; water quality; protection of traditional water sources (improving wells, ponds); introduction of improved water supply systems (various technologies, from handpumps to treated piped water); disinfection; methods of excreta disposal (from pit latrines to sewerage); organizing a latrine promotion programme; refuse disposal; waste water disposal; drainage; plumbing; village/town planning; duties of sanitary inspectors.

Besides lectures, practical teaching methods are used: making designs, attending demonstrations, constructing prototypes on campus, visiting villages to inspect facilities and discuss improvements with panchayats. International, but very old, literature on low-cost technologies is included. Some of the technologies covered are outdated. Recent insights and literature on user participation/community management/gender approach are not covered.

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**2.**

**Centre of Applied Social Research (CASR)  
P.O. Box 1370  
Hyderabad 500 028**

**Tel: 289458**

**Fax:+91-842-91942/222483**

**Prof. Vijay Kochar**

CASR, an NGO, is specialized in socio-behavioural studies on water use and waste disposal. It has established guidelines and trainings for such studies and will guide local organizations on participatory investigations, interventions and monitoring/evaluation of behaviour change in the fields of water use and environmental sanitation. The Centre is in the process of developing a two-year Diploma course on methodologies and management of village work in general, for middle cadres of NGOs.

## **Training on public health engineering**

**1.**

**College of Engineering  
Jawaharlal Nehru Technological University  
Kakinada 533 003  
Andhra Pradesh                      Tel: 76029/73002**

**Prof. V.V.S. Prasad ( M.Sc; M.Tech; FIE), Principal**

The college offers graduate and post-graduate courses in civil and mechanical engineering and computer science as well as correspondence courses, workshops, seminars, etc. There are no formal courses on environmental engineering, but teaching staff are reported to have experience in the fields of chemistry, water resources management and environmental engineering. The College reports that it could offer courses on low cost rural water supply technologies, low cost sanitation, hygiene education, and water resources management and environmental protection. Library facilities and an environmental engineering laboratory are present. No course materials were included.

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**2.**

**Department of Civil Engineering  
College of Engineering  
Andhra University  
Visakhapatnam 530 003    Tel: 54871, ext.255                      Fax:+91-891-44765**

**Prof. A. Janaki Rao, i/c Head of Dept.**

The Department has courses in BE Civil Engineering with environmental engineering as elective subject and ME and PHD Programmes in Environmental Health Engineering, with a faculty of 7 (1 Professor, 1 Lecturer, 5 Readers). It also carries out fieldwork. This has a mainly urban character and concerns stormwater drainage, sewerage, slum improvement and impact studies on groundwater pollution. Two faculty members took a training course at the International Housing Institute in Rotterdam and one at IHE. In 1991, the Department organized seminars on Groundwater tapping and Management, Women and Shelter, and Technical Education for Women. Faculty members have established a local NGO (People's Environmental Protection Society) for environmental education and training.

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**3.**

**S.V.U College of Engineering  
Tirupati 517 502                      Tel: 8574-24166, ext.308                      Fax:91-857-421211**

**Prof. dr. K.L. Narayana, Principal  
Prof. dr. G Ramprasad, Head of Civil Engg.Dept.**

The Department of Civil Engineering provides courses in water supply and wastewater engineering, industrial wastewater, environmental sanitation, etc... The Centre for Rural

Development and Appropriate Technologies (CERDAT) was recently established to coordinate rural development activities within and outside the University, and to undertake research, training, education and information dissemination in this field. The University has an Appropriate Technology Park to demonstrate different technologies, and also has relevant experience in rural extension, farm management, entrepreneurship development, solar energy, etc..

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**4.**

**Calicut Regional Engineering College**  
**P.O. Calicut Regional Engg. College**  
**Calicut 673 601                      Tel: 89223/89201/51227**

The college reports to have a well equipped laboratory and the necessary expertise to offer training in the areas of low-cost water supply and sanitation, operation and maintenance systems, and water resources and environmental management.

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**5.**

**Kerala Water Authority (KWA)**  
**Waterworks Campus**  
**Thiruvananthapuram 695 033      Tel: 471-68654      Fax:91-471-64903**

**M.P. Mohan, Managing director**

The Kerala WATER Authority established its Training Centre in 1991, for the training of all KWA employees. The 23 courses available fall into the broad categories of general management, operation and maintenance, financial management, materials management, water quality control, construction, communication, and low-cost sanitation. Facilities and staff (7 professionals) of the training centre are limited, and the centre relies on extra-mural training locations and on part-time faculty from KWA, other Government Departments, private and public sector undertakings, management institutes, and reknowned experts.

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**6.**

**Environmental Engineering Research Division**  
**Maharashtra Engineering Research Institute**  
**Dindori Road**  
**Nasik 422 004                      Tel: 253-72248**

**S.D. Sulakhe, Research Officer**

The division has 14 staff and is engaged in research and design, for the Maharashtra Water Supply and Sewerage Board (MWSSB) of simplified water treatment plants, particularly tube settlers. The division has a water treatment and soils laboratory. The senior staff is guest lecturing at the Research and Training Centre of the MWSSB.

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7.

**All India Institute of Hygiene and Public Health  
110, Chittaranjan Avenue  
Calcutta 700 073**

**Tel: 39-6054**

**Fax: +91-33-311388**

**Prof. K.J. Nath, Director**

The institute has thirteen scientific departments, amongst which sanitary engineering and environmental sanitation, and health education. The institute provides postgraduate training courses on a regular basis, and executes research for the (public) health sector. The institute is the all India Network Centre of the International Network for Water and Waste Management. For the rural water and sanitation sector twelve courses are on offer, such as rural water supply and sanitation; operation and maintenance of gravity feed water supply; health, socio-cultural and communication aspects of rural water supply and sanitation; water quality analysis; etc..

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## **Training on water resources and environment**

1.

**VIKSAT**

**Thaltej Tekra**

**Ahmedabad 380 054**

**Tel:442642/51**

**Fax:91-272-467342**

**M. Dinesh Kumar, Programme Officer**

VIKSAT is an NGO dealing with water resources protection. Field activities concern development and protection of existing water sources, rainwater harvesting (with Mahati, a women's organization) and social forestry with community participation, village level organization and women's training camps. Jal Sewa Training Institute sometimes uses VIKSAT as a training resource for rainwater harvesting.

2.

**Action for Food Production (AFPRO)**

**25/1A Institutional Area**

**Pankha Road, D Block**

**Janak Puri**

**New Delhi 110 058**

**Tel:+91-11-5555412/3/5553652**

The NGO AFPRO carries out groundwater surveys on requests of local NGOs and helps them to site wells and install handpumps.

Thirty five local NGOs in 9 states have been assisted. AFPRO also supports watershed protection programmes through checkdams, groundwater recharge, pasture development, afforestation and soil and water conservation measures.

Training courses are given to local groups and users. They included, in 1991, watershed management (in Hindi), participatory village planning (in English and Marathi), environmental sanitation (in English), handpump maintenance, repair (in Tamil & Hindi), women's role in health and sanitation (in Telugu).

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3.

**National Geophysical Research Centre  
(Council of Scientific and Industrial Research)  
Hyderabad 500 007      Tel: 850141**

**Fax:91-842-851564**

**Dr. T. Gangadhara Rao, Scientist**

Amongst others, this centre has since 1987 been regularly conducting a 1-month postgraduate training course in the field of exploration and management of groundwater resources. The course topics are satellite imagery studies, hydrogeological investigations, geophysical prospecting, drilling methods, pumping tests, recharge estimations, aquifer modelling. The course has a practical orientation, evidenced by a 10-day field training in geophysical surveys.

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4.

**Centre for Water Resources Development and Management (CWRDM)  
Kozikhode 673 571      Tel:357151/355864**

**Dr. P. Basak, Executive Director**

In addition to research activities in water resources development and management, the centre has been conducting short and long term training courses at all levels for government, non-government and beneficiary organisations. The centre has a multidisciplinary team and has a fully fledged laboratory, library, and hostel at its disposal.

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5.

**Department of Civil Engineering  
Indian Institute of Technology Kanpur  
P.O.- I.I.T.  
Kanpur 208 016      Tel: 250864**

**Fax:+91-512-250260**

**Dr. Bithin Datta, Associate Professor**

The department offers a number of relevant, one semester courses to undergraduate and postgraduate students. The courses are on surface and groundwater hydrology, water resources systems, surface and groundwater modelling. A water resources management laboratory and a hydraulics laboratory support the training activities and also some research work by departmental staff.

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**PROGRAMME OF STUDIES LEADING TO THE MASTER'S  
DEGREE OF ENGINEERING (ENVIRONMENTAL ENGINEERING)**

Sr. Credits No.	Course No.	Course Title	Contact hours				Total
			Per Week			Total	
			L	T	P		
1.	2.	3.	4	5	6	7	8
<b>FIRST SEMESTER</b>							
1.	CE 501	Foundations of Environmental Engineering I	4	-	2	6	5
2.	CE 502	Foundations of Environmental Engineering II	4	-	2	6	5
3.	CE 503	Water & Waste Water Treatment I	4	-	2	6	5
4.	CE 504	Water & Waste Water Treatment II	4	-	2	6	5
5.	CE 505	Environmental Sanitation I	4	-	-	4	4
			20	-	8	28	24
<b>SECOND SEMESTER</b>							
6.	CE 506	Air Pollution Control	4	-	2	6	5
7.	CE 507	Industrial Water & Waste Water Treatment	4	-	2	6	5
8.	CE 508	Environmental Sanitation II	4	-	2	6	5
9.	CE 509	Design of Water & Waste water Systems	2	-	4	6	4
10.	CE 510	Environmental Impact Analysis & Legislation	4	-	-	4	4
			18	-	10	28	23
<b>THIRD SEMESTER</b>							
11.	CE 611, 617	Elective (depending upon offered)	4	-	2	6	5
12.	CE 601	Seminar	-	-	2	2	1
13.	CE 602	Dissertation	-	-	-	-	17
			4	-	4	8	23

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