ILO
TURIN CENTRE

UN
INSTRAW

UN
DTCD

WOMEN, WATER SUPPLY AND SANITATION

multi-media modular training package

WOMEN, WATER SUPPLY AND SANITATION

INTRODUCTION

The training package on **"Women, Water Supply and Sanitation"** is aimed at three different target groups: senior officials of Ministries of Education, Health, Planning, Public Affairs, development planners and provincial or local authorities in charge of water supply and sanitation technologies; and representatives of non-governmental organizations, including womens' organizations, which are active in water supply and sanitation projects and programmes.

The training package is produced in response to:

- involving women in planning, choice of technology and implementation of sustainable water supply and sanitation projects;
- involving women in management of water resources, water supply and waste disposal;
- incorporating into projects adequate training component, evaluation and monitoring programmes.

The amount of information that could be included in this package is vast. The intention is to keep this package essential, brief and simple, and to give a general overview. The training package should be tailored by the trainers in relation to the particular needs of a given country and community needs.

The flexibility of this training package is assured by the parallel activity, that is, the possibility to train different target groups simultaneously, and using modular training material which enables users to adapt it to their own needs. Each modular unit is supplemented with audiovisual support material, such as: transparencies, sound-slide packages; as well as additional reading; bibliography; key issue checklists for groupwork; evaluation form for participants; and a trainer's guide.

The information presented in this package has been extracted from a large number of sources, as indicated in the "Additional Reading" and "Bibliography" included in each module.

MODULE	TITLE
I	THE INTERNATIONAL DRINKING WATER SUPPLY AND SANITATION DECADE (IDWSS) AND BEYOND
II	PARTICIPATION OF WOMEN IN PLANNING, CHOICE OF TECHNOLOGY AND IMPLEMENTATION OF SUSTAINABLE WATER SUPPLY AND SANITATION PROJECTS
III	ROLE OF WOMEN IN HYGIENE EDUCATION AND TRAINING ACTIVITIES FOR WATER SUPPLY AND SANITATION PROJECTS
IV	INVOLVEMENT OF WOMEN IN MANAGEMENT OF WATER RESOURCES, WATER SUPPLY AND WASTE DISPOSAL
V	EVALUATION AND MONITORING OF WATER SUPPLY AND SANITATION PROGRAMMES, PROJECTS AND THE ROLE OF WOMEN

The training package has been developed especially for senior managers and officials dealing with improved drinking water and sanitation in rural, peri-urban and urban areas. Target groups for participation in the seminar include:

- Senior officials of Ministries of Education, Health, Planning, Public Affairs, Social Welfare, etc.;
- Development planners and provincial or local authorities in charge of water supply and sanitation projects and programmes;
- Engineers in charge of designing and implementing water supply and sanitation projects;
- Representatives of non-governmental organizations, including women's organizations, which are active in water supply and sanitation projects and programmes;
- Trainers and managers of national training institutes training staff on drinking water supply and sanitation technologies, health education, community development and women's programmes.

GENERAL OBJECTIVES

The major aims of the training modules are:

- to contribute to a new approach in the organization and management of sustainable water supply and sanitation (WSS) programmes through the integration of womens' need, as well as their participation in planning, technical operations, maintenance, assessment and implementation of WSS projects;
- to increase the awareness and sensitize planners, officials, engineers, trainers and experts in charge of water supply and sanitation policies, programmes and projects as well non-governmental institutions and womens' organizations, of the need and "how to" involve women in WSS planning, management, implementation and evaluation of programmes and projects.

SPECIFIC OBJECTIVES

The specific training objectives of the modules on "Women, Water Supply and Sanitation" will enable the users to:

1. acquire greater awareness of the United Nations International Drinking Water Supply and Sanitation Decade and Strategies till the year 2000;
2. adopt an integrated approach in the identification and elaboration of sustainable WSS projects, taking into account the available resources and local needs, with special reference to the community and womens' participation;
3. apply the "how-to" guidelines to involve women in all stages of the project, from identification and preparation to implementation, evaluation and monitoring;
4. recognize the need to involve women in the choice and adaptation of technologies appropriate to the national and local socio-economic, cultural and technical conditions taking into account cost-effectiveness;
5. recognize main conditions to involve women in health/hygiene education programmes and various training activities;
6. adopt new issues and trends in water resources development planning, womens' role in financial management and environmental protection;
7. recognize basic concepts,methodologies, techniques and practices used in evaluation and monitoring of sustainable WSS projects and programmes for women.

WOMEN, WATER SUPPLY AND SANITATION

USER'S GUIDE
HOW TO USE A MODULE

MULTI-MEDIA MODULAR TRAINING PACKAGE

The participatory training methodology for developing countries consists of multi-media training packages that use the modular approach and are supplemented by sound-slide packages as a primary audio-visual medium. These packages have been field-tested in developing countries and are designed to suit national needs which have to be adopted and modified by local professional staff for the community level. Instead of a conventional training text, modules have been created which comprise of oral and visual media, with defined objectives and extensive group work. The need to develop an innovative training methodology has grown, since previous methods did not satisfy the needs of populations in developing countries, particularly women. The modular programme enables training **in situ** and provides practical "how-to" materials.

WHAT IS A MODULAR SYSTEM?

In a modular programme, the content is not considered as a continuous series of lienar units peculiar to a particular training course, but a series of entities each of which forms a whole, and which is conceived in such a way as to enable their inclusion in different training programmes and to adapt them to the individual or special needs of the learners. These entities are called "training modules".

Each module is a self-contained training/learning unit, but some knowledge of previous modules or particular prerequisites may be required. The modular course is designed in such a way that it can either be used in full or in initial training courses as in the case of advanced training programmes, suited to the needs of the trainees selected while complementary modules can be taken from different modular courses. All the modules contain training situations that enable the user to acquire the knowledge and skills which make up the teaching objectives in as short a time as possible.

The module contains a course covering the subject area. Clear instructions are given with each session as to exactly what material is required, so that local instructors can co-ordinate their lectures with the accompanying sound-slide packages.

The module is produced to stand on its own without any further supply from external sources. Each module comprises a topic given in audio-visual or printed form to facilitate both teaching and learning, together with an "Instructor's Guide" for the trainer/lecturer. Setting out from specific objectives, the guide describes the activities of both the instructor and the learners.

For each training session, a different module has to be prepared in accordance with the subject matter and audio-visual materials. In order to carry out modular training, the programme must have a clearly defined function and objectives. That is, the objectives must be defined in terms of the observable behaviour results the trainees are expected to acquire by the end of the modular unit.

The packages are not uniformed, but can be adapted to the specific circumnstances of each local community or target group. In other words, it is possible to adjust the modules to different training tasks.

The modules are conceived as a package containing all the information, examples, exercises, audiovisual and control aids necessary for:

- the **trainer** to deliver a lesson or conduct training activities;

and/or

- the **trainee** to analyse, reinforce and apply the theoretical concepts learned during training sessions;

and/or

- the **professional** as self-learning reference material to upgrade knowledge and skills related to effective integration of women in WSS sustainable projects and programmes.

In order to reduce the learning time and improve the learning efficiency, keeping high the motivation of the user, the text of the module contains only that information and activities considered essential for the achievement of the training objectives as specified in the following pages. Additional reading material is included for those users who wish to study in greater depth specific subjects related to the subject considered in this module.

From a pedagogical point of view, the structure of the modular package consists of five components – as specified on the following page – which are easily adaptable to the needs of both the trainer and the trainee.

1. *INPUT DOCUMENT*

1.1 Target groups

1.2 Objectives

2. *BODY OF THE MODULE*

2.1 Table of contents

2.2 Text

2.3 Additional reading

2.4 Bibliography

3. *OUTPUT DOCUMENTS*

3.1 Checklists on key issues for group work

3.2 Evaluation questionnaire

4. *TRAINER'S GUIDE*

4.1 List of training material

4.2 Lesson plan

4.3 Trainer's module evaluation form

5. *VISUAL SUPPORT MATERIAL*

5.1 List of audiovisual support material

5.2 Transparencies

5.3 Sound/slide packages (Module I, Module V)

The trainer will make use of the five components indicated above, while the trainee will only be provided with the material related to components 1, 2 and 3.

The training package could be used for the **organization** and **implementation** of a **one-week seminar** addressed to:

- Senior officials and development planners of water supply and sanitation programmes and projects;
- Engineers in charge of designing WSS projects and technologies as well as trainers and managers of national training institutes

and

- Senior officials of non-governmental institutions and womens' organisations involved in WSS projects and programmes at national, regional and international levels.

For this purpose, the following pages present general guidelines including a draft timetable for conducting the seminar.

COURS
COURSE
CURSO WOMEN, WATER SUPPLY & SANITATION .....

LANGUE DU COURS
COURSE LANGUAGE
IDIOMA DEL CURSO ENGLISH .....

Horaire Time Hora	LUNDI MONDAY LUNES	MARDI TUESDAY MARTES	MERCREDI WEDNESDAY MIERCOLES	JEUDI THURSDAY JUEVES	VENDREDI FRIDAY VIERNES
08.30 10.00	ADMINISTRATIVE ARRANGEMENTS --- OPENING OF THE SEMINAR	PRESENTATION --- ORGANISATION OF GROUP WORK --- GROUP WORK ON PARTICIPATION OF WOMEN IN PLANNING, CHOICE OF TECHNOLOGY AND IMPLEMENTATION	PRESENTATION --- ORGANISATION OF GROUP WORK --- GROUP WORK ON ROLE OF WOMEN IN HYGIENE EDUCATION AND TRAINING ACTIVITIES FOR WATER SUPPLY AND SANITATION	DISCUSSION --- EVALUATION AND MONITORING OF WSS PROJECTS, PROGRAMMES AND THE ROLE OF WOMEN: PRESENTATION	STUDY VISIT
10.30 12.00	PRESENTATION OF LECTURERS AND PARTICIPANTS	GROUP WORK	GROUP WORK	PRESENTATION --- ORGANISATION OF GROUP WORK	STUDY VISIT
13.30 15.00	THE INTERNATIONAL DRINKING WATER SUPPLY & SANITATION DECADE (IDWSSD) AND BEYOND: PRESENTATION	PLENARY SESSION: PRESENTATION OF GROUP WORK	PLENARY SESSION: PRESENTATION OF GROUP WORK --- INVOLVEMENT OF WOMEN IN MANAGEMENT OF WATER RESOURCES, WATER SUPPLY AND WASTE DISPOSAL	GROUP WORK ON EVALUATION AND MONITORING OF WSS PROJECTS, PROGRAMMES AND THE ROLE OF WOMEN	FINAL REPORT EVALUATION OF THE SEMINAR
15.30 17.00	DISCUSSION ON THE IDWSSD AND BEYOND --- PARTICIPATION OF WOMEN IN PLANNING, CHOICE OF TECHNOLOGY AND IMPLEMENTATION: PRESENTATION	ROLE OF WOMEN IN HYGIENE EDUCATION AND TRAINING ACTIVITIES FOR WATER SUPPLY AND SANITATION: PRESENTATION	PRESENTATION --- DISCUSSION ON THE INVOLVEMENT OF WOMEN IN MANAGEMENT OF WATER RESOURCES, WATER SUPPLY AND WASTE DISPOSAL	PLENARY SESSION: PRESENTATION OF GROUP WORK	CLOSING OF THE SEMINAR
Président Chairman Presidente					

TURIN CENTRE
UN INSTRAW
UN DTCD

WOMEN, WATER SUPPLY AND SANITATION (WWSS)

USER'S GUIDE

SEMINAR

Ed. 02/1991
May 1991

6/15

OUTLINE FOR CONDUCTING THE SEMINAR

I. PLANNING

1.1 Definition of seminar objectives and outlines

1.2 Administrative matters (*)

1.3 Selection of place

II. ORGANISING

2.1 Orientation of INSTRAW (**) lecturers

2.2 Orientation of external lecturers

2.3 Selection and organisation of facilities

2.4 Organisation of local visits to projects for participants

2.5 Organisation of detailed timetable

2.6 Selection of INSTRAW personnel and local staff

III. LEADING

3.1 Opening and closing of the seminar

3.2 Lecturing/presentation

3.3 Leading plenary sessions

3.4 Organising and managing group activities

3.5 Preparation of final report

IV. MONITORING

4.1 Setting up evaluation criteria for the seminar

4.2 Establishment of any follow-up activities to enhance the impact of the seminar

---

(*) Please see following page for more details.

(**) INSTRAW is indicated in this module as the seminar organiser; however, other institutions are welcome to use this module for their own activities.

I. PLANNING

1.2 ADMINISTRATIVE MATTERS

The following activities should be completed prior to the seminar by the officer in charge of administrative matters:

1.2.1 SELECTION AND INVITATION OF PARTICIPANTS AND EXPERTS

- 1.2.1.1 Terms of reference for experts
- 1.2.1.2 Entry profile of participants
- 1.2.1.3 Confirmation of participants
- 1.2.1.4 List of participants and experts

1.2.2 TICKETS, VISAS, PER-DIEM, ACCOMODATION, LOCAL TRANSPORTATION

1.2.3 ORGANISATION OF FACILITIES AND LOCAL SUPPORT STAFF

- 1.2.3.1 *Organisation of seminar room and group meetings rooms*
- 1.2.3.2 Organisation of documents control
- 1.2.3.3 Organisation of equipment for audio-visual material
- 1.2.3.4 Organisation of local secretarial support
- 1.2.3.5 Organisation of additional staff (drivers, conference services, security, etc.)

1.2.4 ORGANISATION OF LOCAL VISITS TO PROJECTS

1.2.5 ORGANISATION OF HOSPITALITY

1.2.6 DURING THE SEMINAR the following activities are foreseen:

- Inauguration of the seminar
- Presentation of participants and training team and seminar manager
- Adoption of the agenda
- Election of officers: president, vice-president, rapporteur
- Organisation of work
- Organisation of working groups
- Preparation, discussion and adoption of seminar report, including conclusions and recommendations
- Distribution of evaluation questionnaires to be completed by participants, to assess usefulness and impact of the seminar

1.2.7 CLOSING OF THE SEMINAR

- Reconfirmation of travel arrangements
- Re-checking visas, tickets, per diem, etc.
- Provision of additional reading material

II. ORGANISING

The officer in charge of seminar management will, inter alia , perform the following tasks:

2.1 ORIENTATION OF INSTRAW LECTURERS which includes:

2.1.1 Guidance as to the module's structure and subject matter

2.1.2 Guidance as to the seminar structure

2.1.3 Assisting the methodological approach of the seminar during:

- presentation
- group work
- presentation of group work reports
- general discussion

Together with the presentation, training materials and aids will be an essential component of each module. Detailed description of these aids is contained in each module.

The orientation of group work and general discussion sessions should focus on the preparation of action-oriented recommendations and conclusions for the more effective participation of women in water supply and sanitation projects and programmes at all levels.

2.2 ORIENTATION OF EXTERNAL LECTURERS

The expert lecturer will be assisted in preparing his/her presentation by following the outline given in the module. Key issues have been presented in summary form. Individual presentations may require additional training material and aids. The expert lecturer will orient discussion towards elaboration of key issues and to enhance production of action-oriented conclusions. If possible, additional training material should include case studies, pamphlets, etc... illustrating conditions relevant to presentations.

III. GROUP WORK IMPLEMENTATION

3.1 Officer in charge and/or senior lecturer present key issues for discussion.

3.2 Officer in charge and/or senior lecturer organise 4 working groups for each module. Each working group will select a rapporteur for each module.

Officer in charge will provide groups with key issues of each module in order to stimulate group activity and to encourage each group to prepare action-oriented recommendations on key issues.

3.3 Each group will meet separately and, after brainstorming session and discussion, will formulate recommendations and conclusions related to the key issues presented during lectures.

3.4 Each group's rapporteur will prepare in appropriate form the group's conclusions and recommendations (using flip charts, transparencies), consolidating the group's report at the end of the day.

3.5 Each report will be discussed in plenary sessions and revised, if required. The final version will be presented at the end of the seminar.

The final report will be an action-oriented report, providing a basis for follow-up of the seminar on "how-to" enhance women's involvement and participation more effectively at all levels on planning and implementation of sustainable water supply and sanitation programmes and projects.

PEDAGOGICAL SCHEME OF SEMINAR

LECTURE SUMMING UP AND ANALYSIS OF KEY ISSUES	THEORY 1 h 30 min – 3 h	EXPERT
ORGANISATION OF WORKING GROUPS / ELECTION OF RAPPORTEUR	3 or 4 working groups 15 min	OFFICER IN CHARGE AND EXPERTS
PRESENTATION OF KEY ISSUES FOR GROUP WORK	Different for each module	
GROUP WORK	(Start with brainstorming session) 1 h 30 min – 3 h	
PRESENTATION OF THE RESULTS OF WORKING GROUPS	Presented on flipcharts Copy to be made on white paper for reproduction 1 h 30 min	RAPPORTEURS
FINAL DISCUSSION (PLENARY SESSION)		ALL GROUP PARTICIPANTS

LIST OF NECESSARY EQUIPMENT AND MATERIAL

1. PROJECTOR
2. SLIDES
3. FLIP-CHARTS
4. SCREEN
5. TRANSPARENCIES
6. CLOSED CIRCUIT TELEVISION SET (RECORDER; CAMERA)
7. FILM PROJECTOR
8. PAPER
9. PENS

GUIDELINES FOR STUDY VISITS

INTRODUCTION

In order to utilise the surrounding environment as an element in training, the trainer needs certain information on the environment itself, and the services that it can offer.

The first step to be taken is the preparation of lists, divided by sectors of activities, of all agencies, companies and organisations which are available to cooperate in organising study visits.

For each host institution a form will have to be prepared, containing name, address, telephone number, sector of activity, name of person with whom the contact has been established and type of study visit this institution would be capable of providing.

PLANNING THE VISIT (CHECKLIST FOR PEDAGOGICAL PURPOSES)

The workshop seminar organiser must:

- define training objectives of the visit;
- check if the visit can reach these training objectives by contacting the responsible person of the host institution and by communicating these objectives, the number and the professional profile of the participants. (If possible, effect a prior visit);
- communicate the training objectives of the visit to the participants and supply them with documentation on the host organisation;
- invite the participants to formulate questions related to the objectives of the visit.

VISIT FOLLOW-UP

After the visit, the organiser will have to:

- evaluate the outcome of the visit with the group of participants, as far as the organisational and pedagogical aspects are concerned;
- prepare a report on the visit;
- make a note on the most relevant aspects of the report for the future use/future visits to the host institution.

PLANNING THE VISIT
(CHECKLIST FOR ORGANISATIONAL PURPOSES)

Institution to be visited:

- Name:
- Telephone number:
- Sector of activity:
- Name of person contacted:
- Responsibilities:

Type of visit proposed:

Date of visit:

Time of visit:

Departure hour:

Arrival hour:

Return departure hour:

Arrival hour:

Transport:

- type (coach, car, plane, train);
- cost;
- name, address and telephone number of company where this service is booked;
- refreshments and comfort stop;
- first aid kit.

Lunch:

- type (whether restaurant or box lunch and if hosted, if special – such as vegetarian – meals are available). Before booking the service, take into account if any of the participants requires a specific diet;
- cost;
- name, address and telephone number where this service is booked.

Interpretation:

- if necessary;
- cost;
- name, address and telephone number of company or person(s) where this is booked.

MODULE I

THE INTERNATIONAL DRINKING WATER SUPPLY AND SANITATION DECADE (IDWSSD) AND BEYOND

The present training modules on **"Women, Water Supply and Sanitation"** comprise an up-dated revision of the modules originally prepared in 1986 by the United Nations International Research and Training Institute for the Advancement of Women (INSTRAW) and the ILO Training Centre, in Turin, Italy.

This version, has been undertaken as a collaborative effort by INSTRAW, the ILO Training Centre in Turin, Italy, and the United Nations Department of Technical Co-operation for Development (UN/DTCD), through its Task Force on Women's Development. The production of the training packages was funded by UN/DTCD.

The DTCD Task Force, established in 1982, is the oldest such entity in the United Nations system, and comprises collective expertise and experience in all substantive sectors within the Department's mandate: natural resources and energy; development planning; statistics; public administration; population; and social development. The prime objective of the Task Force is to promote the integration of women in all aspects of development. The issuance of the up-dated modules is an initiative towards that end.

The training package was **up-dated** by **IRC**-International Water and Sanitation Centre, The Hague, The Netherlands. It was **reviewed** by **Ms Dunja PASTIZZI-FERENCIC,** Director, Natural Resources and Energy Division (UN/DTCD), **Mr. Kenneth EDWARDS,** Chief Water Resources Branch (UN/DTCD), **Ms Margaret HOWARD,** Programme Officer and **Ms Marcia BREWSTER,** Programme Officer, Water Resources Branch (UN/DTCD). The training package was **completed** and **finalized** by **Ms Borjana BULAJICH,** Social Affairs Officer, UN/INSTRAW.

The audiovisual support material was prepared by **Ms Adelina GUASTAVI,** Programme Manager, **ILO Training Centre,** with the support of the Media Production of the ILO Training Centre in Turin, Italy. The training package was completed under the guidance of **Mr. Giulio PIVA,** Chief Training Operations, **ILO TRAINING CENTRE.**

The team would particularly like to express their appreciation to **Ms Lilian Moro** for her patience in the word-processing of this training material, and to **Ms Denise Zoccola** for the final desktop publishing layout.

The modules are conceived as a package containing all the information, examples, exercises, audiovisual and control aids necessary for:

- the **trainer** to deliver a lesson or conduct training activities;

and/or

- the **trainee** to analyse, reinforce and apply the theoretical concepts learned during training sessions;

and/or

- the **professional** as self-learning reference material to upgrade knowledge and skills related to effective integration of women in WSS sustainable projects and programmes.

In order to reduce the learning time and improve the learning efficiency, keeping high the motivation of the user, the text of the module contains only that information and activities considered essential for the achievement of the training objectives as specified in the following pages. Additional reading material is included for those users who wish to study in greater depth specific subjects related to the subject considered in this module.

From a pedagogical point of view, the structure of the modular package consists of five components – as specified on the following page – which are easily adaptable to the needs of both the trainer and the trainee.

1. *INPUT DOCUMENT*

1.1 Target groups

1.2 Objectives

2. *BODY OF THE MODULE*

2.1 Table of contents

2.2 Text

2.3 Additional reading

2.4 Bibliography

3. *OUTPUT DOCUMENTS*

3.1 Checklists on key issues for group work

3.2 Evaluation questionnaire

4. *TRAINER'S GUIDE*

4.1 List of training material

4.2 Lesson plan

4.3 Trainer's guide evaluation form

5. *VISUAL SUPPORT MATERIAL*

5.1 List of audiovisual support material

5.2 Transparencies

5.3 Sound/slide package "Women, Water Supply and Sanitation"

The trainer will make use of the five components indicated above, while the trainee will only be provided with the material related to components 1, 2 and 3.1.

- Senior officials of Ministries of Education, Health, Planning, Public Affairs, Social Welfare, etc.
- Development planners and provincial or local authorities in charge of water supply and sanitation projects and programmes.
- Engineers in charge of designing and implementing water supply and sanitation projects..
- Representatives of non-governmental organizations, including women's organizations, which are active in water supply and sanitation projects and programmes.
- Trainers and managers of national training institutes training staff on drinking water and sanitation technologies, health education, community development and women's programmes.

GENERAL OBJECTIVES

To enable the users to identify the UN activities, results, planned follow-up of the IDWSSD and the relevance of women's participation in sustainable water supply and sanitation projects and programmes.

SPECIFIC OBJECTIVES

On completion of this unit, the users will be able to:

- identify the main objectives and achievements of the IDWSS;
- recognize UN and INSTRAW activities for strengthening women's participation in WSS projects;
- understand why and how women's involvement is required for long-term success of sustainable water supply and sanitation projects;
- identify main issues for management development planning in water supply and sanitation projects and programmes;
- explain what priority areas have been selected for external support and what coordinating structures have been established.

Page

1. *INTRODUCTION: CONSEQUENCES OF INSUFFICIENT WATER SUPPLY AND SANITATION*

In 1980, over **1,800 million people** in remote rural areas and urban slums of the developing world **lacked safe drinking water** and even rudimentary **sanitation facilities. By 1990,** the number **lacking adequate drinking water supply way 1,200 million,** while those **lacking sanitation** was over **1,7000 million** (FA/45/327 Report of the Economic and Social Council, Assessment of the International Drinking Water Supply and Sanitation Decade, 1981-1990, Report of the Secretary General to the General Assembly, Forty-Fifth Session, 13 July 1990). This has obviously serious consequences, not only for people's well-being, but also for health and economic development.

a) **Health. Every year,** over **13 million children die** in the developing countries. The absence of reliable water supply and sanitation services, and sometimes inadequacies in such services continues to play a major part in this loss. **Diarrhoeal diseases,** arising mainly **from insufficient clean water and poor sanitary conditions,** account for nearly one third of all child deaths. In addition, nearly one half of the population of the developing countries is infected with one worm or another. Many skin and eye diseases are water-related and can be traced to shortage of water for personal hygiene.

b) **Time and energy . The economic and social costs of the lack of safe drinking water are high.** In certain arid and semi-arid parts of the world it is not uncommon to find a household where someone has **to spend** more than **six hours,** and half of her **daily** energy **in collecting water from sources far away.** In such circumstances, it is usually women and children who suffer most. Instead of a journey to school, the day begins with a long, difficult journey to fetch water. Ironically, the water that is obtained even after this painstaking labour may not promise life. When it is polluted, such water may bring disease and even death. Significant loss of school attendance because of water-related diseases constitutes a further social cost of these backward conditions (*Elmendorf, Mary L. and Iseley, Raymond B., (1983). Public and Private Role of* Women in Water Supply and Sanitation Programmes. Human organization, 42, 3.)

In the total package of daily activities, **water collection** is often one of the **most time-consuming domestic chores.** The heavy work involved may take much of women' daily energy intake. The average proportion of energy spent on water collection found in a study in East Africa varied from about 12% in humid areas to 27% or more in dry or mountainous areas. Carrying a load uphill was found to be the most energy-consuming task of a group of women studied in rural Guatemala. These energy demands come in addition to requirements for other purposes, such as the 35% energy intake needed for breastfeeding. The time and effort spent by women in water collection can affect socio-economic and health conditions in many ways. Many studies have reported that because of heavy workload and/or conflicting economic demands, women have had to reduce time spent in food preparation, boiling water, and child care, including breast-feeding. Others have reported how domestic demands at peak periods were the major constraint to agricultural production output, for example, in

Tanzania, Zambia and the Gambia. One of the peak periods for women's labour, the planting season, has been found to coincide with peaks in the incidence of diarrhoeal diseases, because of poor water and sanitation (van Wijk-Sijbesma,C.(1985). Participation of Women in Water Supply and Sanitation: Roles and Realities, The Hague, IRC and PROWWESS/UNDP, p.18.).

c) **Productive use of time savings.** Review of traditional water supply and sanitation shows that **women** are the **main beneficiaries of time and energy gains from improved facilities,** whether for child care, cooking and household hygiene, local education and community development activities, or agricultural and income-generating activities. A cross-cultural study in Nepal, for instance, found that women contribute 50% of the total household income, men 44% and children 6%. Rural women in developing countries produce 50% of the family's food. In sub-Saharan Africa, and South-east Asia, their contribution is as much as between 70 and 80%. In addition, studies of women's time budgets indicate that time saved as a result of shorter water collection trips is often used productively. Studies in Lesotho, Mozambique, and Burkina Faso indicate that time and energy reductions benefit firstly household activities, such as cleaning and cooking, and time spent with the children. Frequently, the women themselves also mentioned these as being important benefits. In addition, time savings are used for activities in women's organizations and community development, for example in Central Kenya, and where pre-conditions are right, for income-generation.

d) **More water for family health.** With **a closer water supply,** women have also reported **more frequent trips.** Thus in their view, the total amount of time spent on water collection had not been reduced. However, they did not consider the loss of assistance in water collection e.g. from their children, as negative. They valued the reduced demand on their children's time (Kenya) and their increased school attendance (Guatemala). Similar benefits have been mentioned by villagers in Botswana. Also, more frequent trips may result in more water being collected, which contributes to better hygiene and ultimately to improved health. This in turn may also reduce health costs to the family and the national economy. For example, it is estimated that in Thailand alone, 100,000 tons of rice are lost annually because of the high incidence of ascariasis and the consequent loss of labour. In India, 73 million working days are lost annually to water and sanitation related diseases. For individual households, a high incidence of disease may mean investing as much as 30% of their income on health care, as found in a preliminary study in Thatta, Pakistan. (Singh, Andrea (1983). Employment opportunities for rural women through organization. New Delhi, India, ILO).

e) **Water and women's work.** As part of the domestic domain, the use of water and time and energy gains, and the preservation of family health rests for the greater part with the women of the households. In many rural areas women are actively involved in agriculture, particularly in foodcrop production, food processing, and animal care. Here, and also in low income urban areas, their work, though as yet rarely included in official statistics on a country's GNP, contributes considerably to the total income of the family.

Conflicting demands on their time and energy, e.g. at agricultural peak times, have forced women to either economize on household work, such as cooking, water collection, hygiene and child care, or to reduce agricultural work, such as weeding, with subsequent reductions in crop production. A household survey in Laguna, Philippines, revealed that in order to earn additional income for the family, women reduced time for child care by more than three hours a week. Older siblings took over their mother's tasks, but the nutritional status of these infants was found to be significantly lower. (Popkin, B. (1980). "Time allocation of the mother and child nutrition". Ecology of Food and Nutrition, 9, p. 1–14.)

Multidimensional aspects

Like all development problems, **the issue of water supply and sanitation is thus multidimensional.** The problem lies not only within the **socio-economic spheres,** but also in the **technical, health and environmental spheres.** Moreover, all these areas are interconnected; a problem that exists in one will very often influence circumstances in the others.

The use of surface water resources for drinking water supply, for example, relates directly to the geographic location of rivers and lakes. These resources are generally highly vulnerable to pollution, and require at least minimal treatment in order to be safe for human consumption. Most drinking water supply relies on ground water, which does not present these problems to such an extent, since groundwater is generally easier to pretest against chemical and bacteriological pollution. However, the construction of a productive well requires considerable knowledge of the prevailing hydrogeological conditions in a given area and especially in arid or semi-arid regions. Without adequate preliminary studies, the drilling of dry wells represent a serious economic loss. In Subsaharan Africa, for example, a borehole of 60 metres costs, on average, US$ 6,000 - exclusive of tubing and handpumps. The lack of required maintenance, or an insufficient evaluation of water resources, can lead to the disfunctioning of wells after only a few months of service. This can have severe health and psychological consequences for a village whose population will, under such circumstances, revert to its original sources of water supply which are often distant and/or polluted.

The seriousness of the problems involved in the area of water supply and sanitation **are alarming** and the demand for those types of service is growing tremendously. Moreover, the financial resources required to face the problems are of great magnitude. **These points lead to other pertinent questions,** namely:

1) how to manage those types of complex development problems given the multiplicity of issues involved?

2) who determines what the priorities are?

3) how coordination among various parties concerned will be achieved?

The approach to water supply and sanitation is therefore increasingly a **multidisciplinary** one, involving different institutes, organizations and disciplines in one programme, or linking existing programmes and institutes through special arrangements.

Maintenance and financing: as main beneficiaries of improved services, **women, when given the required influence, functions and training, have actively stimulated local operation and maintenance,** and are known to have used extra income generated or controlled by them for installing or preserving improved water supply, sanitation and hygiene facilities;

Health benefits: health benefits of water and sanitation projects cannot materialize without active involvement of women. It is they who decide on use, preserve sanitation and hygiene, educate children and communicate with other women on health and family matters. Hygiene education programmes can only be successful if adapted to what women want and can do.

Economic and social development: Water collection can take much of women's and children's time and energy. Many documented cases show how this has negatively affected agricultural production, especially food crops, of which women produce between 50 and 80 percent, as well as domestic work and child care. Among **project benefits** reported by women are **more time and energy for domestic and economic work,** for involvement in women's groups and community development activities, and for additional income generating activities in those areas where the other necessary conditions and inputs for income generation are also present.

Preservation of water resources and environmental conditions: Growing water scarcity and environmental degradation have serious impacts on women, who are forced to go farther and farther for the family's basic needs of water, fodder and firewood.

Management of local water sources, afforestation of watersheds and prevention of the contamination of local water systems are typical areas where interests of women and development planners go hand in hand, and in which women have already played constructive roles at neighbourhood, community and area level.

2. *INTERNATIONAL DRINKING WATER SUPPLY AND SANITATION DECADE (IDWSSD)*

2.1 Origin and purpose

The importance of providing safe and adequate drinking water and sanitation has gained increasing international attention since the 1960's. In 1961 the Charter of Punta del Este recommended targets to be reached by the Governments of Latin America for the

period 1960-1970. In 1970 the General Assembly of the United Nations adopted Resolution 2626 (XXV), which stated that each developing country would endeavour to provide an adequate supply of potable water to a specified proportion of its population, both urban and rural. In 1976, HABITAT, the United Nations Conference on Human Settlements at Vancouver, Canada, recommended that quantitative targets should be established for safe water supply and sanitation. Subsequently, the **United Nations Water Conference held at Mar del Plata, Argentina,** from 14 to 25 March 1977, in its Resolution II recommended that:

- **national development plans** give priority to improved water supply and sanitation for the entire population, and also encourage and support efforts from local voluntary organizations;
- **governments reconfirm** their commitment made at Habitat to adopt realistic standards for quantity and quality;
- **nations prepare programmes** and plans for increased coverage, expansion and maintenance of existing systems, institutional development and human resources utilization, and identification of the required resources;
- **the UN agencies coordinate** their work efforts to help Member States, when they so request, in the above-mentioned work;
- **programmes and plans are reviewed** by an appropriate and already existing mechanism selected by the Economic and Social Council of the United Nations;
- **appropriate external assistance** is made available for building, operating and maintaining the systems;
- the formulated Plan of Action is implemented in a coordinated manner (United Nations (1977). Report of the United Nations Water Conference, Mar del Plata, 14-25 March 1977 (United Nations publication, Sales No. E.77.II.A.12), Resolution II.).

In accordance with the Plan of Action, the Water Conference recommended that the period 1981 to 1990 be designated the International Drinking Water Supply and Sanitation Decade, and to devote it to implementing the national plans for drinking water and sanitation.

The Decade was officially **launched by the UN General Assembly on 10 November 1980** at a one-day special meeting during **its thirty-fifth session. Resolution 35/18** stated that "during the Decade, Member States would commit themselves to bring about a substantial improvement in the standards and levels of services of water and sanitation by the year 1990". The Resolution also **called upon governments** to:

- develop the necessary policies and set the targets;
- set sufficiently high priorities, and mobilise adequate resources to achieve their targets;
- strengthen their institutional frameworks and mobilise the necessary expertise at all levels; and
- heighten popular awareness and support through education and public participation.

The **basic principle** underlying the International Drinking Water Supply and Sanitation **Decade** is that **people cannot achieve a quality of life consistent with human dignity unless they have access to safe drinking water and sanitation facilities,** and that such access is therefore a basic human right.

Further, the Assembly called upon governments, groups, organizations and bodies of the United Nations System and other inter-governmental and non-governmental organizations to continue and, if possible, increase their technical and financial co-operation with developing countries, and co-ordinate their activities. The General Assembly also decided to review, at its fortieth session, the progress made towards the attainment of the national and international goals of the Decade.

2.2 Progress and strategies

The **Decade is not a single decade,** but it comprises as many decades as there are countries committed to it. The achievements of the Decade cannot be measured in relation to one single global standard, but against the progress each country achieves in dealing with the complexities of providing drinking water and sanitation in accordance with the targets it has set for itself. In accordance with the recommendations of the Mar del Plata Action Plan, the strategies to be followed during the Decade accord priority to the rural and urban populations that are inadequately served, the formulation and implementation of self-sustaining programmes that emphasize self-reliance, the use of socially appropriate systems, the involvement of the community in all stages of programme development and the complementarity of water supply and sanitation programmes with health and other development programmes.

3. UNITED NATIONS ORGANIZATIONS AND MECHANISMS IN THE DECADE

3.1 INSTRAW: Status, goals and functions

The United Nations International Research and Training Institute for the Advancement of Women (INSTRAW) was established in 1976 by the UN Economic and Social Council Resolution 1998 -(LX of 12 May 1976), in conformity with an earlier decision of the (General Assembly Resolution 3520 (XXX) of 15 December 1975) on the recommendation of the World Conference of the International Women's Year, held in Mexico in 1975.

The **objective of the Institute,** an autonomous entity within the framework of the United Nations, **is to stimulate and assist the advancement of women** and their integration in the development process, **through research, training, and collection and dissemination of information.** The Institute is to assist the efforts of intergovernmental, governmental and

non-governmental organisations in this regard. Accordingly, **the principal functions of the Institute are:**

1. a research and studies programme which pays particular attention to the problems facing women in developing countries and to the integration of women in the formulation, design and implementation of development activities at all levels;

2. training programmes, including a fellowship programme and advisory services, aimed at raising awareness on women and development issues, enhancing equal participation of women in all aspects of economic and social development, and promoting the acquisition of new skills.

3. a system of information, documentation and communication on women and development issues so as to enable the Institute to respond to the need for world-wide dissemination of information.

In view of its catalytic role, INSTRAW develops and utilizes networking, as appropriate, in carrying out its functions at the international, regional and national levels.

The Institute carries out its activities in close collaboration and co-ordination with institutes, organizations and other bodies within and outside the United Nations system.

3.2 Steering Committee and Inter-Agency Task Force on Women

In reference to the resolution of the United Nations General Assembly, a Steering Committee for cooperative action on the IDWSSD was created by the Administrator of the United Nations Development Programme (UNDP) and the Director General of the World Health organization (WHO). It was originally established with seven United Nations bodies as members and then was expanded to 11 bodies working in the water supply and sanitation sectors. Functions of the Committee include serving as a regular forum for review and policy development; developing a coordinated approach to orientation and management of individual programmes; and preparing agendas, guiding preparation and reviewing documentation for consultative meetings.

As certain Decade aspects were identified to require greater and more careful consideration, the Committee established special Task Forces. These concerned human resources development, project formulation, public information and exchange of technical information.

The importance of involving women in water and sanitation projects was stressed by the Copenhagen Conference designating the end of the International Women's Decade (World Conference of the United Nations Decade for Women: Equality, Development and Peace, Copenhagen, 1980) Resolution 25 was entitled the International Drinking Water Supply and Sanitation Decade and called on member states and United Nations agencies including specialized agencies to "promote full participation of women in planning, im-

plementation and application of technology for water supply projects". The UN General Assembly responded by adopting a resolution entitled Effective Mobilization and Integration of Women in Development at its launching of the Decade (United Nations General Assembly. Thirty Fifth Session). Nevertheless, the question of women and water and sanitation was not duly addressed until the ninth meeting of the Steering Committee in April 1982. At that meeting the Committee acknowledged and endorsed the important role women could play in the implementation of the IDWSSD objectives, and decided to establish an action-oriented Inter-agency Task Force on Women and the IDWSSD.

a) Task Force on Women

The secretariat of the Task Force is held jointly by INSTRAW and PROWWESS (previously INSTRAW and UNICEF). Membership started with 9 UN organisations, and has since expanded to 11: UNDP (Chair), WHO , ILO, INSTRAW (Secretariat), FAO, UNCHS, UN DIESA, UNDTCD, UNESCO, UNICEF and World Bank.

Terms of reference of the Task Force are: a) to develop a strategy for the enhancement of the role of women within the IDWSSD; b) to assist in activities in support of the Decade programmes in relation to the role of women; c) to act as a mechanism for collaboration in the development and implementation of activities at international and national levels; and d) to monitor, evaluate and report on implementation of Decade policies and programmes related to women in order to ensure that they adequately reflect the concerns, needs and contributions of women and recommend further action in this regard.

The plan of action for the Task Force seeks ways and means of implementing these terms of reference. Based on the terms, it coordinates and encourages individual and joint actions among agencies, and suggests activities in accordance with their mandates.

b) Activities on women's involvement

Activities carried out by members of the Inter-Agency Task Force on Women and the IDWSSD include:

- A special UNDP project, Promotion of the Role of Women in Water and Environmental Sanitation Services (PROWWESS), started in 1983 with financial support from the Governments of Norway, Canada, Finland and the US, and from UNDP. Activities include projects, training of trainers, and publications;
- Interregional Seminar on Women and the IDWSSD, organised by INSTRAW and the Government of Egypt, in Cairo, 12–16 March 1984. Topics included health and sanitation; science and technology; and socio-economic development. The final report and proceedings of the seminar were published and disseminated;
- A panel convened by UNICEF and INSTRAW on "Women and Water Supply and Sanitation" during the World Conference on the achievements of the United Nations Decade for Women, in Nairobi, Kenya July 1985.

- A Regional Seminar on Women, Health and Development, organised by the Pan American Health Organization, in Washington, U.S.A., 30 April–4 May 1984;
- Training packages on Women, Water and Sanitation (the current modules) prepared by the ILO/Turin Centre and INSTRAW with support from the Government of Italy, June 1986.
- Five national training seminars on "Women, Water Supply and Sanitation" organized by INSTRAW, UN agencies and national governments and held in Nairobi, Kenya, 9–13 November 1987; Addis Ababa, Ethiopia, 23–28 November 1987; Kadugli, Sudan, 16–21 January 1988; Mogadiscio, Somalia, 13–18 February 1988; Lagos, Nigeria, 10–16 May 1988, and attended by technical social staff and policy staff from planning and implementation levels. Reports from the seminars are available upon request from INSTRAW.
- An Interregional Training Seminar organized in Bangkok from 23–27 January 1989 by INSTRAW and ESCAP, with participants from Water and Health Departments and Agencies of 15 Asian countries: report available from INSTRAW.

In addition, the Task Force on Women in Development of the United Nations Department of Technical Co-operation for Development (the oldest such entity in the United Nations System) has, as its primary objective, the full integration of women into all aspects of the development process.These and many other activities have all played a role in achieving the present results of the Decade.

4. ROLES OF WOMEN IN WATER AND SANITATION PROJECTS

4.1 Criteria of successful projects

In IDWSS Decade initiatives, great emphasis has been placed not only on an increased coverage of both urban and rural populations, but also on maintenance and expansion of completed systems, on systems being socio-culturally adequate, on community participation and involvement of women as indispensable components for both social relevance and maintenance, on integration of water supply, sanitation and hygiene education, and on institutional development at all organizational and community levels. As a result of this broadened view on development of water supply and sanitation infrastructure, **successful water and sanitation projects and programmes are considered those whose facilities:**

1. reach all or almost all people in the area, especially the unserved;
2. continue to function reliably and adequately;
3. are actually used by all households in a consistent and hygienic manner;

4. promote a sufficient and safe use of water for consumption and hygiene, and hygienic latrine use;

5. are expanded over time to meet population growth;

6. strengthen local capacities to sustain both facilities and hygiene practices, and continue local development Adapted from: Narayan-Parker, Deepa (1989). Goals and indicators for integrated water supply and sanitation projects in partnership with people. (New York, PROWWESS/UNDP)

4.2 Relevance of women's involvement

It is generally agreed that the **main issue related to women and water supply and sanitation** is not the incorporation of women in water supply and sanitation, as they are already active participants. Rather, it is necessary **to make** women's **participation more effective, easier and more productive. Women are carriers of water, managers, users, family health educators, motivators and agents of change.** They are responsible in this regard not only for themselves, but also for the members of their families and the community at large. The extent of their involvement, however, as well as the consequences, are virtually unknown either to the general public or to policy-makers and planners.

Within the context of socio-economic development, **three areas confront women** with special considerations. These are **community participation, perception and social values, and institutional framework.**

The involvement of women in water supply and sanitation falls mainly within the framework of community participation. The people, their culture, behaviour and values are important in the planning of any water supply and sanitation system. Because planners often overlook these considerations, improved systems usually fail to gain acceptance by the community. Moreover, a sense of ownership is a major element in gaining community participation, rather than focusing only on the community's material and labour contribution.

Taking a larger view, it must be realised that **unless women are perceived as an integral part of the income-generating labour force, much of the potential** that can be generated from the time and energy economised may be wasted for the community. Similarly, the potential for benefits that can accrue from increased hygiene and sanitation may not be forthcoming unless these aspects are recognised and incorporated into water supply and sanitation projects in accordance with the very specific role that women play as producers and users, especially as mothers and housekeepers.

With regard to perception and social values, in many developing countries perceptions and social values are not conductive to accepting the changing role of women, let alone to permitting them to take part in planning and managing water and sanitation projects.

Lack of education and training also **confronts women** with obstacles to more effective participation in **water supply and sanitation projects.** In this respect, studies have shown that high level community participation in a number of countries was perceived to be the result of high literacy rates.

Another major constraint to improve water supply and sanitation in developing countries and the role of women therein can be identified as **deficiencies in the institutional and policy-making frameworks.** In some countries there is no appropriate institutional framework to plan, programme, implement and monitor activities for the IDWSSD, while in others there is duplication and overlap of authority among existing institutions. Although special machineries on the role and status of women which have been established in many countries and undertaken many successful activities, they run the risk of isolating women's needs from national development priorities. Women's issues need to be treated as an integral part of all socio-economic and cultural development activities and programmes including water supply and sanitation.

Women are the **main suppliers of water,** and as such are the natural associates of staff and managers of water supply and sanitation projects and programmes. **They** usually **have** the strongest felt **need for better facilities,** and, provided they are informed and consulted by the projects, will strongly support and often physically contribute to the installation and maintenance of improved facilities. Moreover, long experience with water collection and waste disposal has given women much practical knowledge on local conditions and practices and the environmental socio-cultural and economic reasons underlying them. When tapped, this knowledge has not only contributed to lower construction costs, e.g. by identifying suitable water sources, but also to a better functioning and use through information on reliability and acceptability of the system, and to more efficient and relevant hygiene education programmes.

Being the main beneficiaries of improved water and sanitation, women, when **given the chance, also greatly support the maintenance and repair of the improved facilities,** and are known to have used extra income generated by them to support agency or community efforts towards this purpose. Much however depends on the efforts undertaken by the project to build up local institutional capacities for operation, maintenance and financing, and the degree of expertise used to include women in this process.

As domestic managers, women further determine whether they will actually use the new facilities and will teach their children how to use them. Often, when none or only partial use was realized or no improved hygiene practices were achieved, it was found that the women had very good reasons for this behaviour. It was not the women who were to blame for this, but rather the projects, which were insufficiently adapted to their needs, concepts and possibilities. (Van Wijk-Sijbesma, C. op cit. p. 41–44).

4.3 Present problems

Despite their important and multiple roles, **women** are currently **not adequately involved in water supply and sanitation activites. Present problems** include the following:

a) Not enough attention has been given to women as the primary human resource and the ultimate users of water. Women's work in water portage, storage and sanitation are taken for granted in societies and not recognised as issues of concern or given an economic and social value. Most women do not have enough water for daily needs; even where it is in short supply, it might be polluted and cause ill health.

b) Women are often excluded from the planning, implementation and evaluation of water and sanitation projects.

c) Water supply and sanitation programmes lack elements of communication and information on women and the relation between water/sanitation and health, and on the complementary health practices which must be introduced if improved water supply and sanitation facilities are to have an impact on general health.

d) Water supply and sanitation technologies often do not take into consideration cultural context and level of know-how of the communities to which they are introduced. In addition they are not cognisant of women's needs, interests and skills.

e) Lack of consultation with women regarding technical aspects leads to improper design or inadequate attention to details (e.g. pumps with handles too heavy, or handles placed at the wrong height for women and children to operate) and impractical solutions.

f) Local women's customs, preferences and traditions are not considered in choosing the technical design and location of projects. For example, because women may prefer not to use safe groundwater (e.g. with a high iron content) for practical reasons or pipe water, they might not have any choice but to use polluted surface water.

g) Insufficient provision is made for maintenance and repair of the systems, which are areas of crucial importance where women's involvement can be extremely valuable.

h) Social development programmes, especially improved hygiene and sanitation projects, are not designed with an integrated approach which involves all members of the family.

i) When in community activities women's roles therein are ignored, the project's implementation and success is jeopardised.

4.4 Possible solutions

In response to the need to find ways and means to enhance women's role in water supply and sanitation, **maximum efforts should be made at all levels**, international, regional and national, **to secure the incorporation of issues** relevant to women in water supply and sanitation related activities.

The multi-sectoral nature of water supply and sanitation activities involving women **requires appropriate coordination among the national institutions and authorities involved in water supply**, health, sanitation, agriculture and rural **development programmes**, as well as bodies in charge of **education and training.** Appropriate coordinating bodies at the national level should be made instrumental in the coordination between responsible ministries. National machineries for the advancement of women should assist and be consulted for securing pragmatic action at the national level.

In general, the following areas can be underlined as those leading to possible solutions to the problems of water supply and sanitation and the role of women therein:

- **extension of water sources** where not available;
- the **importance of community participation** at all levels, including the grass-root level;
- **raising awareness** and sensitisation of public opinion to the problems;
- **training,** particularly in the area of equipment maintenance and primary health care;
- **education,** whether formal or informal;
- **appropriate choice of technology,** working in harmony with the developing society;
- **importance of planning** of activities involved in water supply and sanitation and connection to the overall planning process;
- determining relevant methods of **management coordination, implementation** and follow-up.

5. DECADE ACHIEVEMENTS

Despite difficult economic circumstances and growing budgetary constraints at both national and international levels, much **progress** has been **made** and valuable experience gained on a period of **ten years time.** Perhaps the **most important achievement of the Decade** as a whole is the insight that water supply and sanitation **projects are more than bringing water** from A to B for a design population of X people and **installing** Y number of latrines. Recognition has spread that installing hardware by itself does not meet Decade objectives, but that new facilities must also meet certain standards on quality of functioning and degree and quality of utilization, and must stimulate local development. (See Additional Reading) In more concrete terms, **Decade achievements** include the **following**:(United Nations Economic and Social Unit (1990). Achievements of the International Drinking Water Supply and Sanitation Decade 1981–1990. Report of the Secretary General):

a) Improved sector planning

National sector plans have been established and concrete objectives set, at least for coverage of water supply and sanitation in both urban and rural areas. In addition, sector coordination mechanisms have been created almost everywhere, although most of them are restricted to an advisory function.

b) Partial achievement of coverage targets

Coverage targets have been only partially attained with better performance in the water supply and urban sub-sectors. 40% of a sample of African countries, for example, are expected to attain their objectives for urban water supply by the end of 1990.

c) Increased and changed financing

Between the periods 1981 and 1988, total annual funding for water supply and sanitation increased over 58%, from approximately $ 820 million at the start of the Decade to around $ 1300 million in 1988 (in constant prices). In 1988, 65% of these funds came from the developing countries themselves, with variations ranging from 90% in western Asia to 25% in Africa. External support during the Decade doubled from about $ 2200 million in 1980 to $ 4500 million in 1988. A notable change was the increased funding for non-technical components: institutional development, management improvement, community participation, involvement of women, etc. The number of externally-funded projects in these areas increased by around 140%, with an increase in funds of 300%. The increasing costs of operation and maintenance also saw changes in cost financing. Both user payments and community-managed systems have become more accepted and innovative approaches are increasing.

d) Community awareness and the promotion of women's participation

At the start of the Decade, involvement of the communities was limited to voluntary labour in construction and, sometimes, maintenance ("voluntary caretakers"). This has shifted to involving communities also in the local planning of systems, technology choices, implementation activities, local maintenance and financing systems and local hygiene improvement programmes, and in creating technical and managerial capacities to carry out local tasks. More recently experience has shown that, for continued functioning and use and improved hygiene, women are valuable project partners whose participation in local planning, maintenance, management and hygiene education contributes considerably to the efficiency and effectiveness of water and sanitation projects.

e) Appropriate and affordable technology

A wide range of lower-cost technologies, from handpumps and pour-flush and VIP-latrines to slow sand filters and small bore sewers have been improved, tested and implemented, showing that they can serve more people with the same budgets, and are suitable for village-level operation and management of maintenance (the VLOM principle). The number of low-cost technology projets has increased by 600% since the start of

the Decade, although they are financed by only a small proportion (4%) of total external funding.

f) Institutional development

New technologies and strategies, such as community participation, women's involvement and integrated projects, as well as ongoing needs for human resources development, have increased the demand for institutional development projects. The number of externally funded projects focusing on institutional aspects has increased greatly. Towards the end of the Decade, allocations for such projects accounted for over 40% of all external funding.

g) Mobilization of the private sector

The Decade has seen a gradual shift towards the private sector which, given sufficient control, has in general contributed towards a greater cost-efficiency and effectiveness. Examples are the contracting out of drilling and surveying activities, the leasing of equipment, and the establishment of autonomous water supply and sanitation organizations. Non-governmental organizations and autonomous community organizations and user groups have also achieved greater recognition as suitable partners in establishing and operating cost-effective services.

6. PLANS AND ACTIONS FOR THE 1990s

Although the Decade has resulted in valuable progress, the aims and strategies formulated in the Mar del Plata Action Plan are as valid today as they were in 1977. Moreover, if targets are to be fulfilled, the programmes established during the Decade need to be further strengthened and accelerated. Table 1 shows that with the continuation of the current implementation rate, improvements will be made in only 10 areas, while remaining static in 3 areas, and actually worsening in 7 areas. Major improvements are expected in the provision of rural water supply and rural sanitation services in all developing regions, while in urban areas water supply and sanitation services are expected to reach a lower proportion of the population in both Africa and Asia by the year 2000.

6.1 Key issues in technology and finance

Since large increases in sector funding are unlikely, there is clearly a need to make more efficient and effective use of available budgets, reducing costs and raising outputs and performance levels. The following are some of the key issues identified for work in the 1990s Kalbermatten, J. and McGarry, M. (1987). Beyond the Decade. International Drinking Water Supply and Sanitation Consultation, Interlaken, Switzerland, October 13–14., Watters, G. (1989). Decade Assessment Report. 8 September 1989).

Table 1 **Water supply and sanitation coverage by region, 1980–1990, and coverage for 2000 at current rates of progress**

(Population in millions)

Region/sector	1980				1990				2000			
	Population	Coverage	No. served	No. unserved	Population	Coverage	No. served	No. unserved	Population	Coverage	No. served	No. unserved
Africa												
Urban water	119.77	83	99.41	20.36	202.54	87	176.21	26.33	332.49	76	253.01	79.48
Rural water	332.83	33	109.83	223.00	409.64	42	172.05	237.59	496.59	47	234.27	262.32
Urban sanitation	119.77	65	77.85	41.92	202.54	79	160.01	42.53	332.49	73	242.17	90.32
Rural sanitation	332.83	18	59.91	272.92	409.64	26	106.51	303.13	496.59	31	153.11	343.48
Latin America and the Caribbean												
Urban water	236.72	82	194.11	42.61	324.08	87	281.95	42.13	416.79	89	369.79	47.00
Rural water	124.91	47	58.71	66.20	123.87	62	76.80	47.07	122.84	77	94.89	27.95
Urban sanitation	236.72	78	184.64	52.08	324.08	79	256.02	68.06	416.79	79	327.40	89.39
Rural sanitation	124.91	22	27.48	97.43	123.87	37	45.83	78.04	122.84	52	64.18	58.66
Asia and the Pacific												
Urban water	549.44	73	401.09	148.35	761.18	77	586.11	175.07	1,085.56	71	771.71	314.43
Rural water	1,823.30	28	510.52	1,312.78	2,099.40	67	1,406.60	692.80	2,320.79	99	2,302.68	10.11
Urban sanitation	549.44	65	357.14	192.30	761.18	65	494.77	266.41	1,085.56	58	632.40	453.16
Rural sanitation	1,823.30	42	765.79	1,057.51	2,099.40	54	1,133.68	965.72	2,320.79	65	1,501.57	819.22
Western Asia												
Urban water	27.54	95	26.16	1.38	44.42	100	44.25	0.17	67.26	100	67.26	0.00
Rural water	21.95	51	11.19	10.76	25.60	56	14.34	11.26	30.66	57	17.48	13.18
Urban sanitation	27.54	79	21.76	5.78	44.42	100	44.42	0.00	67.26	100	67.26	0.00
Rural sanitation	21.95	34	7.46	14.49	25.60	34	8.70	16.90	30.66	32	9.94	20.72
Global totals												
Urban water	933.47	77	720.77	212.70	1,332.22	82	1,088.52	243.70	1,902.10	77	1,456.27	445.83
Rural water	2,302.99	30	690.25	1,612.74	2,658.51	63	1,669.79	988.72	2,970.88	89	2,649.33	321.55
Urban sanitation	933.47	69	641.39	292.08	1,332.22	72	955.22	377.00	1,902.10	67	1,269.05	633.05
Rural sanitation	2,302.99	37	860.64	1,422.35	2,658.51	49	1,294.72	1,363.79	2,970.88	58	1,728.80	1,242.88

Source: United Nations Economic and Social Council (1990). Achievements of the Decade 1981–1990. Report of the Secretary General, 13 July, p.20.

TURIN CENTRE
UN INSTRAW
UN DTCD

WOMEN, WATER SUPPLY AND SANITATION (WWSS)
MODULE 1 – THE INTERNATIONAL DRINKING WATER SUPPLY AND SANITATION DECADE (IDWSSD) AND BEYOND
2.2 TEXT
Ed. 02/1991 May 1991
22/82

a) Improved maintenance at lower cost

The growing number of systems, many of them small and spread over increasingly wide areas, has considerably increased maintenance problems and costs. Measures to contain costs and improve performance are urgently needed if systems are to continue to function and be used, and if investments are to yield their value. Especially in small systems, the involvement of communities and women in the planning and execution of local maintenance and management activities can lead to better functioning at a lower agency cost, assuming adequate community involvement methods and sufficient back-up support.

b) Flexibility in technologies and service levels

To ensure that completed systems can be sustained, the choice of technologies and service levels will, more than before, need to be more realistic in relation to what agencies and communities are able and willing to support. Clearly there is a difference between what a large, semi-urban community with a cash economy and good communications wants and can sustain, and what is possible to fill the needs of a small and isolated village with a subsistence economy. A rule of thumb formulated by the World Bank is to "give the community the highest service level that it is willing to pay for, will benefit from, and has the institutional capacity to sustain" The handpump option. Washington, World Bank.). In case this level is higher than defined in a country's national design criteria, beneficiaries may have to meet any extra costs involved in obtaining above-standard service levels. (Van Wijk, C. (1989). Sustainability and Community Management. Paper presented at the Sector Day on sustainability of the water supply and sanitation sector, The Hague, DGIS, 8 December.).

c) Decentralization

Working directly with users and user groups in rural and low-income urban areas requires different structures, procedures and skills than those found in centralized institutions dealing with the wealthier and more commercial areas of towns and cities. Decentralization which transfers responsibility and authority to the field and involving counterparts as partners and not as dependant beneficiaries, have been predominant elements in successful projects. This means that, although policy and programme planning takes place at the centre, project decisions are made in the field, in association with partner communities. While it is often difficult for those in highly centralized agencies to transfer the decision-making responsibility to the field, direct problem-solving and support from within the community can be achieved far more efficiently by the partnership approach.

d) Participatory methods in working with people

Having the mandate to work directly with the users does not automatically give field staff the required skills and scope to work as partners in water and sanitation activities. (Re)training technical and other staff (health, social development) in using participatory working methods instead of directive and didactic approaches, and the adaptation of job

descriptions, working procedures and performance criteria will be required if community participation and women's involvement are to pass the rhetorical stage.

e) Financing of recurrent costs

Even with lower costs for investments and maintenance, increasingly large resources must to be found to maintain and expand existing systems and build new ones. It is becoming apparent that the difficulties in levying charges and collecting payments for water and sanitation systems are frequently related to weak institutional systems and a failure to meet the needs and expectations of the users. Moreover, in many rural and peri-urban areas, conventional payment and administration systems are rarely suited to local income and payment patterns. User choice in the selection of affordable technologies and appropriate financing systems, and training of local treasurers (who are often women) in financial administration and accountability are therefore prime areas of recent development.

f) More effective forms of hygiene education

One of the achievements of the Decade has been the relationship between sanitation, hygiene education, and water supply. Only the combination of increased water supply with safe sanitation and improved hygiene can ensure the reduction of water and sanitation related diseases. Unfortunately, many hygiene education programmes are still limited to transferring general health knowledge and giving instructions on hygiene. These approaches, while not without value by themselves, seldom lead to a reduction in local hygiene risks and improvement of hygiene practices. More cost-effective hygiene education methods, such as those assisting local men and women to identify their own problems and realize appropriate solutions, are clearly needed to supplement the more technical water supply and sanitation programmes.

g) Reducing the gap in sanitation

Health benefits can seldom materialize without safe sanitation. This means that in the years to come, efforts in sanitation improvement need to be strengthened considerably. There is a particular need for more cost-effective latrine programmes – sufficiently affordable, desirable and appropriate facilities adopted, maintained and used by even the lowest income groups, yet not so highly subsidized that they cannot be replicated or sustained on a large scale. Nor should water supply projects bring new health hazards by introducing new breeding places for insects or hookworm. Waste water disposal should therefore be an integral part of the design, implementation and management of all water and sanitation projects.

6.2 Areas for major support

To deal with these and other issues emerging from the experiences of the Decade, **six major support areas** have been identified **for the future.** These are:

- Support in the establishment or **strengthening** of suitable national institutional structures;
- **Support** in the continued assessment of personnel needs, and the development of **human resources development** programmes;
- **Support** to applied research on, and promotion of, low-cost technology programmes, particularly in developing countries, with emphasis on **Technical Cooperation among Developing Countriess** (TCDC), and **dissemination and exchange of information** amongst the scientific community in developing countries;
- **Support,** through the provision and **strengthening of clearing-house mechanisms,** for technical and other relevant sector information;
- **Support to the integration of water supply and sanitation programmes and projects with rural development,** agricultural, irrigation, employment generation, poverty alleviation, health promotion and other related programmes;
- **Support to formulation and implementation of policies** designed to increase the availability of national financial resources for water supply and sanitation programmes through innovative approaches to funding, with **priority** being **given** to expanding services to the **rural and urban poor,** and mobilization of increased financial resources of the external support community, with particular emphasis to the least developed countries, and sub-Saharan Africa.

For these purposes, a number of coordinating and support mechanisms have been created to make external support agencies (ESA's), in particular, respond more closely to the needs of the sector and achieve a better mutual coordination of their activities. These mechanisms are introduced and discussed in more detail in section 6.4 of this module.

6.3 Strengthening women's involvement

As the post-Decade cannot do without the valuable resources of half of the adult population, the strategies for the 1990s include a considerable strengthening of women's participation in domestic water supply and sanitation activities. The proposed action plan is contained in a document of the Inter-Agency Task Force on Women, and IDWSSD.

Three **key actions** recommended by the Task Force are:

- to **include software specialists** (i.e. specialists in community participation, hygiene education and involvement of women) **in project preparation teams;**
- **in the project preparation phase, to identify suitable institutions to design** and implement activities for community participation, hygiene education and women's involvement;
- **to ensure that a budget for all non-technical aspects is made** alongside budgets for technical costs.

Costs and cost-effectiveness of community participation

A review of costs of non-technical aspects carried out at the request of the OECD Development Assistance Committee showed that for low-cost technology projects demanding great user participation, such as handpump projects, piped water supplies with public standposts, group connections, and low-cost sanitation projects, initial budgets for software activities need to be at least 10 to 15% of the investment costs. In the long term however, these initial costs will often be offset twice to three times by subsequent savings on operation and maintenance (IRC 1988). Community participation and women's involvement in water supply and sanitation projects. A Compendium Paper, The Hague. IRC.). To arrive at more quantitative data on the effect of women's involvement, the Task Force urges projects and project preparation teams to "assess the costs of operation and maintenance, based on the analysis of past performance and costs, and to make a system for measuring the cost-effectiveness of systems with women's involvement"

6.4 Framework for global cooperation

As part of global cooperation activities during the Decade, four meetings took place between ESAs: in Königswinter, Germany, in October 1984, in Paris, France, in May 1985; in Interlaken, Switzerland in October 1987; and in The Hague, The Netherlands, in November 1988. There have also been three regional consultations involving developing country governments, which produced important policy documents concerning the provision of services to low-income groups: in Manila, the Philippines, in October 1985; in Abidjan, Ivory Coast, in November 1985; and in Washington D.C. in April 1986.

The Interlaken Consultation resulted in a **concept** of a **"Framework for Global Cooperation Beyond the Decade"**. This concept formulates plans and activities for continuing and increasing Decade activities in the 1990s. The chief objective of this framework, which was formally established at the The Hague meeting, is **"to maintain Decade momentum beyond 1990 and accelerate the provision of water supply and sanitation services to all, with emphasis on the unserved rural and peri-urban poor, by using a coordinated programme approach"** (WHO and DGIS 1989. International Drinking Water Supply and Sanitation Consultation, The Hague, The Netherlands, 2-4 November 1988.).

a) Planned framework activities

Main framework activities will take place at the country level, with support activities being organized at the intercountry and global levels. These have been defined as follows:

Country-level cooperation

The major focus of the Framework will be on coordinated sector support at the country level. Its main goal is the substantial extension of service coverage, wherever this is a government priority. Activities will be initiated in response to requests from developing country governments, encouraged and supported by UNDP Resident Representatives and

the UNDP/World Bank Regional Water and Sanitation Groups (RWSGs). WHO and other ESAs and national NGOs will play an influential part. The goal of extended coverage will be accomplished through increasing the quality and quantity of investments in well-prepared water and sanitation projects, within sound policy and institutional frameworks. Periodic meetings, called by the host government and attended by involved sector agencies, NGOs and ESAs active in the country, will be an important mechanism for cooperation.

Intercountry cooperation

To take advantage of the recognized benefits of technical cooperation among developing countries (TCDC), and of regional research and development activities and joint training programmes, and to share experiences of successful and less successful approaches,periodic topic-specific consultations will be organized on an intercountry basis. Participants will include sector agency representatives from the countries concerned and ESAs. Such meetings will need ESA support and could, for example, be hosted by the appropriate regional development bank.

Global cooperation

Global cooperation is needed to coordinate efforts in information exchange, training, and resource mobilization and in raising the profile of the sector. In addition, coordinated efforts are needed to address unresolved sector issues through applied research. Consultative meetings are planned approximately every five years, to review sector policies and to update global action plans, targets, and approaches. Such meetings will also provide a forum for discussion of global issues.

b) Collaborative Council

To coordinate ESA activities within the context of the Collaborative Framework, and to make country-level activities more effective, a **Collaborative Council** was established at the The Hague consultation. **Membership is open to all interested multilateral and bilateral agencies, non-governmental organizations and appropriate international research institutes,** and initially comprised 40 international, bilateral and non-governmental support agencies. INSTRAW and PROWWESS are two members which specifically represent women's roles in the sector. Representatives from developing countries are invited to attend its biennial meetings and participate in the development of its work programme. The Secretariat of the IDWSSD Steering Committee described in section 4.2 presently also serves the Collaborative Council. At its meeting in New Delhi in September 1990, the title of the council was changed to the "Water Supply and Sanitation Collaborative Council".

MISSION STATEMENT

The Collaborative Council's mission is **to enhance collaboration among developing countries and external support agencies,** so as to accelerate the achievement of sustainable water supplies, sanitation and waste management services for all people, with emphasis on the poor.

GOALS

To achieve this objective, the **Council will seek to::**

i. Provide a forum for sector professionals to identify, review and seek consensus on key sector issues, and ensure widespread communication of the results.

ii. Alert members to opportunities for more efficient use of resources.

iii. Increase awareness of the need for intensified efforts to expand sustainable coverage and effective use during 1990s.

iv. Promote enhanced collaboration at the country level.

v. Stimulate the adoption of more harmonious policies, strategies and programmes.

The work programme for the Collaborative Council covers three main areas:

(1) Country-level Sector Support

Activities are to support developing country governments in coordinating sector inputs, by matching ESA interest in providing external support with national government priorities. Activities will include support for sector studies and capacity building, the preparation of sector development guidelines, and recommendations on ways of linking water supply and sanitation sector programmes with broader environmental issues.

(2) Communication of Information

The targets will be to help raise the profile of the water and sanitation sector, to assist developing countries to take maximum advantage of available experience, and to support improved collaboration among ESAs at national and international levels. A detailed work programme is to be prepared covering public information, technical information, management information and project and sector information.

(3) Applied Research

The aim is to see that all outstanding research issues are addressed in a coordinated and efficient way, making best use of the resources already provided by various ESAs. A comprehensive review of research needs and existing activities will lead to identification of

a research priority list including topics and resources. The work programme will also include recommendations for dissemination of the research results.

Specific activities for Country-level Sector Support (item 1) are to:

1. determine developing country government interest in receiving assistance in strengthening sector strategies, policies and institutions, as well as preliminary identification of needs;

2. identify ESA interest in supporting specific country requests for sector development assistance;

3. extend and adapt the Decade Consultative Meeting (DCM) mechanism, as a powerful tool for coordination of the sector development process. Support governments wishing to host meetings;

4. gradually strengthen the role of the Regional Water and Sanitation Groups (RWSGs) as a regional focus for well-managed, experienced and multi-disciplinary technical assistance from the ESA community;

5. prepare sector development guidelines, based on analysis of experience in different countries, to include institutional, social, financial, technical and human resource development issues and the appropriate policy implications;

6. establish a temporary working group on environmental pollution (including toxic waste), to prepare recommendations on linkages with the water and sanitation sector, and propose appropriate actions.

The meeting of the Collaborative Council of ESAs hosted by CEFIGRE in Sofia Antipolis, France in November–Dcember 1989 focused on defining strategies for the water sector in developing countries in the 1990s, drawing lessons from the Decade, and examining the future collaborative work programme and corresponding resources (including the preparation for the global meeting later held in India in September 1990).

Under Communication of Information (item 2), the Collaborative Council will look at four different areas of information exchange: public information, technical information, management information and project and sector information. For each area, it will identify what the countries' information needs are, what present activities and sources already exist, where gaps exist between sources and needs, and what activities and support from ESAs can be made available to fill these gaps.

A special working group for Applied Research (item 3) has reviewed key issues requiring applied research as identified at Interlaken, and provided a list of existing, completed and proposed applied research. This has helped to identify research gaps and develop a priority list with both research topics and resources ESA Collaborating Council, Temporary Working Group on Applied Research (1989). (Report to the 1990 Committee.).

Responsibilities for mobilizing support for specific research activities remain with the Collaborative Council.

c) **Future consultations**

Periodic global consultations will provide a forum for wide-ranging analysis of the sector by both developing countries and ESAs, in the same way as the 1977 UN Water Conference in Mar del Plata laid the groundwork for the IDWSSD. A first such meeting, the "Global Consultation on Safe Water and Sanitation for the 1990s", was held from 10 to 14 September 1990 in New Delhi. Its primary objective was to formulate strategies for environmentally sound and sustainable water supply and sanitation services for the 1990s and beyond. The Framework for Global Cooperation envisages similar meetings every five years.

At the New Delhi meeting over 500 representatives from 102 countries and 28 donor aid agencies endorsed a four-point programme to increase drinking water supply and sanitation services in poor communities throughout the developing world during the 1990s. The "New Delhi Statement" calls for increased financing, sound environmental management, a different role for government and greater participation by the private sector, user communities and women in order to serve the unserved. (See Additional Reading)

The **four guiding principles,** containing numerous references to involvement of people, are:

- **People and the Environment** – Women and children will be hardest hit by the threat to health and environment as result of rapid population growth, which is aggravated by accelerating urbanization. Improvements to the household environment can be most effectively achieved through people's involvement as equal partners in resource management.

- **People and Institutions** – the role of government must change from that of provider to that of promoter and facilitator, enabling local public, private and community institutions to deliver services. "Women must be trained and guaranteed equal employment opportunities at all levels of staff and management."

- **Community Management** – Community management goes beyond participation to empowering and equipping communities to own and control their own systems and is the key to sustaining services for the rural poor. Governments should support community management, through legislation and extension, and give it priority in national sector strategies for the 1990s. "Within these strategies, gender issues will be all important. Women should be encouraged to assume prominent roles in planning, resource mobilization, and all subsequent aspects of sector development."

- **Financing and Technology** – Increased efficiency in fund utilization will require changes to make services more cost effective and responsive to consumer needs and demands. Appropriate charging mechanisms should reflect local socio-cultural and economic

conditions. Consumers' ability to operate and maintain the facilities should also be the major criterion for technology selection.

Countries and external support agencies are urged to formulate and implement action plans for water and sanitation incorporating the guiding principles of the New Delhi Statement.

7. PROTECTING THE FUTURE

7.1 Water resources shortages

Water is both an unlimited and a scarce resource: unlimited because it is recycled by solar energy every year, scarce because its distribution varies so widely. Many areas either already experience a shortage of good water, or expect to do so shortly.

Although a worldwide water shortage is not expected within the next 150 years, data on water availability show that of 35 countries in 1989, 6 countries already needed to adapt their water use, 3 had an absolute scarcity and 5 faced a water barrier. However, by the time the population will have stabilized in these 35 countries, with population growth approaching zero, the number with sufficient water will have decreased to 7, while 10 will need to adapt water use, 7 will face a water scarcity, and 11, a water barrier (Cessti, Rita (1989). Water resources: problems and issues for the water sector. (Washington D.C., The World Bank.)

Reasons for the growing shortage of water are manifold: the continuing population growth, the rapid concentration of populations in urban areas, the increasing water demand especially for irrigation and industrial use, the inefficient use of produced water further exacerbated by liberal pricing policies, and the detrimental effects of environmental degradation and contamination of both groundwater and surface water sources on quality and replenishment of the existing water stock.

To give a few illustrations, water withdrawal in general increases faster than population growth, except in countries such as Mexico, Morocco and Turkey, where more efficient irrigation techniques and progressive water pricing have stabilized or reduced water consumption. Of all water uses, irrigation lays the biggest claim on consumption. Between 1950 and 1980, the total area under irrigation more than tripled to meet food demands of growing populations. This tendency is expected to continue in the 1990s. Lack of appropriate pricing policies gives farmers very little incentive to conserve water. It is estimated that worldwide, only 37% of the water produced actually reaches the crops. Industrial use, now at 10% of total water consumption, and domestic coverage and demand will also continue to grow (Committee on Development Planning (1990). Water, the fundamental resource.).

7.2 *Environmental protection*

While water sources are steadily declining, waste on the other hand is produced in increasing amounts and with an increasingly dangerous composition. In many areas lack of proper water and waste water disposal, treatment and recycling facilities already threatens the quality of ground and surface water for drinking and other purposes.

Environmental degradation of water catchment areas **is a further threat** to a reliable and acceptable **water supply.** Deforestation by lumber industries, charcoal merchants, agriculturalists and land speculators reduces rainfall in water catchment areas and changes crystal-clear streams, rivers and estuaries into ochre carriers of the upper layers of fertile topsoil. As a result, water availability for both domestic and productive purposes is seriously reduced and water quality and the potential for low-cost treatments such as slow sand filtration, are adversely affected.

The above illustrates how water, waste and land use in different sectors (agriculture, domestic, industrial) form one comprehensive and interrelated whole, in which activities in one sector almost always have implications for the others. Calls are therefore increasingly heard to make the total geohydrological basin a basis for development interventions, and to replace the present linear approach, by which water and waste flow from source to disposal, by a more circular approach of reuse and recycling (Romeo-Alvares, H. (1989). Water resources management issues for water supply and sanitation. Paper presented at the Collaborative Council Meeting, Sophia Antipolis, France, November 28–December 1., Water Technology Mission (n.d.) Holistic approach to environmental management with specific reference to Water Technology Mission, New Delhi, India, Department of Rural Development, Shaeffer, J.R. (1983). Future Water., Falkenmark, Malin (1989). Water Scarcity, much more than droughts. A study of Water Resources constraints in African Development. Paper prepared for Conference on Human Demography and Natural Resources, Stanfors University, California, 1–3 February.).

7.3 *Impacts on Women*

Women tend to be among those **primarily affected by these developments.** Often, they have to spend many more hours in collecting water and firewood for the family, and in purifying turbid water for drinking and cooking, or pay a large part of the family's income for these purposes. In areas with a high withdrawal rate of groundwater, such as the Middle East and some parts of India, poor women are hit hardest as their shallow wells dry up much more quickly than before. Lack of building timber from increased deforestation seriously affects the potential for traditional low-cost housing and makes it harder to build separate kitchens and strong floors, as well as superstructures of household latrines, promoted as part of health and hygiene education programmes. Reduced rainfall and increased erosion from deforestation has also decreased the availability of water and soil for family food production, which is an important task of women in most rural areas. As a result, preservation of water sources and of the environment is increasingly an area in which development

objectives and women's concerns go hand in hand and which call for significant adjustments in programme development and management. This is further discussed in Module IV, Participation of Women in Management of Water Resources, Water Supply and Waste Disposal.

8. *WOMEN'S INVOLVEMENT AS CRITICAL TO THE SUCCESS OF FUTURE PROJECTS*

Summarizing the above, it is clear that for **better achievements**, special measures to reach and involve women **must be part of all ongoing and future drinking water supply and sanitation projects.** Main reasons discussed in this module are:

- **Project support:** women have the greatest felt need for improved domestic water supply and sanitation facilities, and when informed and involved in decision-making, will actively promote and support water supply and sanitation projects;
- **Local know-how:** being responsible for water, sanitation and hygiene within the household, women have intrinsic knowledge on local water supply and sanitation conditions and on women's networks for communication, health education and maintenance of traditional water and sanitation systems;
- **Use and decision-making:** as managers of domestic water supply and sanitation, women decide on whether they will actually use and look after improved waterpoints and sanitation facilities, and guide children in their use. Non-use can often be traced back to lack of consultation of women in local planning and design, and to lack of say over local operation and management;

PART I: "United Nations Economic and Social Council – Achievements of the International Drinking Water Supply and Sanitation Decade 1981–1990, Report of the Secretary-General, forty fifth session, Distr. General, A/45/327, 13 July 1990.

PART II: "NEW DELHI STATEMENT"

UNITED NATIONS **A**

General Assembly

Distr.
GENERAL

A/45/327
13 July 1990

ORIGINAL: ENGLISH

Forty-fifth session
Item 12 of the preliminary list*

REPORT OF THE ECONOMIC AND SOCIAL COUNCIL

Achievements of the International Drinking Water Supply and Sanitation Decade 1981-1990

Report of the Secretary-General

CONTENTS

* A/45/50.

I. INTRODUCTION

A. Scope of the report

1. The General Assembly, in its resolution 40/171 of 17 December 1985, requested the Secretary-General, at the end of the International Drinking Water Supply and Sanitation Decade, in 1990, to prepare a report on the progress achieved by providing a comparative analysis based as much as possible on quantitative data, as well as recommendations for future and follow-up action that might be required.

2. In implementation of the resolution, the present report has been prepared in consultation with the organizations of the United Nations concerned, under the aegis of the Steering Committee for Co-operative Action for the International Drinking Water Supply and Sanitation Decade, and of the Intersecretariat Group for Water Resources of the Administrative Committee for Co-ordination. The report reviews changes in perceptions, attitudes and policy directions which have already had, or are expected to have, a significant impact on the ability of Governments and of the international community to accelerate their efforts towards achieving the goal of providing adequate water supply and sanitation facilities for all. The report also provides a qualitative and quantitative comparative analysis of progress achieved during the Decade in terms of service coverage for drinking water supply and sanitation, and suggests proposals for action in the 1990s.

3. The quantitative comparative analysis of service coverage is based on information provided by Governments to the World Health Organization (WHO) in response to the recommendations of the Mar del Plata Action Plan 1/ to strengthen sector information in order to facilitate the evaluation of the Decade. Additionally, information on sector investments, particularly those of the external support agencies, has been provided through the Country External Support Information (CESI) system developed by WHO with support from Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ), the Swiss Development Corporation (SDC) and the United Nations Development Programme (UNDP). Qualitative information has also been provided by Governments and from projects, supplemented by information from the offices of the resident representatives of UNDP and from the donor community.

4. The lack of adequate information on water supply and sanitation at the national level is still a serious constraint to sector planning and management. Nevertheless, the level and quality of national reporting has steadily improved throughout the course of the Decade. Accordingly, the existing data are considered to be reliable and the proportion of the global population represented sufficiently high to enable Decade trends and developments to be identified. However, it may be noted that coverage figures often refer to minimum levels of adequacy in terms of both the quality of the services provided and the density and proximity of services. The definition of what constitutes adequate urban and rural water supply and sanitation services has been left to Governments, since this concept is related to local economic, social and physical conditions. Hence, the application of differing suitability criteria has a strong bearing on levels of coverage reported.

B. Historical background

5. Recommendation C.12 of the United Nations Conference on Human Settlements held in Vancouver, Canada, in 1976, 2/ called for urgent action to adopt programmes with realistic standards for quality and quantity to provide water for urban and rural areas by 1990 if possible; and to adopt and accelerate programmes for the sanitary disposal of excreta and waste water in urban and rural areas. Subsequently, the United Nations Water Conference, held in Mar del Plata, Argentina, in 1977, recommended that the decade 1981 to 1990 be designated the International Drinking Water Supply and Sanitation Decade.

6. The plan of action on community water supply contained in resolution II 3/ of the Water Conference recognized the serious health consequences of a lack of safe water supply and sanitation, and stressed the need to accord priority to the poor and less privileged and to water scarce areas. It also called upon countries to establish realistic goals for 1990. In order to reach these goals, the Conference recommended that countries should develop national plans and programmes for community water supply and sanitation; initiate immediately engineering and feasibility studies on projects of the highest priority; assess their manpower situation and establish training programmes; promote campaigns to mobilize public opinion and community participation; establish appropriate institutions with specific responsibilities for the planning, implementation and monitoring of programmes; co-ordinate efforts to ensure the provision of technically and socially acceptable sanitary facilities; and develop national revolving funds to encourage the mobilization of resources and equitable participation of beneficiaries, while discouraging wasteful consumption.

7. At the international level, the Plan of Action called upon international and bilateral agencies to increase their financial contributions to strengthen their capabilities to co-operate with Governments, give greater emphasis to social benefits and recognize the need for higher levels of grants and low interest-bearing loans, and shoulder a higher proportion of local costs. The Plan of Action also called for co-operation to be extended, at the request of Governments, to the formulation and implementation of high priority projects and programmes for community water supply and sanitation, for high priority to be given to collaborating with Governments in carrying out human resources surveys and in the establishment of training programmes, for the establishment of an effective clearing-house mechanism for the communication of information on all aspects of community water supply and sanitation, and for the improvement of co-ordination within the United Nations system and with the international scientific community and relevant non-governmental organizations at the country level in order to ensure a multidisciplinary approach to community water supply and sanitation.

8. In its resolution 35/18 of 10 November 1980, the General Assembly proclaimed the period 1981-1990 as the International Drinking Water Supply and Sanitation Decade, called upon Governments to implement the provisions of the Mar del Plata Action Plan, and called upon external support agencies to provide the necessary assistance.

9. A report on progress in the attainment of the goals of the Decade was submitted, through the Economic and Social Council, to the General Assembly at its fortieth session in 1985 (A/40/108-E/1985/49). In its resolution 40/171, the Assembly encouraged Governments to strengthen their efforts to implement the Mar del Plata Action Plan.

C. The Decade in its economic and social context

10. The situation of the world economy during the course of the Decade was painfully disappointing to many developing countries despite optimistic expectation on its eve. Within just a few years of the Decade's outset, many developing countries encountered such adverse external conditions as a sharp drop in the prices of the non-oil primary commodities on which they relied for much of their export earnings, and a steep rise in real interest rates which resulted in serious debt-servicing problems, particularly in middle-income countries in Latin America. As the Decade advanced, the downturn in growth became more obvious for most developing countries, with the few exceptions of newly industrialized countries and some other countries in East, South-East and South Asia. Low or negative growth was experienced by the least developed countries, particularly in sub-Saharan Africa, where countries were also ravaged by drought, famine, war and other disasters.

11. The slow-down of economic growth led to a significant deterioration of living standards in already low-income countries of Africa, but also in Latin America and Western Asia. The rate of growth in per capita gross domestic product (GDP) in Africa fell from 1.9 per cent a year during the 1971-1980 period to -3.3 per cent a year during the 1981-1988 period, in Latin America from 3.0 per cent to -1.1 per cent, and in Western Asia from 2.8 per cent to -4.3 per cent. 4/ Per capita GDP in constant 1980 United States dollars in sub-Saharan Africa declined from $US 553 in 1980 to $US 427 in 1988. 5/

12. The developing world, which had been historically the net recipient of financial resources, became the net supplier of such resources to the developed world. By 1988 the level of this transfer had reached $US 30 billion. 6/ Rising costs and increasing difficulties in external financing hit most severely those Governments which relied, for the financing of their public investment, on external sources which had been available at relatively low cost in the 1970s. As many of these countries went through wrenching fiscal adjustments during the Decade, such an adverse situation of external financing continued to put pressure on public investment programmes in the area of water supply, sanitation and other urban and rural infrastructures.

13. Population growth, at a time of sluggish economic expansion or stagnation, has been a significant factor contributing to deteriorating living standards and the ever increasing demand for clean water and sanitation in many developing countries. During the first half of the 1980s, the population in developing countries increased at an average rate of 2.1 per cent per annum, as compared to 0.6 per cent per annum in the developed market economies. The rate of population growth in Africa was higher than in any other region, reaching 3 per cent for the period 1980-1985. 7/ The population of developing countries is considered to have increased by 754 million during the 1980s.

14. An important aspect of the population growth during the Decade was migration from rural to urban areas in developing countries. As a result, urban population in developing countries of the world grew at 3.6 per cent a year, more than twice as rapidly as rural population, which grew at 1.5 per cent. 8/ Above all, an explosive increase of urban population was registered in mega-cities such as Mexico City, Sao Paulo and Shanghai.

15. The magnitude of the impact of population growth on the provision of water supply and sanitation services to urban areas is evident from the fact that in the case of Africa, for instance, approximately 6.9 million additional people had to be provided with water and 5.4 million with sanitation each year in order to maintain the levels of urban water supply and sanitation coverage existing at the start of the Decade. In Asia and the Pacific, to maintain the status quo, 15.5 million additional urban residents a year had to be provided with water and 13.8 million with access to an appropriate means of excreta disposal. In Latin America and the Caribbean, an additional 7.2 million and 6.9 million people per year would have had to be provided with water supply and sanitation respectively in order to satisfy the same condition. The impact of the rapid rate of population growth on the provision of water supply and sanitation services in mega-cities is examined in studies undertaken with regard to population growth in such cities as Bangkok, Bombay, Dhaka, Delhi, Karachi, Madras and Manila, where a large number of the urban poor lack adequate services. 9/

16. In spite of the many difficulties faced by developing countries, their efforts towards fulfilling their commitments as part of the Decade under the Mar del Plata Action Plan were considerable, even though results often fell short of original expectations.

II. REVIEW OF ACTIONS AND PROGRESS

A. Experience of the Decade

17. The recommendations contained in the Mar del Plata Action Plan gradually developed into strategies for action with different emphasis among various Governments, regions and bilateral and multilateral agencies depending on local conditions and sectoral priorities. As the Decade progressed, particular attention was directed to a number of key issues, as outlined below.

1. Institutional setting and sector planning

18. Most of the 50 countries responding to inquiries from UNDP resident representatives in 1989 underscored the utmost importance of having established a national sector plan to the success of their efforts during the Decade. Many were contained within the framework of five-year development plans, sector master plans or action plans set up since the start of the Decade, while others were still in the process of formulation and will be important sector management tools during the 1990s. During the early stages of the Decade several countries already emphasized the need for long-term sector planning rather than restricting themselves to an

arbitrary 10-year period. Others anticipated the need to integrate water supply and sanitation plans into broad plans related to water resources management, pollution control and environmental protection.

19. In the majority of developing countries where Decade plans were established, co-ordinating mechanisms were set up in the form of national action committees, national councils for water resources, decade committees, local action committees and similar groups. However, the fact that these mechanisms were frequently restricted to having an advisory function limited their involvement in the decision-making process, and hence their potential for promotion of water supply and sanitation at the level of national development planning. As a general rule water resources management and administration remain fragmented, and horizontal linkages among ministries and departments dealing with water resources, as well as vertical linkages with those dealing with economic development planning, remain inadequate. This diversity of responsibility and potential overlapping has resulted in many cases in co-ordination difficulties and delays in policy implementation. Integration of water supply and sanitation strategies into environmental planning has proved particularly difficult partly because of the different ministries and agencies involved.

2. Community awareness and the promotion of women's participation

20. The role of the community, and particularly that of women in the communities, in the promotion, implementation, maintenance, and management of water supply and sanitation services has undergone a significant change over the course of the Decade. Ten years ago, the community was viewed primarily as a source of unskilled labour, and community participation was generally limited to its mobilization in order to reduce project costs. Most schemes were conceived, directed, and financed by central government agencies or others external to the community concerns.

21. In response to a special emphasis on the role of women called for in the Mar del Plata Action Plan, changes in perception are being reflected at the policy level. In 1980, the World Conference of the United Nations Decade for Women called upon Member States and United Nations agencies to promote the full participation of women in planning, implementation, and application of technology for water supply and sanitation projects. The mid-Decade report of the Secretary-General on Decade progress (A/40/108-E/1985/49) recommended that Member States establish mechanisms for the support of women and community participation in planning, delivery of services, user education and maintenance of facilities. The General Assembly, in its resolution 40/171, encouraged Member States to formulate and implement strategies to enhance the participation of women in the planning, operation and assessment of water and sanitation programmes and projects. More recent regional meetings and donor consultations have focused on specific procedures for increasing women's participation.

22. As the Decade progressed, it became increasingly clear that project success, particularly in rural and peri-urban areas, is highly dependent upon the degree of community participation in projects and their responsibility for continued operation. An important element of these efforts has been the involvement of

communities in health education aspects related to the utilization of facilities. The establishment of a sense of ownership requires that the system users, and women in particular, have some decision-making role in project development, including system planning, financing, operation, maintenance and management. It is now evident that the full participation of the community and enhanced women's involvement, together with the utilization of low-cost appropriate technology, are critical elements in providing safe drinking water supply and sanitation to rural and peri-urban areas on a sustainable basis.

23. In recognition of the important role that women play in water supply and sanitation, a Task Force on Women and the International Drinking Water Supply and Sanitation Decade was established in 1982 by the organizations of the United Nations system through the Steering Committee for Co-operative Action for the International Drinking Water Supply and Sanitation Decade. The work of the Task Force, chaired by UNDP's Programme for the Promotion of the Role of Women in Water and Environmental Sanitation Services (PROWWESS) and supported by the International Research and Training Institute for the Advancement of Women (INSTRAW), resulted in a changed orientation towards women's involvement from a one component approach to an overall approach permeating all project components. This included the development of a planning and evaluation framework (PEGESUS) built on existing evaluation procedures and focusing on increased sustainability and reliability.

24. With regard to efforts for promoting women's involvement at the country level, where approaches can be modified to take into account the different social, cultural, and religious settings, 42 countries are implementing programmes specifically designed to enhance the involvement of women in the development of water supply and sanitation programmes. Of these, 22 are in Africa, 11 in Asia and 9 in the Americas. The experience gained at project level is now beginning to have an effect at the level of national policy.

25. There are some notable successes in the use of community development principles and in promoting the participation of women. In Malawi, the combined use of protected surface catchments and shallow wells was achieved through the mobilization of the community for the construction, operation and maintenance by means of locally organized committees. In Kenya, the Kenya Water for Health Organization works closely with district authorities and the Ministry of Water Development to bring villagers, especially women, into the decision-making process. The experience with the Kwale district handpump project shows that most installed pumps are still functioning and that many committees have raised additional funds which are being used to initiate other activities. In the Philippines, a prerequisite for initiation of rural water supply schemes is the establishment of adequate community-based institutional arrangements and an expressed need by the recipients to have the service and a clear commitment from them to maintain and amortize the costs.

26. In Lesotho, where over a third of all households are headed by women, village water committees have been encouraged to select women for training as "water minders", whose responsibilities include collecting monthly fees. A similar programme to promote women as "pump minders" has also been implemented in

Zimbabwe. In Sri Lankan villages, women have also been active in the business of manufacturing water pumps and have proved to be adept in learning the necessary new skill of metal working, while in Indonesia women's involvement in project development has resulted in increased use of water supply for commercial purposes including vegetable growing, thus benefiting family health while rendering the systems more self-sufficient.

27. Rural sanitation programmes with a strong health education component incorporating specific roles for women have resulted in a significant drop in the incidence of diarrhoea in children under five, a major contributing factor to infant mortality in developing countries. The effectiveness of the combination of information, technical and financial assistance to reduce morbidity in developing countries, and the need to support community participation with technical and logistic back-up is well demonstrated by a community sanitation project in Ecuador, where a national institute supported development through the provision of engineering and technical personnel as well as materials. The successful development of Ventilated Improved Pit (VIP) latrine programmes in the United Republic of Tanzania and Zimbabwe have relied heavily on community participation. The same approach has proven remarkably successful in carrying out low-cost sanitation projects in India and a programme in Lahore, Pakistan, for the installation of household water closets. Further examples of successful community and women's participation include drainage to urban squatter communities in north-east Brazil, and village community-based drainage construction in northern Pakistan.

3. Appropriate and affordable technology

28. A large proportion of the unserved population in the rural areas of developing countries could be provided with safe water from ground-water sources by means of handpumps. However, a high proportion of handpumps installed in the past tend to experience operational difficulties and go out of use, resulting in communities reverting to traditional unsafe sources. In fact, prior to the Decade, unreliability of equipment could be cited as the single most important factor hampering the utilization of handpumps. Under these conditions, the need was identified to analyse existing handpump technologies and designs, promote improvements and provide guidance for their selection.

29. The India Mark II pump developed in the 1970s, as well as the development in Kenya of the AFRIDEV pump, have constituted initiatives to respond to the problem in India and Africa, paying particular attention to the needs for village level operation and maintenance. Consequently, the whole question of handpump design and reliability was taken up by Governments as a Decade priority, becoming an example of technical co-operation among developing countries, with Africa and the Indian sub-continent at the forefront. Through intensive development work, the popularity and subsequent expansion in manufacture of the India Mark II pump led to its production by around 50 different firms in India and by several other countries in Africa and Asia. Another example is the spread of manufacture of the Tara pump designed and developed in Bangladesh to Burma, Nepal, Pakistan, Papua New Guinea and Viet Nam.

30. In support of these national initiatives, a major contribution was made through a UNDP programme executed by the World Bank with support from the United Nations Children's Fund (UNICEF) and other organizations, aimed at testing handpumps under laboratory conditions. During the course of the programme, 2,700 handpumps of 70 different types were field-tested, with the participation of the United Nations Volunteer Programme, as components of development work in 17 countries. An important outcome of this effort has been the preparation of guidelines providing Governments and development agencies alike with a practical assessment of pumps tested and reference for equipment selection. These guidelines are contained in the 1987 World Bank publication "Community Water Supply: The Handpump Option".

31. As a natural parallel activity to handpump development and production, considerable attention has been directed to improving technology and reducing the cost of well drilling. In the United Republic of Tanzania and in northern Nigeria, stimulated initially by the needs of small-scale agriculture, low-cost hand-drilling equipment has been introduced on a wide scale, while in Niger improved mechanical equipment for deep drilling has been successfully applied with support from Denmark.

32. Many of the developments in the area of appropriate and affordable technology have resulted from national efforts to solve specific problems. Examples of local technology developments aimed at promoting self-reliant systems are the plastic water-sealed toilet bowls, the water disinfection devices using bamboo cartridges, the coconut husk filters and the pot-type chlorine diffusers introduced at community level in the Philippines. In Indonesia, standard water supply modules for various sizes have been developed for small towns and villages. Bamboo has been used as a substitute for expensive reinforcing steel in walls of household rainwater tanks in Thailand. In several African countries mud and brush or chicken wire walls for latrines have been used instead of concrete blocks, and soil-cement has been used in Brazil for the construction of water tanks. The ferro-concrete water tanks developed in Fiji for household storage and rainwater collection have been adopted by other Pacific Island countries, including Samoa and Vanuatu, and special training courses have been developed to support the transfer of this technology. In Ecuador, the choice of ferro-cement for water reservoir construction is estimated to have saved 60 per cent of previous costs. Also, the use of a locally developed wind-turbine design drawing on the abundant supply of energy at high altitude has significantly reduced energy costs, and this design is under consideration for nationwide application where meteorological conditions are favourable. In Burkina Faso, simple techniques for the protection of water in traditional wells have been tested and introduced while simple water transporting carts have been designed to lessen women's daily drudgery of water-carrying. This innovation has helped to break down prevailing taboos which prevented boys from assisting in the task of water transportation.

33. A wide spectrum of low-cost sanitation options, such as pour-flush latrines, ventilated pit latrines and shallow small bore sewers, have seen extended application in the course of the Decade. An example is the shallow sewer system developed and applied through community participation in high-density low-income urban areas of Brazil, which has also seen application through technology transfer

to Pakistan. Furthermore, efforts have been undertaken to develop and improve purpose-made residue waste removal vehicles for use in association with on-site sanitation systems.

34. The application of appropriate technology has also played an important role in solving the water quality problem of special groups who were often particularly vulnerable. An example of this has been the utilization of slow sand filters combined with multi-tap standposts at refugee camps in southern Somalia. A system was introduced for surveillance of microbiological quality of village supplies in Malawi where technicians from the Department of Water using portable testing equipment and motorcycles can cover large areas by avoiding the need to return samples to a central laboratory.

35. Efforts during the Decade have demonstrated that the application of low-cost appropriate technologies can have a significant impact in lowering both initial investment and operating costs, as well as on improving the reliability of systems. The application of such technologies has been successful in rural areas as a result of concentration of efforts in this sector. As a general rule, however, the expansion of services to urban areas has continued to rely on conventional capital intensive systems. Nevertheless, a significant potential exists for the application of appropriate low-cost technologies for the provision of services to urban areas, in particular to the increasing number of urban poor dwellers.

4. Integration of water supply and sanitation into development activities

36. In rural areas of developing countries where water resources exploitation is normally undertaken mainly for irrigation or livestock production, the potential for improving health and well-being through integrating water supply and sanitation components into agricultural development programmes has increasingly been recognized and promoted through the available low-cost appropriate technologies and approaches developed within the framework of the Decade. Conversely, improvements in health and social conditions associated with the provision of safe drinking water supplies have further promoted the development of small-scale crop and vegetable production and poultry rearing.

37. In Pakistan, a project supported by UNDP/UNFDAC and the United Nations Food and Agriculture Organization (FAO) aiming at replacing opium poppy cultivation has incorporated elements specially addressing the questions of health, water supply and sanitation, and has incorporated surface water, tube wells, reticulation and storage systems with standpost outlets for a total of 150,000 inhabitants. In China, a 4,000-hectare irrigation scheme was specifically designed to service the 5,000 rural residents in the development areas through a system comprising standposts served through a treatment, storage and distribution system. Rainwater-harvesting programmes to benefit villages and homesteads including local training have been developed in semi-arid areas of Guatemala. The Government of Botswana has implemented a programme of restoring and improving rainwater catchment tanks for farming families, with associated training of local personnel, while

rehabilitation of community ponds has received attention in Somalia. In Ethiopia, coffee plantation water development has given special attention to the provision of domestic supply to satisfy drinking and sanitation requirements of plantation workers, while in Niger, rural development activities have included the raising of rural living standards through women's integration into water and soil conservation activities in association with a literacy campaign.

38. In North Africa, the reuse of waste water for agriculture offers the potential for allocating other fresh sources for domestic water uses. Consequently, Morocco is developing a national plan for water use which integrates waste water with surface and ground-water resources. Similarly, sewerage for environmental sanitation formed an integral component of an agricultural, social and rural community development programme in Yemen.

5. Economic and health impact of increased service coverage

39. One of the most important lessons of the Decade has been the realization that water and sanitation projects, when implemented with real community and women's participation, are effective entry points for development. In addition to achieving their objective of providing water and sanitation services, such projects yield greater economic and social benefits that extend beyond the community itself. This is a result of redirecting efforts and time saved, particularly by women, who often spend as much as five hours daily carrying water, into productive activities, improving the health of the population, and providing water resources for other activities such as growing vegetables. The involvement of the community in the planning, building and operation of water supply and sanitation facilities often yields a strengthening of community organizations and of managerial capabilities that can be transferred to other types of enterprises. It is now understood that the availability of suitable water supply and sanitation facilities provides a stimulus to the development of household commercial activities.

40. The provision of adequate water supply and sanitation facilities is known to be effective in reducing the incidence of infectious diseases. However, national disease reporting systems do not provide sufficiently accurate or comprehensive information to predict in global terms the number of cases of diarrhoeal diseases prevented during the Decade due to the expansion of water supply and sanitation coverage. Nevertheless, as summarized in table 1 below, the results of recent studies carried out in the course of the Decade 10/ indicate that improvements in the provision of water supply and/or sanitation have yielded significant reductions in the incidence of diarrhoeal morbidity.

Table 1. Percentage reduction in diarrhoeal morbidity rates attributed to water supply and excreta improvements (from an analysis of independent studies)

Type of intervention	Number of studies	Percentage reduction Median	Range
Studies containing references to all interventions	53	22	0-100
Studies containing references to improvements in water quality only	9	16	9-90
Studies containing references to improvements in water availability only	17	25	0-100
Studies containing references to improvements in water quality and availability only	8	37	0-82
Studies containing references to improvements in excreta disposal	10	22	0-48

Source: Esrey, S. A., Feachem, R. G., & Hughes, J. M. (1985). "Interventions for the Control of Diarrhoeal Diseases Among Young Children: Improving Water Supply and Excreta Disposal Facilities", in Bulletin of the World Health Organization, 63(4): 757-772.

41. Significant progress is also taking place with regard to the eradication of dracunculiasis (Guinea worm disease), where simple filtration and source protection methods, even without any disinfection, can break the disease's transmission cycle. Of the 23 countries affected by the disease, of which 20 are in Africa, 10 countries, including Ghana, India, Nigeria and Pakistan, have implemented national plans against dracunculiasis during the Decade. A major achievement has been the drop in cases reported by India from 30,440 in 1985 to a third of this amount in 1990. 11/ Similarly, Burkina Faso has recently reported the eradication of the disease in three highly endemic communities between 1984 and 1986 through filtration of drinking water. 12/ The increased awareness of the seriousness of the disease, as well as of the potential for its eradication, have produced increased emphasis on the need to monitor its incidence, and consequently greater systematization in reporting.

42. With regard to trachoma, the experience of the Decade demonstrates that a 60 to 70 per cent reduction 13/ in cases of trachoma can be achieved if abundant water is available for purposes of personal cleanliness. Similar improvements due to improved accessibility can also be expected in the case of conjunctivitis. The

results of an analysis based on the experience in eight countries in Africa, Latin America and the Caribbean demonstrate the positive effects achieved from improvements in water supply in the reduction of schistosomiasis prevalence and incidence. 14/

43. The economic benefits derived from improved health as a result of having access to safe water supply and sanitation have not been fully evaluated. The available experience, however, indicates that such benefits are considerable. UNICEF, for instance, reports that in a rice-growing area of Nigeria with a population of 1.6 million, an estimated $20 million per year in benefits could be generated from increased rice production and sales if Guinea worm disease, which is endemic to the region, were to be eradicated through the provision of safe water supply. UNICEF further estimates that the generation of this additional income would be sufficient to finance the investments needed for the provision of water to the population through low-cost technology within a period of four years.

6. Increased funding and innovative approaches to cost recovery

44. Information available to WHO within its Country External Support Information System (CESI) programme indicates that, allowing for some degree of under-reporting, national water supply and sanitation programmes in developing countries were estimated to be funded in constant United States dollars at approximately $6,000 million per year at the start of the Decade rising to around $8,500 million by the end. Globally, it is estimated that approximately 65 per cent of sector funding during the Decade came from national sources. However, in the case of Africa and the least developed countries, where the major reliance appears to have been on external funding, this proportion was only somewhat over 25 per cent, whereas in western Asia the figure was about 90 per cent.

45. The value of investments in current dollars by external support agencies is reported to have risen steadily from an estimated $2,200 million in 1980 to approximately $4,500 million in 1988. In addition, there has been a sizeable increase in the dollar value of projects under consideration, particularly between 1987 and 1988, when the estimated value of projects under consideration rose from $500 million to $4,000 million. External funds between 1981/82 and 1985/86 in the countries of the Economic Commission for Africa are estimated to have increased in constant United States dollar terms by 77 per cent, while in the countries of the Economic and Social Commission for Asia and the Pacific the increase was 65 per cent. In the countries of the Economic and Social Commission for Western Asia the increase corresponded to 59 per cent, while in the Economic Commission for Latin America and the Caribbean countries the increase was 37 per cent. The growing importance attached to sector financing by Governments and to the role of external support is demonstrated by Morocco, which earmarked 25 per cent of its UNDP indicative planning figure to that sector.

46. A marked change in the pattern of financing provided to the sector has been the increase in the proportion of funds being allocated to institutional development, management improvement, human resources development, community partnership promotion, etc. ("software" programme components). This shift in

emphasis stems from a realization early in the Decade that much of the history of past failures had resulted from investments in the construction of facilities without attending, in parallel, to the development of associated infrastructural requirements. The number of externally funded projects addressing these issues has risen by around 140 per cent, which represents an actual increase in funding to "software" projects or project elements of over 300 per cent. Towards the end of the Decade, allocations for institutional development aspects of water supply and sanitation projects accounted for over 40 per cent of all external funding.

47. Although funding of more affordable appropriate technology projects has increased significantly throughout the Decade, it has retained a comparatively small proportion (4 per cent) of total external sector funding for urban and rural water supply. However, government commitment to such projects has been reflected by an almost sixfold increase in the number being implemented since the start of the Decade.

48. Since financial resources for the sector are extremely limited in most countries, and because radical shifts in sector allocations are unlikely in the foreseeable future, the conclusion is increasingly being reached that project beneficiaries should participate in cost recovery if service coverage in developing countries is to be extended. However, it is becoming apparent that the difficulties in levying charges and collecting payments for water and sanitation systems are frequently related to weak institutional systems and a failure to meet the users' perceived needs.

49. The second half of the Decade has experienced a growing international interest in innovative approaches to cost recovery. Issues of project financing, cost allocation, credit arrangements and user involvement in system development are receiving widespread attention. Specific cost containment and management activities, such as the reduction of unaccounted-for water, the establishment of revolving funds for system financing, the provision of special low interest credits and of local bank guarantees, the setting of water rates acceptable to the users and the consideration of cross-subsidization of user groups and systems as a means of expanding coverage while maintaining affordable water tariffs have been encouraged. Issues related to levels of demand are increasingly being studied in terms of the willingness of users to pay for water and sanitation services. One consequence of greater decision-making on the part of the community is the possibility that the community itself might devise locally acceptable methods of recovering the costs of its water and sanitation system.

50. In Thailand, an innovative approach to cost recovery in rural areas has been the use of revolving funds for the promotion of water supply and sanitation development. These funds are handled at the village level with subsidies and guidance from the Government and a national non-governmental organization (NGO). The approach to cost recovery of the Office national de l'eau et de l'assainissement in Burkina Faso has been related to a programme of extending urban water through standposts and developing the necessary infrastructure for collecting tariffs at the communal outlets. The standpost tariff is fixed at that for a private connection utilizing less than $10m^3$ per month; a reduced tariff also exists for systems utilizing boreholes, pumps and independent reservoirs. It is

often possible to set tariffs for the provision of water to the peri-urban and rural poor at rates that are significantly below to those paid by the population to private vendors.

7. Operation and maintenance

51. Inadequate operation and maintenance procedures have traditionally been a major stumbling block in the improvement of water supply and sanitation services.

52. A major difficulty facing many countries in operating and maintaining installed systems has been their lack of financial and institutional capacity. This has too often manifested itself in a lack of fuel to run equipment (generators and vehicles), a lack of materials (chemicals and spare parts) and a lack of trained personnel. As a result of the "tied-aid" nature of support from some donors, inappropriate equipment has often been provided causing operational and maintenance problems with the procurement of spare parts.

53. During the course of the Decade significant efforts have been made to rectify this constraint. In Guatemala, area health personnel of the Ministry of Public Health and Social Assistance continues to give technical support to the communities after systems have been installed and are in operation. In Egypt, the Organization for Reconstruction and Development of Egyptian Villages has had as one of its objectives since 1980 the strengthening of and support to local government at village, district and central level, with a view to improving their capacity for planning, organizing, financing and monitoring systems.

54. The Decade has also witnessed some innovative approaches to promoting community involvement in operation and maintenance. A notable example is the development of the village-level operation and management/maintenance concept for handpumps referred to previously.

8. Mobilization of the private sector

55. Traditionally, the private sector has contributed to sector development through the local manufacture of equipment and components and involvement in several aspects related to the provision of services.

56. Examples of private sector initiatives have included leasing arrangements and the franchising of project execution. The involvement of the private sector is a possible vehicle for raising capital for basic services such as water and sanitation. The role of private vendors in the operation of standposts as a replacement for private water vending in urban slum/peri-urban areas is an approach also warranting consideration. Additionally, the private sector has contributed significantly to drilling and water resources surveys through contract-drilling operations. However, experience has proven that when matters of public interest are vested in private hands, regulatory mechanisms are essential. Government interventions are required to ensure that affordable services are extended to the less privileged, and that enterprises do not take advantage of their monopoly position through excessive charges to other economic sectors.

9. Human resources development

57. In response to queries through the WHO monitoring programme, 106 of 117 countries reported having assessed their present manpower situation, but only about one third of these have been able to predict future requirements. Although almost half of the developing countries reported having established special training programme budgets, almost all suggested that the funds allocated were inadequate. In global terms, the inadequacy of institutions and the insufficiency of trained professional personnel are still ranked by Governments as two of the most important constraints to programme implementation.

58. Efforts have been directed at the development and application of methodologies for capacity-building corresponding to institutional needs, the review of available training institutes and their curricula in the developing countries, and the review of available training materials. In the Philippines, for instance, the need was identified for improved management capability by the Local Water Utilities Administration. In consequence, a scheme was initiated to develop the capabilities of general managers to perform their tasks more efficiently and to raise morale. An important example of human resources development efforts initiated during the Decade has been the training of qualified personnel in order to increase awareness of the range of appropriate new technologies and approaches for planning and delivering services, through an international network of training centres established with support from the UNDP/World Bank programme. Such centres have been established in India and Indonesia in Asia, and in Burkina Faso, Ghana, Kenya (also serving Uganda and the United Republic of Tanzania) and Zimbabwe in Africa.

10. Information exchange

59. Following the recommendations of the Mar del Plata Action Plan in this regard, a number of initiatives have been undertaken, including collaborative efforts by the United Nations system, to build national capacities to absorb and utilize technical information. These efforts were linked with existing networks such as the Pan American networks of information and documentation in sanitary engineering and environmental sciences (REPIDISCA) established at Centro Panamericano de Ingenieriá Sanitaria y Ciencias del Ambiente, Lima, for Latin America; the system operated by Comité interafricain d'études hydrauliques servicing francophone Africa; the Asian Institute for Technology/Environmental Sanitation Information Centre in Asia; and the African Medical & Research Foundation in East Africa. These regional centres, with the support of the International Development Research Centre in Canada and the International Water and Sanitation Centre in The Hague, have assisted in the establishment of information exchange mechanisms at country level in a number of countries. Examples of ongoing information exchange systems are found in the Reseaux sahelien d'information et de documentation scientifiques et techniques (RESADOC) in Mali, and the Water and Sanitation Network (WASIN) in Indonesia. Support for the implementation of similar ventures has also been provided to Thailand and the United Republic of Tanzania. In addition, WHO's Country External Support System contains data on sector and project activities of external support agencies in developing countries.

60. Inter-country co-operation in the area of information exchange has also expanded, as illustrated by the annual meetings co-ordinated by the African Medical and Research Foundation, instituted in 1987, for representatives of government departments and training institutes from Kenya, Uganda and the United Republic of Tanzania to discuss their information needs. This effort has led to a better flow of information including the dissemination of essential books to the participating institutions and their project offices, based on a detailed assessment of needs.

61. International and national NGOs involved in the promotion of appropriate technology, primary health care and rural development have published manuals and communication materials in support of community-based sustainable development. An example is the information exchange network operated by the Asian Alliance of Appropriate Technology Practitioners linking up NGOs in six Asian countries in an effort to collect and disseminate the experiences of grass-root organizations. A bibliography on books produced at country level and a roster of local experts have been one of the results of this networking. Systems such as the Water Supply and Documentation Network (WASSDOC) in Sri Lanka prove that liaison and exchange of information is possible not only between government departments and projects but also with the local NGO community.

11. International co-ordination and co-operation

62. In response to calls formulated in the Mar del Plata Action Plan for increased collaboration and improved co-ordination within the United Nations system and with Governments and the external support community, an early initiative was taken through the establishment of a United Nations Inter-agency Steering Committee for Co-operative Action for the International Drinking Water Supply and Sanitation Decade.

63. One of the early Steering Committee initiatives was the identification of key issues and the establishment of interagency task forces to address them and develop common approaches designed to promote co-ordination and co-operation. In addition to a task force on women, task forces were established on human resources development, information exchange, and public information. As a result of these task forces, several films and important Decade support and promotion outputs were produced, including a handbook on human resources development. 15/

64. Assistance to Governments in the co-ordination of activities at the country level has been enhanced by strengthening the capabilities of UNDP resident representatives to act as co-ordinators of United Nations system support to national Decade programmes, and for the promotion of co-operation with other external support agencies at country level. As one of their co-ordinating functions, resident representatives are called upon to bring together the available expertise of the United Nations agencies and other organizations in support of national action committees. Progress in external support co-ordination within the context of national sector planning has been reported from a number of countries including Benin, Chad, Comoros and the Congo in Africa; Bangladesh, China, Nepal, Sri Lanka and Viet Nam in Asia; and Bolivia, Colombia and Panama in the Americas.

65. There has been a significant increase in the support provided to national authorities by external support agencies in the preparation of project proposals, the promotion of specific Decade approaches such as improved pump maintenance, and the promotion of water supply and sanitation at health centres as an element of primary health care. In Africa, external support agencies including the organizations of the United Nations system have participated in the evolution of rural water supply projects, and support has been provided to national authorities in improving project proposals to increase the possibilities of funding. The promotion of Decade programmes by the external community was also carried out through the convening of national and sub-regional Decade Consultative Meetings in Bolivia, Indonesia, Lesotho, Nepal, Niger, Peru, the Philippines, Thailand and Zambia; the Portuguese-speaking countries of Africa; the countries of southern and eastern Africa; Central America and the Caribbean; the South Pacific; and the anglophone countries of the Caribbean. In addition, a regional meeting for the Americas was convened by the Inter-American Development Bank, and co-sponsored by WHO, the Pan American Health Organization (PAHO) and GTZ. These meetings were intended to improve co-operation and co-ordination among external support agencies and national sector agencies, and to initiate intersectoral co-operation. They also aimed at identifying constraints to sector development and courses of action to alleviate them and to facilitate the mobilization of resources. Such meetings brought together national sector agencies and the external support agencies with sector interests to review programmes with the aim of identifying areas of common interest and thus stimulating sector initiatives and co-ordination. The Decade consultative meetings and country sector reviews have been instrumental in identifying areas of programme weaknesses, particularly in peri-urban sanitation and rural water supply and sanitation.

66. Consultations with multilateral and bilateral external support agencies were conducted with a view to strengthening co-ordination of approaches and co-operation in the implementation of programmes. A meeting convened jointly by WHO and the Federal Republic of Germany in Königswinter in 1984 provided an opportunity for information exchange and dialogue on external support experience and measures to be taken in order to improve the efficacy of development assistance. Subsequently, a meeting convened by the Development Assistance Committee of the Organisation for Economic Co-operation and Development (OECD) in Paris in 1985 produced a convergence of views among participants as to the principal constraints to progress in the sector, and on ways of addressing them. A third meeting in 1987 at Interlaken, Switzerland, convened jointly by the Swiss Government and WHO, produced a proposal for a framework for global co-operation beyond the Decade, which was adopted at a fourth consultation convened by the Government of the Netherlands in The Hague in November 1988. As part of this framework, a 1990 Committee was established to define strategies for the next decade. A first meeting of the Committee took place in Paris in December of 1988, and a second meeting was hosted by WHO in Geneva in June of 1989. A meeting of the Collaborative Council was hosted by the French Government in Sophia Antipolis in November of 1989, and focused its attention on issues related to the provision of sustainable water supply and sanitation services to poor urban and rural population, water resources management and environmental issues, and the generation of financial resources.

67. A number of important regional meetings took place during the second half of the Decade. The meetings produced important policy documents concerning the provision of services to low-income groups, and recognizing the health and economic benefits as well as the need to expand programmes for the decade of the 1990s. These policy statements have been accepted as bases for action by the participants representing national water and sanitation sectors and external support agencies, and constituted inputs to global consultative meetings.

68. Finally, a Global Consultation on Safe Water and Sanitation for the 1990s is to be convened in New Delhi from 10 to 14 September 1990, sponsored by UNDP and hosted by the Government of India, with the co-sponsorship of the Steering Committee for the International Drinking Water Supply and Sanitation Decade and of the Collaborative Framework. The objective of the meeting is to promote awareness of the main issues to be faced in the 1990s, and to reach a consensus on strategic actions needed to accelerating progress.

B. Service coverage

69. About 1,348 million more people were provided with safe drinking water supply in developing countries during the 1980s, 368 million in urban areas and 980 million in rural areas. Similarly, 748 million more people, 314 million urban dwellers, and 434 million people in rural areas were provided with suitable sanitation services. Overall, the number of people without safe water decreased from 1,825 million to 1,232 million, while the number of people without suitable sanitation remained virtually the same. Table 2 below summarizes changes in service coverage achieved during the Decade in each of the regional commission regions. 16/

70. As expected, there are significant variations in increases in service coverage achieved in the various regions. A factor common to all has been the impact of high population growth resulting in an increasing number of people requiring services during the Decade, particularly in urban areas. The number of cities in the world with a population size of 5 million or more has increased from 24 in 1980 to 35 in 1990. Of these, 15 in 1980 and 24 in 1990 are in developing countries, particularly in Asia and Latin America. The population in mega-cities of developing countries grew sharply from 130 million in 1980 to an estimated 228 million in 1990. The population of 23 cities in Africa south of the Sahara grew from 21 million in 1980 to 36 million in 1990. In the region north of the Sahara, eight cities, which accounted for 17 million people in 1980, grew to 25 million by the end of the decade. 17/

Table 2. Water supply and sanitation coverage by region, 1980-1990, and coverage for 2000 at current rates of progress

(Population in millions)

Region/sector	1980 Population	1980 % coverage	1980 No. served	1980 No. unserved	1990 Population	1990 % coverage	1990 No. served	1990 No. unserved	2000 Population	2000 % coverage	2000 No. served	2000 No. unserved
Africa												
Urban water	119.77	83	99.41	20.36	202.54	87	176.21	26.33	332.49	76	253.01	79.48
Rural water	332.83	33	109.83	223.00	409.64	42	172.05	237.59	496.59	47	234.27	262.32
Urban sanitation	119.77	65	77.85	41.92	202.54	79	160.01	42.53	332.49	73	242.17	90.32
Rural sanitation	332.83	18	59.91	272.92	409.64	26	106.51	303.13	496.59	31	153.11	343.48
Latin America and the Caribbean												
Urban water	236.72	82	194.11	42.61	324.08	87	281.95	42.13	416.79	89	369.79	47.00
Rural water	124.91	47	58.71	66.20	123.87	62	76.80	47.07	122.84	77	94.89	27.95
Urban sanitation	236.72	78	184.64	52.08	324.08	79	256.02	68.06	416.79	79	327.40	89.39
Rural sanitation	124.91	22	27.48	97.43	123.87	37	45.83	78.04	122.84	52	64.18	58.66
Asia and the Pacific												
Urban water	549.44	73	401.09	148.35	761.18	77	586.11	175.07	1 085.56	71	771.71	314.43
Rural water	1 823.30	28	510.52	1 312.78	2 099.40	67	1 406.60	692.80	2 320.79	99	2 302.68	10.11
Urban sanitation	549.44	65	357.14	192.30	761.18	65	494.77	266.41	1 085.56	58	632.40	453.16
Rural sanitation	1 823.30	42	765.79	1 057.51	2 099.40	54	1 133.68	965.72	2 320.79	65	1 501.57	819.22
Western Asia												
Urban water	27.54	95	26.16	1.38	44.42	100	44.25	0.17	67.26	100	67.26	0.00
Rural water	21.95	51	11.19	10.76	25.60	56	14.34	11.26	30.66	57	17.48	13.18
Urban sanitation	27.54	79	21.76	5.78	44.42	100	44.42	0.00	67.26	100	67.26	0.00
Rural sanitation	21.95	34	7.46	14.49	25.60	34	8.70	16.90	30.66	32	9.94	20.72
Global totals												
Urban water	933.47	77	720.77	212.70	1 332.22	82	1 088.52	243.70	1 902.10	77	1 456.27	445.83
Rural water	2 302.99	30	690.25	1 612.74	2 658.51	63	1 669.79	988.72	2 970.88	89	2 649.33	321.55
Urban sanitation	933.47	69	641.39	292.08	1 332.22	72	955.22	377.00	1 902.10	67	1 269.05	633.05
Rural sanitation	2 302.99	37	860.64	1 442.35	2 658.51	49	1 294.72	1 363.79	2 970.88	58	1 728.80	1 242.88

71. The percentage of people with safe water supply and adequate sanitation in the urban areas has either increased or at worse remained static. However, as shown in table 3, with the exception of Western Asia, where full or nearly full coverage has been reached, the achievements of the Decade in terms of reducing the total number of residents without safe water supply and adequate sanitation have more often than not amounted to standing still, or even falling behind. Nowhere is this more evident than in the case of Africa south of the Sahara, where, in spite of a doubling in the number of people provided with services, the number of urban dwellers without safe water supply increased by 29 per cent. Similarly, the number of urban residents without adequate sanitation increased by 31 per cent, even though the number of dwellers availed of services increased by 119 per cent. Globally, the number of urban residents without safe water supply increased by 31 million, while those without sanitation increased by 85 million.

72. The situation in rural areas is more encouraging. Globally, the number of people without safe water supply decreased by 624 million, and those without adequate sanitation by 79 million. Such progress, however, was the result of achievements in Asia and the Pacific and in Latin America and the Caribbean. The results achieved in Asia and the Pacific with regard to rural water supply, which to a great extent are due to very significant increases in coverage reported for the People's Republic of China, are particularly noteworthy.

73. An assessment of progress made towards the attainment of national targets established by Governments as called for in the Mar del Plata Action Plan, indicates that, on the average, the countries of Africa virtually achieved their Decade targets for urban water supply and sanitation. However, they fell short of their targets for rural water supply and sanitation by 15 and 27 percentage points respectively. In Latin America and the Caribbean, the region fell somewhat short of achieving its targets, although it attained its target for urban sanitation. The rural water supply target was surpassed. However, in the case of rural sanitation with only 37 per cent of the population served, countries fell far short of their original objectives by 6 percentage points. In Asia and the Pacific, progress towards Decade goals in the urban areas was disappointing, while the targets for rural areas were surpassed. In Western Asia, the relatively slow progress reported in rural areas resulted in water supply coverage falling 17 percentage points short of its targets of 73 per cent, and in the level of sanitation services remaining static.

74. In the Economic Commission for Europe region (including Canada and the United States) comprising countries which, for the most part, already had high levels of water supply and sanitation services, the Decade stimulated interest in the sector. The ECE countries specifically focused attention on raising the levels of rural water supply and sanitation coverage, where at the start of the Decade, 15 per cent of the population lacked satisfactory water services and 30 per cent were without appropriate sanitation, mostly in remote and topographically difficult areas. The Decade also coincided with an increased awareness that many of the old sewer systems were suffering from the ravages of time and major rehabilitation work was required. In the case of drinking water supply, special attention was directed towards the threat to water resources used for domestic supply purposes posed by intensive agriculture, in the form of nitrates, phosphates and pesticides, and from the disposal of industrial wastes, and towards the health problems associated with old water distribution systems.

Table 3. Percentage increase in the number of people provided with services and in the number of unserved, 1980-1990

Region/sector	Increases in coverage (per cent)	Increases in number unserved (per cent)
Africa		
Urban water	77	29
Rural water	57	7
Urban sanitation	106	2
Rural sanitation	78	11
Latin America and the Caribbean		
Urban water	45	-1
Rural water	31	-29
Urban sanitation	39	31
Rural sanitation	67	-20
Asia and the Pacific		
Urban water	46	18
Rural water	175	-47
Urban sanitation	39	39
Rural sanitation	48	-9
Western Asia		
Urban water	69	-88
Rural water	28	5
Urban sanitation	104	-100
Rural sanitation	17	17
Global totals		
Urban water	51	15
Rural water	142	-39
Urban sanitation	49	29
Rural sanitation	51	-6

III. PROSPECTS AND STRATEGY FOR THE 1990s

A. Prospects to the end of the century

75. As shown in table 2 above, the rate of progress achieved during the Decade would be insufficient to reach the ultimate objective of services for all by the end of the century. If programme implementation were to continue at the current rate, the number of those unserved with safe water by the year 2000 would decrease to around 767 million due to significant increases in coverage in rural areas, which would constitute a decrease from 31 per cent of the total population in 1990 to 16 per cent by 2000. Those unserved with sanitation would rise to around 1,880 million, although the percentage of the population without services would decrease from 43 to 38 per cent due to a small decrease in the number of people in rural areas without coverage. The health and environmental consequences associated with these numbers of people without services would preclude the achievement of living conditions compatible with sustainable development.

76. The situation in urban areas, particularly in large cities, could become alarming. The number of urban dwellers of developing countries in cities of five million people or more is expected to increase from an estimated 228 million in 1990 to an estimated 351 million by the year 2000. 18/ The number of people in 31 cities in Africa is expected to increase by nearly 22.5 million within the next decade. Globally, the number of people in urban areas without adequate water supply facilities would increase by 83 per cent, and the number of dwellers without adequate sanitation services would increase by 68 per cent. In relative terms, both Africa and Asia and the Pacific would be worse off by the end of the century than they were at the start of the 1980s.

77. With the expected high rate of population growth of cities in developing countries, the rapid growth in demand for water for domestic, municipal and commercial uses will often strain existing capabilities to provide the needed water supplies. The provision of additional amounts of water will often require the development of more distant and costlier sources, both in terms of development and conveyance. This situation would inevitably increase unit costs unless steps are taken to offset them through the use of appropriate low-cost technologies. A change away from the more traditional capital intensive approaches to urban water supply and sanitation will often be needed in order to overcome the high levels of investments that would otherwise be required.

78. The 67 per cent drop in the number of people in rural areas without adequate water supply services would be the result of continued significant progress in Asia and the Pacific, and to a lesser extent in Latin America and the Caribbean. The modest increases in service coverage that would take place in Africa would be insufficient to prevent a rise of 10 per cent in the number of people without safe water supply. Globally, the 8 per cent decrease in the number of rural inhabitants without adequate sanitation would also be attributable to decreases in Asia and the Pacific and Latin America and the Caribbean.

79. Recent estimates carried out by UNICEF, in consultation with the World Bank and UNDP, lead to the conclusion that, if water and sanitation service coverage

were to be provided to 90 per cent of the urban and rural population by the end of the century, the average annual level of investment required for new services would amount to approximately $28,200 million, almost three times the average achieved during the 1980s. An estimated increase in overall investments for new services by a factor of 1.4 times would be required during the forthcoming decade to maintain the number of people without services constant by the year 2000. These estimates do not take into account operation and maintenance costs, or investment requirements for the rehabilitation of existing facilities. The achievement of the coverage objectives assumes a major shift towards the utilization of intermediate and low-cost technologies, particularly in urban and peri-urban areas. Rural services would be provided entirely through the utilizations of low-cost technology, while in the case of urban services 50 per cent of services would be provided through high-cost technology. The remaining 50 per cent would be supplied through intermediate and low-cost technologies.

80. Clearly, these higher levels of investments would require sizeable increases in the share of investments for the sector relative to total national investments even under optimistic economic growth scenarios for developing countries. In addition, significant improvements in national absorptive capacities, through improved institutional and human resources, would be necessary. The generation of the necessary financial resources will remain a severe constraint, as evidenced by the fact that all regions have cited insufficiency of financial resources and the inadequacy of cost recovery procedures as two of the most severe constraints still impeding a faster rate of progress. Consequently, means of additional national funding will have to be sought. Efforts will need to be made to attract private funding by such means as national capital markets, the creation of revolving funds and credit guarantee schemes, while selected parts of the sector could be studied in terms of gaining effective access to private sector funding.

81. In spite of the progress achieved during the Decade with regard to operation and maintenance, further improvements will have to be brought about. The lessons learned during the Decade concerning improvements in rural areas will have to be applied as widely as possible. In addition, a large number of urban systems in developing countries are plagued by very high storage and transmission losses, constituting a serious burden to municipalities in terms of operating costs and water supply availability.

82. Increases in the demand for water in urban and rural areas, together with increases in demand for industrial and agricultural purposes, are taking place at a time when a greater number of countries are facing severe limitations in terms of the sustainable carrying capacity of land and water resources. 19/ The allocation of increasingly scarce water resources to competing potential uses, as well as the need to protect the environment from rising levels of pollution from urban, industrial and agricultural wastes, will require, more than ever, the development of balanced approaches to the overall management of water resources, and the establishment of effective linkages between various ministries and governmental organizations dealing with water resources, as well as linkages between them and those governmental organizations dealing with overall economic planning and development. Greater attention will need to be given to increasing efficiency in the use of water in all sectors, including the safe reuse of waste waters.

83. The lack of trained personnel at all levels and the inadequacy of human resources development programmes continue to be among the most severe constraints faced by all countries, together with funding limitations and the inadequacy of operation and maintenance strategies and procedures. As for community participation, and in particular the participation of women in the planning and management process, the results achieved so far have been sufficient to demonstrate the importance of policies designed to foster these approaches. However, the post-Decade period will require an acceleration of such programmes aimed at achieving the widest replications of successful approaches.

B. Strategy for the 1990s

84. The 1990s will require an intensification of efforts to provide the unserved with water and sanitation services by the end of the century. The recommendations contained in the Mar del Plata Action Plan, continue to be valid, as do those contained in subsequent deliberations of the General Assembly and other international forums, and their implementation has acquired a greater sense of urgency, particularly with regard to the provision of services to rapidly growing urban populations. Within this framework, any strategy for the accelerated expansion of services in the 1990s must be based on the establishment of realistic targets by Governments in terms of the level of service coverage to be achieved, and on the formulation of sustainable social and economic plans.

85. The expected high rates of population growth will continue to put severe pressure on the ability of developing countries to provide water supply and sanitation services to the unserved. In the long run it is to be hoped that policies in support of population and family planning will tend to alleviate such pressures.

86. The Mar del Plata Action Plan states that institutional arrangements adopted by each country should ensure that the development and management of water resources take place in the context of national planning, and that there is real co-ordination among all bodies responsible for the investigation, development and management of water resources. The problem of creating an adequate institutional infrastructure should be kept constantly under review and consideration should be given to the establishment of efficient water authorities to provide for proper co-ordination. Programmes aimed at service expansion must be implemented within the framework of integrated water resources and environmental planning and management, particularly in water-scarce and drought-prone countries, taking into account the need to increase knowledge about the availability of water, as well as its supply for various uses. Increased attention should be paid to improving efficiency in the distribution and utilization of water, and to promoting policies designed to manage water demand relative to resource availability.

87. Governments that have not done so are urged to assess the current status of institutional structures with a view to strengthening their capacity to plan and manage water development and sanitation programmes. This will require an analysis of institutional structures followed by a rationalization of responsibilities to reduce fragmentation and unclear delineation of management tasks among a variety of

government agencies where it is seen as a constraint to accelerating water resources development. The establishment of appropriate linkages to bodies dealing with the formulation and implementation of economic and social development policies will facilitate the flow of financing for the development of water resources in general, and for water supply and sanitation in particular, and will strengthen the integration of the sector into other programmes such as women's and environmental programmes, as well as rural and agricultural development. The establishment of effective linkages will also enable governments to co-ordinate effectively assistance provided by external support agencies.

88. Since a much higher level of financial resources will be required if the challenge of the 1990s is to be met, governments need to assign greater priority to the allocation of development financing to water supply and sanitation by seeking a better integration of the sector within the overall development planning process. In view of the competing demands from other important socio-economic sectors, however, governmental authorities dealing with water supply and sanitation are urged to formulate and implement policies designed to generate alternative sources of funding, to increase the financial self-sufficiency of systems, and to encourage the participation of the private sector in ways compatible with the needs of the urban and rural poor.

89. The continued improvement of operation and maintenance systems still constitutes a critical aspect of actions to be taken by Governments at all levels, if the sustainability of programmes is to be ensured. This will depend largely on the success of actions taken to increase trained manpower, improve community participation, upgrade institutional capability, and institute suitable cost recovery measures. There is a need for the development of guidelines for the effective application of cost recovery principles. The successful formulation and implementation of cost recovery policies normally will be a long-term objective requiring the active participation of the community in terms of the selection of technologies, as well as type and density of service coverage for which they are able and willing to pay, and for the administration of the policies themselves. Improved procedures for the recovery of operating costs, and to the extent possible of investment costs, are needed for the efficient operation of urban and rural water supply systems. Governments are urged to institute the necessary mechanisms to strengthen their capability to implement cost recovery schemes.

90. Governments need to assign a high priority to increasing the impact of existing financial resources, in order to ensure that sustainable services reach the maximum number of people. A key to achieving this will be the application of low-cost technologies which are acceptable to the community and are appropriate in terms of reliability, initial investment costs, ease of operation and maintenance procedures, and operating costs. During the Decade significant progress in the development of low-cost technologies was achieved, particularly in rural areas. Their application however, needs to be considered for, and new methods applied to, the extension of services to the poor in peri-urban areas.

91. The Mar del Plata Action Plan recommended that countries evolve, within the framework of national science policies, a particular policy for research work in the development, management and conservation of water resources. The need still

remains for countries to analyse research and development requirements, particularly in the areas of applied adaptive research, and to develop programmes to ensure that systems introduced are appropriate both from a technical and operational point of view, as well as from a standpoint of social acceptability. The intensification of information exchange will ensure that the results are widely disseminated so as to maximize benefits and avoid duplication of efforts.

92. The Mar del Plata Action Plan also stated that countries should accord priority to conducting surveys to determine national needs for administrative, scientific and technical manpower in the water resources area. Since the availability of suitably trained personnel at all levels remains a serious constraint, countries are urged to conduct manpower surveys to define and identify such needs, or to update existing surveys so as to ensure their validity in the years to come. Surveys should be carried out in the context of planned expansion of services and, where necessary, curricula may need to be modified or strengthened in the formal education sector. The number of water management specialists and engineers should be increased, and national, regional and international training programmes established or strengthened for technicians and workers, including training of villagers for the management, operation and maintenance of local supply facilities. Employment policies, including motivation through improved working conditions, status, and career possibilities, need to be formulated which will encourage the retention of trained personnel. A special target group for training should be women, who are generally under-represented at the professional and technical levels in the sector. Emphasis needs to be given to training in the operation and maintenance of systems at the community level as a key to sustainability of rural systems.

93. Partnerships between developing country and industrialized country sector institutions or professional associations provide a means of overcoming staff shortages at a reasonable cost and contributes to a two-way information exchange benefiting both parties, i.e. the developing countries would benefit from the experience of the industrialized, while the awareness of the needs of the developing countries would be increased in the industrialized countries, hence enhancing their capacity to provide support.

94. The experience acquired during the Decade amply demonstrates the need for the development of government programmes to promote community involvement on a large scale and the continued expansion of women's involvement at the technical and decision-making level. An integrated approach involving the community, enhanced women's involvement and appropriate technology will have an important role to play in rural and peri-urban areas where sustainability will, to a large extent, depend on community participation. Governments should consider the need to develop the necessary technical and financial support programmes, such as extension services and special credit and marketing arrangements in order to ensure the viability of community ventures and the involvement of women.

95. Greater efforts will be needed to monitor service coverage for both water supply and sanitation. Reliable data concerning water supply and sanitation coverage of urban and rural populations are an indispensable tool for formulating effective policies and allocating resources to maximize the economic and social

benefits of expanded services. While improvements in monitoring took place during the Decade, developing countries, as a rule, still lack sufficiently reliable information. In addition, national standards for water quality, accessibility and density of water supply and sanitation services are generally poorly defined and monitored. Countries are urged to review such standards with a view to upgrading minimum services in the 1990s, to establish the necessary procedures in order to have a suitable baseline for service coverage, and to monitor progress in the extension of services.

96. In support of national programmes to attain these objectives, the activities of the external support community, including non-governmental organizations, will need to be strengthened and co-operative programmes made more effective.

97. The United Nations system must continue to act as a catalyst for accelerating water and sanitation programmes at the country level, and as a focal point for promoting global initiatives on public awareness and co-ordinated strategies for water supply and sanitation development. Co-ordination and co-operation among the organizations of the United Nations system will be strengthened by bringing about closer linkages between drinking water supply and sanitation and water resources development as a whole, and in particular, planning and management issues.

98. Co-ordination of the United Nations system with other external support agencies at the global level, in terms of developing common approaches and policies, has been strengthened through the establishment of a Framework for Global Co-operation 20/ aiming at maintaining the Decade momentum into the 1990s, and accelerating the provision of water supply and sanitation services to all, with special emphasis on the provision of such services to the rural and peri-urban poor.

99. Support to the co-ordination of efforts at the country level will continue to be given through the offices of the resident representatives of the UNDP. In this regard, particular attention needs to be given to the assisting governments, at their request, in strengthening their capability to formulate programmes and projects requiring support from multilateral and bilateral organizations.

100. In parallel with improved external support co-ordination and collaboration at country level, and complementary to increased national priority and funding to the sector, external support agencies need to continue to seek ways and means of expanding their financial and technical support to developing countries. International and bilateral financing agencies should explore the possibility of increasing grants and low interest bearing loans, and accepting higher proportions of local costs, particularly for schemes directed at the provision of service to the urban and rural poor.

101. As the availability of trained personnel at all levels and the inadequacy of institutions still constitute two of the most critical constraints, external support agencies may consider the case for developing a major co-ordinated programme aimed at assisting developing countries in the assessment of human resources needs, and in the formulation and implementation of human resources development programmes. Their active involvement is also needed in support of

research activities in developing countries and in the promotion of technical co-operation in the sector.

102. The external support agencies have played an important role in promotion of appropriate low-cost technology, and in the adoption of suitable operation and maintenance procedures. Their continued and expanded involvement in their regard will constitute a pivotal element in the increased momentum for the 1990s.

Notes

1/ Report of the United Nations Water Conference, Mar del Plata, 14-25 March 1977 (United Nations publication, Sales No. E.77.II.A.12), chap. I.

2/ Report of Habitat: United Nations Conference on Human Settlements (United Nations publication, Sales No. E.76.IV.7), chap. II.

3/ Report of the United Nations Water Conference, Mar del Plata, 14-25 March 1977 (United Nations publication, Sales No. E.77.II A.12), resolution II.

4/ World Economic Survey 1989. Current Trends and Policies in the World Economy, p. 8, (United Nations Publication, Sales No. E.89.II.C.1).

5/ United Nations Department of Economic and Social Affairs.

6/ World Economic Survey 1989, p. 62.

7/ United Nations, Prospects of World Urbanization 1988, p. 7, (United Nations Publication, Sales No. E.89.XIII.8).

8/ Ibid., p. 7.

9/ United Nations, Department of Economic and Social Affairs, Population Growth and Policies in Mega-cities, Population Policy Papers Nos. 5, 6, 7, 8, 10, 12 and 13.

10/ Esrey, S. A., Feachem, R. G., & Hughes, J. M., (1985). "Interventions for the Control of Diarrhoeal Diseases Among Young Children: Improving Water Supply and Excreta Disposal Facilities", in Bulletin of the World Health Organization, 63(4): 757-772.

11/ United States Department of Health & Human Services: Public Health Service, Centre for Disease Control, International Activities - Guinea Worm Wrap-up No. 24, 1989.

12/ United Nations Economic Commission for Africa, "Combatting Guinea-Worm Disease, in Information Bulletin on Water Resources Development in Africa, Maji, Issue No. 1, April 1989.

13/ West, S., et al., "Water Availability and Trachoma", in Bulletin of the World Health Organization, 1989; 67(1): 71-75.

14/ DeWolfe Miller, F., Water Supply Improvements Reduce Schistosomiasis Prevalence and Incidence, proceedings of International Conference of Water 1989, Water Decade and Beyond, Bangkok - World Water Publication.

15/ World Health Organization, Human Resources Development handbook. Guidelines for Ministries and Agencies Responsible for Water Supply and Sanitation. Neil Carefoot and Howard Gibson, eds., Geneva, 1984; WHO document No. WHO/CWS/ETS/84.3.

16/ Population figures are taken from World Population Prospects 1988, United Nations, New York, 1989. (United Nations publication, Sales No. E.88.XIII.7).

17/ United Nations, Prospects of World Urbanization 1988, p. 76.

18/ Ibid.

19/ For a discussion of this question, see: Committee for Development Planning, Water the Fundamental Resource, Occasional paper No. 1, February 1990.

20/ See International Drinking Water Supply and Sanitation Consultation, Interlaken, Switzerland, 13-16 October 1987, Consultation secretariat, CWS/WHO.

NEW DELHI STATEMENT

Safe water supplies and disposal of solid and liquid wastes are priorities for improved health, poverty alleviation and environmental protection. Their provision through community management must be a primary goal for the 1990s.

Maximizing sustainable water supply and sanitation coverage will require political commitment to apply the many lessons of the International Drinking Water Supply and Sanitation Decade. Use of appropriate technologies, combined with community management, and human resource development will reduce investment costs and improve sustainability. Countries can thus extend coverage with socially acceptable and affordable service standards at achievable investment levels.

The 1980s saw unprecedented progress in bringing water and sanitation services to many millions of the world's poorest people. But it was not enough. One in three of the developing world's population still lack these basic human needs.

Entering the 1990s, population growth in some countries remains unchecked. Infrastructure in many cities is stretched to breaking point. Uncontrolled pollution puts further stress on the living environment and aggravates competition for increasingly expensive water resources. Without fundamentally new approaches, the hardship will turn into an unmanageable crisis.

During the International Drinking Water Supply and Sanitation Decade (1981-1990) every developing country has learned its own lessons. Combining those experiences with a renewed commitment to provide sustainable water and environmental sanitation systems for all people is the only way forward.

To reach full coverage by the year 2000 with present technologies and approaches would require five times the current investment level. That is not a viable option. In the 1990s, sector agencies can dramatically increase the efficiency of providing and sustaining services. At the same time, increased financial resources must be sought from governments, ESAs and consumers. For example, halving the costs and at least doubling the financial allocation could allow universal coverage to be approached by the end of the century.

For the sector to take up this challenge, there are four guiding principles within an overall philosophy of "some for all rather than more for some" :

- safeguarding health and protecting the environment through integrated water resource and waste management;

- a reorientation of institutional strategies to ensure an integrated approach, including educational aspects, a change in attitudes, behaviour and procedures, and participation of women at all levels of sector institutions;

- community management and operation of facilities;

- sound financial practices, improved management of existing assets, and consistent use of appropriate technologies;

The political and financial commitments are substantial. For the sector to achieve its objectives, governments must accept that the enabling environment for progress will often involve profound institutional, economic and social changes, and reallocation of resources and responsibilities at all levels.

PEOPLE AND THE ENVIRONMENT

Future sector development must be environmentally sustainable and viewed in the broader context of water resources. Rapid population growth, aggravated by accelerating urbanization, threatens health and the environment and presents governments with daunting challenges in the 1990s. It is the poor and especially women and children who will be hardest hit. Improvements to the household environment can be most effectively achieved through people's involvement as equal partners in resource management. This involves building on indigenous knowledge systems to ensure that policies and programmes are viewed as rational by people and hence accepted. Emphasis should be placed on education, awareness creation, social mobilization and community participation activities and on further development and dissemination of household technologies to preserve water quality from source to consumption.

Drainage and the sanitary disposal of solid wastes improve the neighbourhood environment. New and environmentally appropriate solutions are required which reflect the need to conserve resources, minimize environmental pollution and are affordable to the community they serve. Wastewater reuse and solid wastes recycling are powerful solutions for the 1990s.

Another challenge is to combat increasing water scarcity and pollution, through integrated water resources management including such measures as water conservation, water harvesting, and waste management. Existing supplies should be drawn in ways which do not threaten scarce resources of future generations. An appropriate mix of legislation, pricing policies and enforcement mechanisms will be needed to optimize water conservation and protection.

Water related diseases cause the deaths of thousands of children and untold suffering and loss of working time every day. Safe water combined with improved hygiene behaviour and better nutrition can reduce, and sometimes even eliminate these diseases. Dramatic reductions in the prevalence of dracunculiasis (Guinea worm) has been attributed to the provision of improved water supplies and hygiene behaviour in endemic areas. The target of total eradication by 1995 should be fully supported, and affected countries should accord it appropriate priority in investment programmes.

Toxic and industrial wastes pose increasing dangers to developing country environments. They represent a potentially significant danger to human health through direct contact and through the pollution of water and soil. Responsible agencies need to take steps to control health hazards caused by these wastes.

PEOPLE AND INSTITUTIONS

Strong institutions are essential for sustainability. They require sound management, motivated people and an enabling environment of appropriate polices, legislation and incentives. A changing role of government is envisaged, from that of provider to that of promoter and facilitator, enabling local public, private and community institutions to deliver services. This decentralization demands a strong policy and support role for central government. In addition, private enterprise can have an important role in improving efficiency in service delivery.

The role of NGOs in development must be reconfirmed and strengthened. This can be achieved through a stronger link between NGOs and other actors in the sector. NGOs are flexible, credible, and are ready and able to experiment with innovative approaches. Governments are encouraged to support the role of NGOs to replicate these approaches.

Human resource development is a central element of institutional development, and must include training of professionals, technicians and managers to build actively people's competence and confidence. Information, education and communication strategies should be integrated within human resource development policies. Women must be trained and guaranteed equal employment opportunities at all levels of staff and management. National professional associations can play an important role in the human resource development.

COMMUNITY MANAGEMENT

Community management goes beyond participation to empowering and equipping communities to own and control their own systems and is the key to sustaining services for the rural poor. It is also a viable option for poor urban settlements when weak urban institutions cannot provide services. Governments should support

community management, through legislation and extension, and give it priority in national sector strategies for the 1990s.

Within these strategies, gender issues will be all important. Women should be encouraged to assume prominent roles in planning, resource mobilization, and all subsequent aspects of sector development. Capacity building is necessary to make community management effective and enable women to play leading roles.

Effective linkages have to be established, to ensure that national plans and programmes are responsive to community needs and desires. Models and indicators for the achievement of community management have been developed and should be adopted at the national level and implemented through participatory monitoring and evaluation techniques.

FINANCING AND TECHNOLOGY

Given the number unserved and the increasing demand, more effective financial strategies must be adopted in the 1990s for the long-term sustainability of the sector. These strategies need to have two key objectives:

- Increased efficiency in utilization of available financial resources

- Mobilization of extra funds by diversification of sources of finance

Current levels of investment in the sector are about US$ 10 billion per year. It is estimated that approximately US$ 50 billion would be needed to reach full coverage by the year 2000, adopting conventional approaches. As this five-fold increase is unthinkable, major gains in sustained coverage will require substantial increases in efficiency in the utilization of financial resources. This will need changes in the incentive environment of service agencies, to make them more cost effective and responsive to consumer needs and demands. For example, involving consumers in choice of technology and service levels has a positive impact on the efficacy of cost recovery. Emphasis on rehabilitation of defective systems, reductions in wastage and unaccounted for water, recycling and reuse of wastewater, and improved operation and maintenance can be more effective than investment in new services.

Choice of technology and level of service are major determinants of construction, operation and maintenance costs of new projects. Sustainability and affordability are important criteria in technology selection. Where adequate operation and maintenance is not assured, no investments should be made.

A powerful case can be developed for higher government and external support agency allocations to the sector by highlighting and

quantifying the economic and social benefits and by integrating sector investments with income generation, and poverty alleviation programmes.

Funding allocations and user charges are key areas of sector finance. Higher budget allocations and recovery of recurrent costs of operation and maintenance, to ensure system sustainability are the critical goals to be accomplished. Effective cost recovery requires that sector institutions should have autonomy and authority. Appropriate charging mechanisms should reflect local socio-cultural and economic conditions. Collection should be decentralized so that revenues are clearly seen to stay with the community or supply agency,to be used for management and operation of services.

Public sector organizations frequently default on payments for water supply and waste disposal services. For reasons of financial viability and equity, this practice should not be tolerated. Increasing collection efficiency should be part of every financial management improvement program.

FOLLOW-UP

Implementation of the new approach will need to be part of country specific strategies which specify actions to be taken. Countries and ESAs are urged to formulate and implement action plans for water and sanitation incorporating the guiding principles of the New Delhi statement. Other specialized agencies are invited to support this process. The Water and Sanitation Collaborative Council is recognized as a convenient global forum for the exchange of information on sector issues and experiences. The Council brings together sector professionals from ESAs, NGOs, professional associations, and developing country sector agencies. It can establish task forces in which members can collaborate in activities of mutual interest and undertake promotion and public information efforts to increase public awareness in support of renewed efforts in sector development. ESAs should develop procedures or guidelines which would reduce project preparation time.

The conclusions of the New Delhi Consultation will be widely disseminated. The New Delhi Statement will be presented to the UNICEF Summit for Children in late September 1990. It will be submitted by the Government of India to the November meeting of the U.N. General Assembly held to review the IDWSSD. In addition, the Statement will be sent to the organizers of the 1992 World Environment Conference in Brazil with a request that it be tabled to emphasize the special importance of water and sanitation in environmental management.

1. Cessti, Rita (1989) Water resources: problems and issues for the water sector. Washington, D.C., The World Bank.

2. Elmendorf, Mary L and Iseley, Raymond B. (1983). Public and Private Role of Women in Water Supply and Sanitation Programmes. Human organization, 42,3.

3. ESA Collaborative Council, Temporary Working Group on Applied Research (1989). Report to the 1990 Committee.

4. Falkenmark, Malin (1989). Water Scarcity much more than droughts. A study of Water Resources constraints in African Development. Standford University, VSP, 1–3 February.

5. IRC (1988) Community participation and women's involvement in water supply and sanitation projects. A Compendium Paper, The Hague, IRC

6. Kalbermatten, J. and McGarry, M. (1987). Beyond the Decade. International Drinking Water Supply and Sanitation Consultation, Interlaken, Switzerland, October 13–14.

7. Narayan-Parker, Deepa (1989). Goals and indicators for integrated water supply and sanitation projects in partnership with people. New York, PROWWESS/UNDP.

8. Popkin, B. (1980). "Time allocation of the mother and child nutrition". Ecology of food and nutrition, 9, p.1–14.

9. Romeo-Alvares, H. (1989). Water resources management issues for water supply and sanitation. Paper presented at the collaborative Council Meeting, Sophia Antipolis, France, November 28–December 1.

10. Shaeffer, J.R. (1983) Future water.

11. Singh, Andrea (1983). Employment opportunities for rural women through organization. New Delhi, India, ILO.

12. United Nations General Assembly, Resolution 3520 (XXX) of 15 December 1975.

13. United Nations General Assembly, Resolution 1988-LXof 12 May 1976.

14. United Nations General Assembly. Report of the United Nations, Water Conference, Mar del Plata, 14–25 March 1977. (United Nations publication, Sales No. E, 77.II.A.12), Resolution II, 1977.

15. United Nations General Assembly. Report of the Secretary General to the General Assembly, forty-fifth session, Report of the Economic and Social Council, Assessment of the International Drinking Water Supply and Sanitation Decade – A/45/327, 13 July 1990.

16. Van Wijk-Sijbesma, C. (1985). Participation of women in Water Supply and Sanitation: Roles and Realities, The Hague, IRC and PROWWESS/UNDP, p.18.

17. Van Wijk, C. (1989) Sustainability and Community Management. Paper presented at the Sector Day on sustainability of the Water Supply and Sanitation Sector, The Hague, DGIS, 8 December.

18. Watters, G. (1989). Decade Assessment Report 8. September 1989.

19. WHO and DGIS 1989.International Drinking Water Supply and Sanitation Consultation. The Hague, The Netherlands, 2–4 November 1988.

20. World Conference of the United Nations Decade for Women: Equality, Development and Peace, Copenhagen, 1980.

How can the activities of the United Nations and Water Supply and Sanitation Collaborative Council be enhanced in your country?

What are the present problems of enhancing women's participation in sustainable WSS projects and programmes in your country?

What would you suggest as possible solutions to meet these problems and strengthen women's participation in WSS projects and programmes?

NAME OF PARTICIPANT

.....

INSTITUTION

.....

OCCUPATION

.....

COUNTRY

.....

DATE

.....

Mark the box which corresponds best to your opinion on each question.

1. Your professional interest in the particular topic included in this modular unit was:

   high ☐ ☐ ☐ ☐ low

2. The objectives of this module were:

   clear ☐ ☐ ☐ ☐ not clear

3. Would you say that the objectives of this module met all, some or none of your expectations?

   3.a) Which objectives were not met?

3.b) Explain briefly why the objectives were not met.

4. The contents of this module were:

well structured ☐ ☐ ☐ ☐ badly structured

4.a) If they were badly structured, explain why.

5. The terminology in this module was:

easy to understand ☐ ☐ ☐ ☐ hard to understand

6. The visual material (slides, drawings, diagrams...) used in this module was:

clear ☐ ☐ ☐ ☐ confused

useful ☐ ☐ ☐ ☐ useless

7. The checklists have covered the subject studied:

completely ☐ ☐ ☐ ☐ not at all

8. The checklists were:

useful	☐	☐	☐	☐	useless
too simple	☐	☐	☐	☐	too complicated
sufficient	☐	☐	☐	☐	insufficient

9. Studying this module enabled you to learn:

many new things	☐	☐	☐	☐	nothing new

10. The knowledge acquired through this module will, in your present profession be:

useful	☐	☐	☐	☐	useless

11. The knowledge acquired through this module will, in the near future be:
(Reply to this question only if the answer to question no. 10 is negative)

useful	☐	☐	☐	☐	useless

12. List the topics you would like to have treated more extensively:

1) .....

2) .....

3) .....

13. List the topics you would like to have treated to a lesser extent:

1) .....

2) .....

3) .....

14. List the topics not included in this module which you think are of particular interest to your profession:

    1) .....

    2) .....

    3) .....

15. List any suggestions for improvement of this training module:

    .....

    .....

    .....

    .....

    .....

    .....

This evaluation questionnaire should be sent to:

UN/INSTRAW,
P.O. BOX 21747
SANTO DOMINGO
The Dominican Republic

TRAINER'S GUIDE

HARDWARE

1. Overhead projector
2. Screen
3. Slide projector, 24 mm with synchroniser
4. Blackboard
5. Flipcharts (optional)
6. Tape recorder

DOCUMENTS TO BE USED BY THE TRAINER

See "Module Structure", page 3

DOCUMENTS TO BE DISTRIBUTED TO TRAINEES

WI-1.1: Target groups

WI-1.2: Objectives

WI-2.1: Table of contents

WI-2.2: Text

WI-2.3: Additional reading

WI-2.4: Bibliography

WI-3.1: Checklists on key issues for group work

WI-3.2: Evaluation questionnaire

KEY POINTS	TRAINING METHOD AND ACTIVITIES	DOCUMENTS TO BE DISTRIBUTED	AUDIOVISUAL SUPPORT MATERIAL
INTRODUCTION			
1. Objectives	Presentation		Sound/slide package: "Women, Water Suppl;y and Sanitation"
2. Consequences of insufficient water and sanitation	Presentation/discussion		WI-1 WI-2
PRESENTATION			
3. Overview of IDWSSD	Presentation		WI-3
4. UN mechanisms for involving women	Presentation		WI-4
5. Relevance of women's involvement	Presentation/discussion		WI-5 WI-6 WI-6A WI-7
6. Decade achievements	Presentation		WI-8
7. Plans and actions for the 1990s	Presentation/discussion		WI-9
8. Framework for global cooperation	Presentation		WI-10
9. Strengthening women's involvement	Presentation/discussion		WI-11
SUMMARY			
10. Key issues checklists	Group discussion	Checklists WI-3.1	
11. Presentation on checklists	Plenary discussion		
MONITORING AND CONTROL			
12. Module evaluation questionnaire	Individual activity	Questionnaire WI-3.2	

NAME OF TRAINER .....

COUNTRY ..... **DATE** .....

AVERAGE EDUCATIONAL QUALIFICATIONS OF PARTICIPANTS .....

.....

.....

.....NUMBER OF PARTICIPANTS .....

Mark the box which corresponds best to your opinion on each question.

1. To what extent has the module achieved the objectives stated?

☐ over 80%

☐ 70 – 80%

☐ 60 – 70%

☐ 50 – 60%

☐ less than 50%

2. Did the objectives meet the needs of the group?

totally ☐ ☐ ☐ ☐ not at all

3. On the basis of the objectives stated, the subject matter is:

relevant ☐ ☐ ☐ ☐ irrelevant

4. The progression of the subject matter is:
(Give reasons for your answers)

too fast ☐ ☐ ☐ ☐ too slow

5. List the topics you would like to have treated in the package more extensively:

   a) .....

   b) .....

   c) .....

6. List the topics would like to have treated to a lesser extent:

   a) .....

   b) .....

   c) .....

7. List the topics not included in this module that you think should be included:

   a) .....

   b) .....

   c) .....

8. The technical quality of the audiovisual material was:

   high ☐ ☐ ☐ ☐ low

9. The relevance of the audiovisual material was:

   high ☐ ☐ ☐ ☐ low

10. The quantity of the audiovisual material was:

    high ☐ ☐ ☐ ☐ low

11. The sound/slide package (where applicable) was:

    too long ☐ ☐ ☐ ☐ too short

12. Your global evaluation, bearing the objectives and teaching resources of the module you have tested in mind is:
(Give reasons for your answer)

excellent ☐ ☐ ☐ ☐ mediocre

After completion, please forward this document to:

UN/INSTRAW,
P.O. BOX 21747
SANTO DOMINGO
The Dominican Republic

WI-1: Need for water and sanitation

WI-2: Consequences of insufficient water and sanitation

WI-3: Goals of the Decade

WI-4: UN mechanisms for involving women

WI-5: Relevance of women's involvement

WI-6: Present problems

WI-6A: Present problems

WI-7: Possible solutions

WI-8: Achievements of the Decade

WI-9: Water supply and sanitation coverage by region, 1980-1990, and coverage for 2000 at current rates of progress

WI-10: Key issues for the 1990s

WI-11: Framework for global cooperation

WI-12: Strengthening women's involvement

TRANSPARENCIES

NEED FOR WATER AND SANITATION

	1980	1990
NO SAFE WATER	1,800	1,200
NO SAFE SANITATION	1,700	1,700

Source: United Nations (1990), Table 2

CONSEQUENCES OF INSUFFICIENT WATER AND SANITATION

HIGH DISEASE INCIDENCE: 80% WATER AND SANITATION RELATED

HIGH CHILD DEATH, ESPECIALLY FROM DIARRHOEA

HIGH HEALTH COSTS FOR GOVERNMENTS AND FAMILIES

LOSS OF SCHOOL ATTENDANCE AND ECONOMIC PRODUCTION

LESS TIME, WATER AND ENERGY FOR WOMEN AFFECTING:

- **AGRICULTURAL INPUTS BY WOMEN**
- **FOODCROP PRODUCTION BY WOMEN**
- **DOMESTIC HYGIENE BY WOMEN**
- **CHILD CARE BY WOMEN**
- **INCOME GENERATING ACTIVITIES BY WOMEN**
- **SOCIAL DEVELOPMENT ACTIVITIES BY WOMEN**

GOALS OF THE DECADE

IMPROVED WATER SUPPLY AND SANITATION FOR ALL

RELIABLY FUNCTIONING FACILITIES

GENERAL AND HYGIENIC USE

ONGOING EXPANSION TO MEET POPULATION GROWTH

HUMAN AND INSTITUTIONAL CAPACITIES AT ALL LEVELS

UN MECHANISMS FOR INVOLVING WOMEN

1976	ESTABLISHMENT OF INSTRAW
1980	COPENHAGEN DECLARATION ON WOMEN AND WATER
1980	LAUNCHING OF IDWSSD TASK FORCES ON HRD, PROJECT FORMULATION, PUBLIC INFORMATION AND INFORMATION EXCHANGE
1982	TASK FORCE ON WOMEN
1983	UNDP/PROWWESS
1986–1989	INSTRAW TRAINING COURSES "WOMEN, WATER AND SANITATION"
1989	TASK FORCE DOCUMENT
1990	END OF IDWSSD

RELEVANCE OF WOMEN'S INVOLVEMENT

MOTIVATION OF PROJECT SUPPORT

PHYSICAL CONTRIBUTIONS

PRACTICAL KNOWLEDGE

LOWER CONSTRUCTION AND MAINTENANCE COSTS

BETTER FUNCTIONING OF COMPLETED SYSTEMS

MORE GENERAL AND CONSISTENT USE

PRESENT PROBLEMS

a. **Not enough water for daily needs; if available, generally polluted**

b. **Not enough attention given to women as main users of water**

c. **Women excluded from planning and implementation**

d. **Not enough information on women related to water/sanitation and health**

e. **Technologies do not always take into consideration social and cultural context and level of know-how**

PRESENT PROBLEMS (cont.d)

f. Lack of consultation with women in technical aspects leading to impractical solutions

g. Local women's traditions are not considered in choosing the design and location of project

h. Insufficient provision for maintenance of the system

i. Little or no integration of services into hygiene and sanitation projects

j. Women's roles are often ignored in community activities

POSSIBLE SOLUTIONS

BRING WATER SOURCES WHERE AVAILABLE

COMMUNITY PARTICIPATION

RAISING AWARENESS

TRAINING

EDUCATION

APPROPRIATE CHOICE OF TECHNOLOGY

PLANNING

IMPLEMENTATION, EVALUATION AND FOLLOW-UP

ACHIEVEMENTS OF THE DECADE

IMPROVED SECTOR PLANNING

INCREASED COVERAGE – ESPECIALLY IN WATER SUPPLY AND URBAN AREAS

INCREASED AND CHANGED FINANCING

USE OF MORE APPROPRIATE TECHNOLOGIES

COMMUNITY INVOLVEMENT IN LOCAL PLANNING AND MANAGEMENT

RECOGNITION OF WOMEN'S ROLES IN PLANNING, MAINTENANCE, MANAGEMENT

INNOVATIVE APPROACHES TO COST-RECOVERY

COMPLEMENTARITY OF WATER SUPPLY, SANITATION AND HYGIENE EDUCATION

MOBILISATION OF THE PRIVATE SECTOR

KEY ISSUES FOR THE 1990s

IMPROVED MAINTENANCE AT LOWER COSTS

MORE FLEXIBILITY IN TECHNOLOGY AND SERVICE LEVELS

DECENTRALISATION OF DECISION-MAKING

USE OF PARTICIPATORY METHODS IN WORKING WITH PEOPLE

ENHANCEMENT OF WOMEN'S INVOLVEMENT

LOCAL FINANCING SYSTEMS

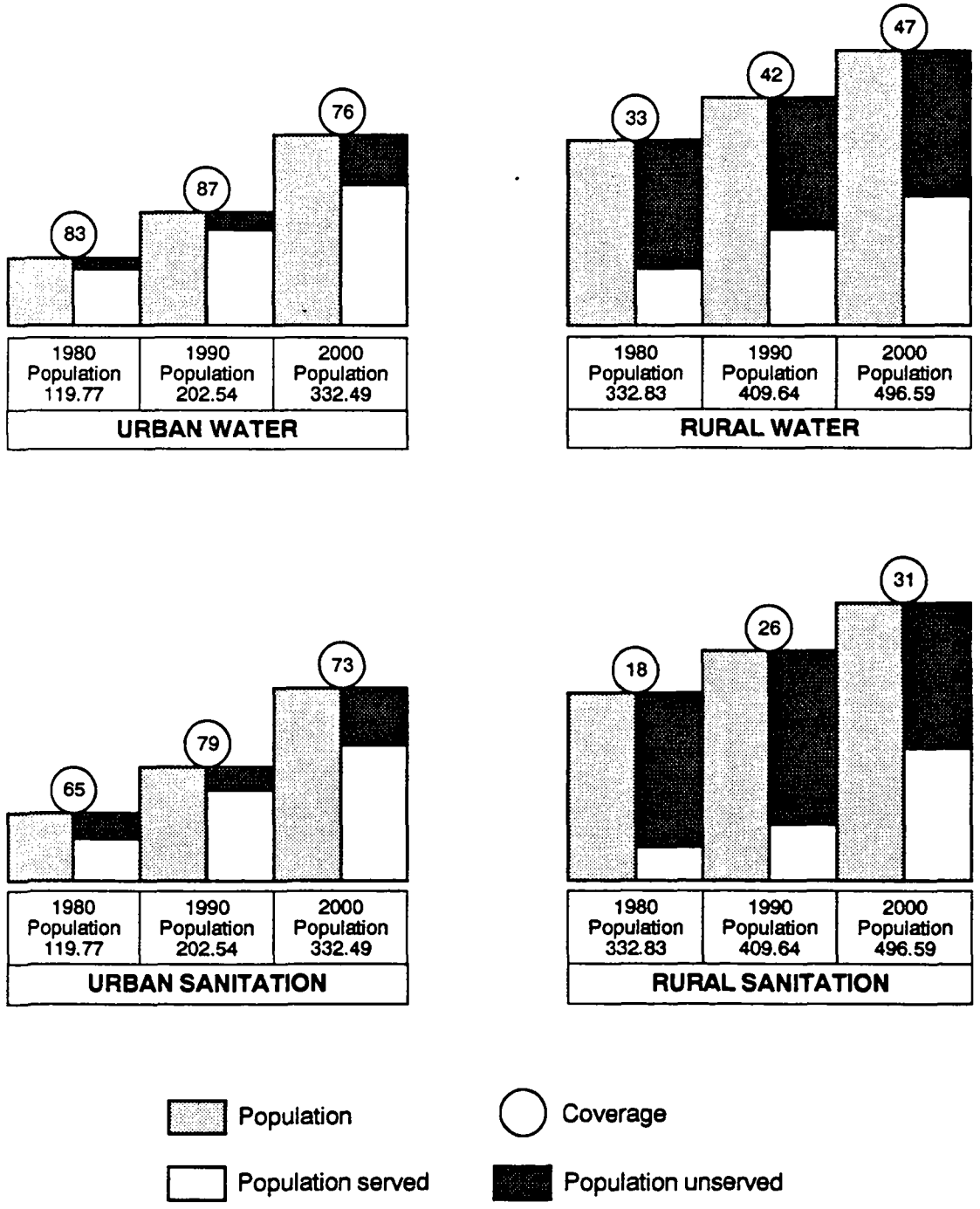
REDUCING THE GAP IN SANITATION

MORE EFFECTIVE FORMS OF HYGIENE EDUCATION

WATER SUPPLY AND SANITATION COVERAGE BY REGION, 1980-1990, AND COVERAGE FOR 2000 AT CURRENT RATES OF PROGRESS

AFRICA

(Population in millions)

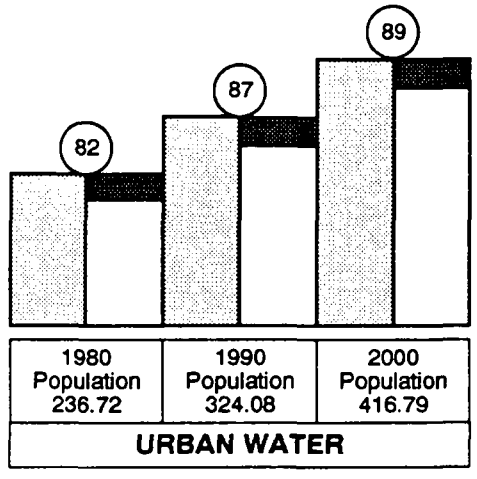


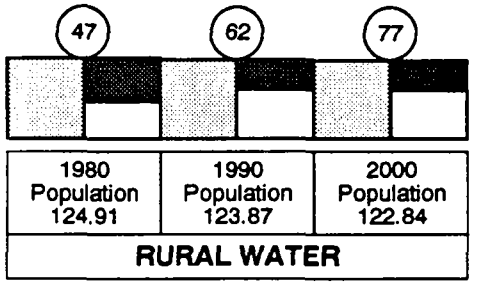
Source: United Nations Economic and Social Council 1989 Achievements of the Decade 1981-1990. Report of the Secretary General, 13 July, p. 20.

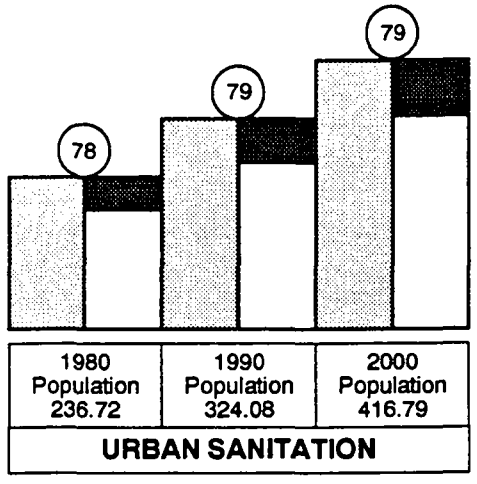
WATER SUPPLY AND SANITATION COVERAGE BY REGION, 1980-1990, AND COVERAGE FOR 2000 AT CURRENT RATES OF PROGRESS

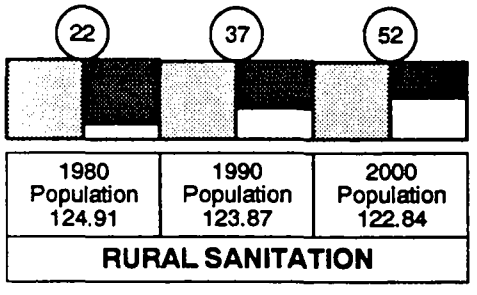
LATIN AMERICA and the CARRIBEAN

(Population in millions)









Population | Coverage

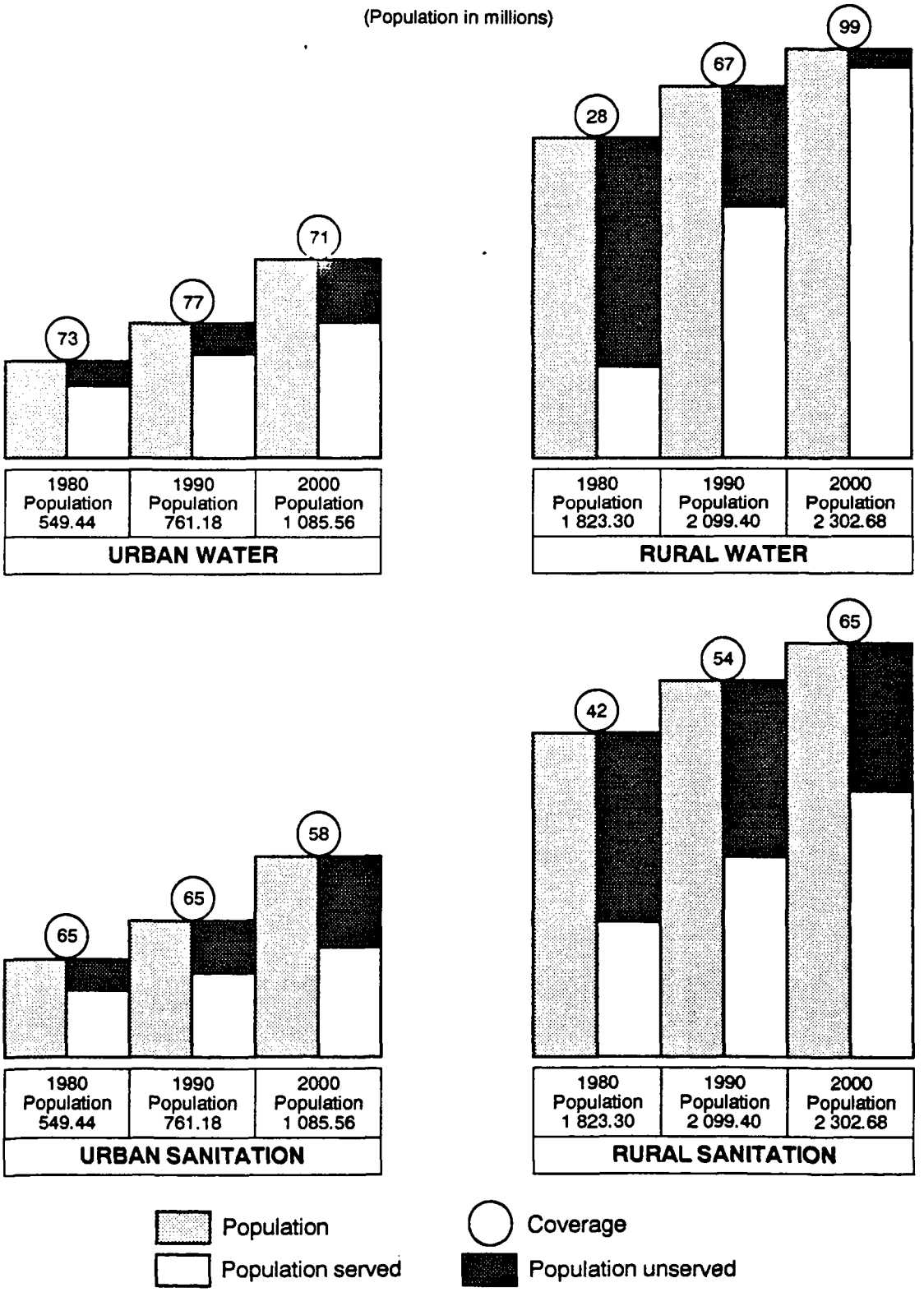
Population served | Population unserved

Source: United Nations Economic and Social Council 1989 Achievements of the Decade 1981-1990. Report of the Secretary General, 13 July, p. 20.

WATER SUPPLY AND SANITATION COVERAGE BY REGION, 1980-1990, AND COVERAGE FOR 2000 AT CURRENT RATES OF PROGRESS

ASIA and the PACIFIC

(Population in millions)

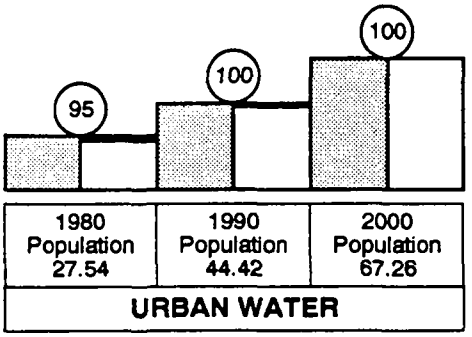


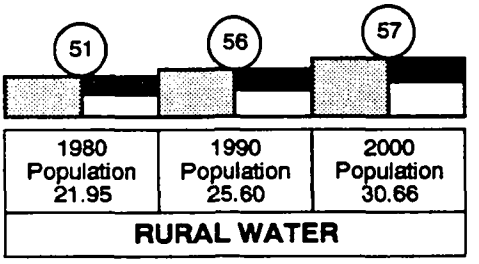
Source: United Nations Economic and Social Council 1989 Achievements of the Decade 1981-1990. Report of the Secretary General, 13 July, p. 20.

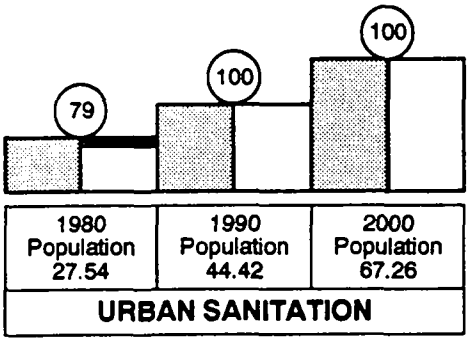
WATER SUPPLY AND SANITATION COVERAGE BY REGION, 1980-1990, AND COVERAGE FOR 2000 AT CURRENT RATES OF PROGRESS

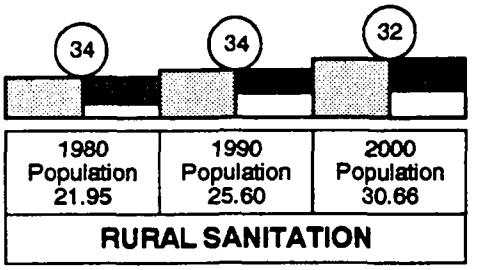
WESTERN ASIA

(Population in millions)









Population | Coverage

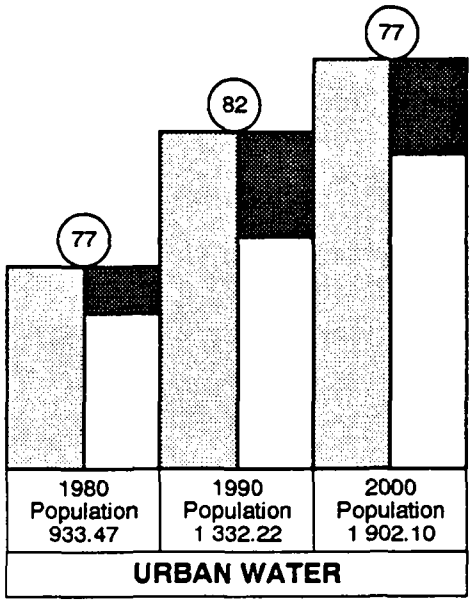
Population served | Population unserved

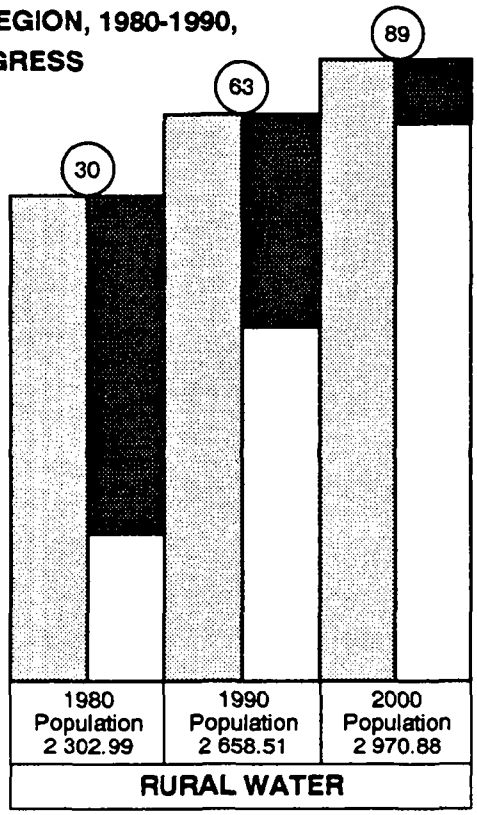
Source: United Nations Economic and Social Council 1989 Achievements of the Decade 1981-1990. Report of the Secretary General, 13 July, p. 20.

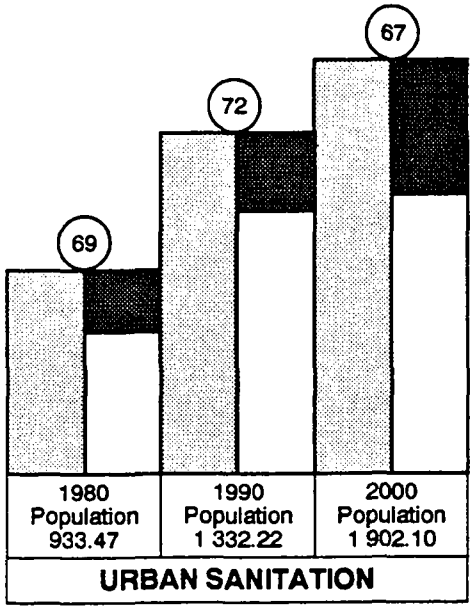
WATER SUPPLY AND SANITATION COVERAGE BY REGION, 1980-1990, COVERAGE FOR 2000 AT CURRENT RATES OF PROGRESS

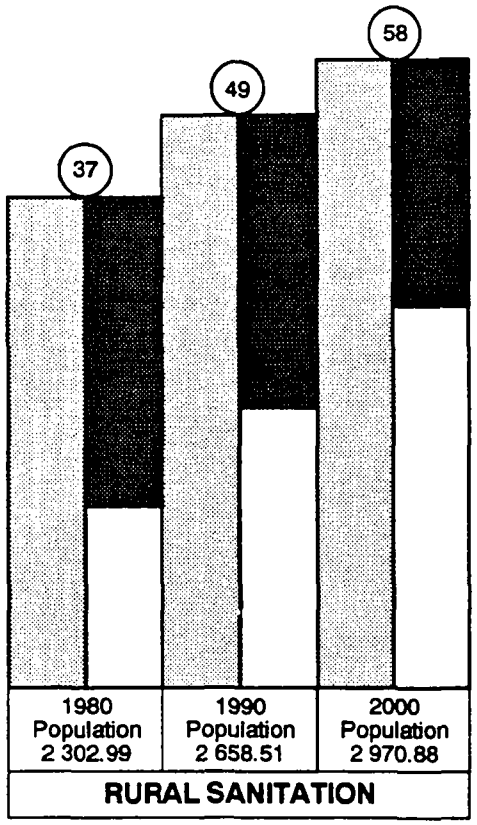
GLOBAL TOTALS

(Population in millions)









Population | Coverage | Population served | Population unserved

Source: United Nations Economic and Social Council 1989 Achievements of the Decade 1981-1990. Report of the Secretary General, 13 July, p. 20.

FRAMEWORK FOR GLOBAL COOPERATION

A. AT COUNTRY LEVEL

- COORDINATING ROLE FOR UNDP RES.REP.
- PERIODIC COUNTRY MEETINGS

B. AT REGIONAL LEVEL

- UNDP/WB REGIONAL WATER AND SANITATION GROUPS
- TOPIC-SPECIFIC CONSULTATIONS

C. AT GLOBAL LEVEL

- WATER SUPPLY AND SANITATION COLLABORATIVE COUNCIL
- 5-YEARLY CONSULTATIVE MEETINGS

STRENGTHENING WOMEN'S INVOLVEMENT

THREE KEY MEASURES RECOMMENDED ARE:

- INVOLVEMENT OF WOMEN ON ALL PROJECT PREPARATION TEAMS
- EARLY IDENTIFICATION OF IMPLEMENTING ORGANISATIONS FOR COMMUNITY PARTICIPATION AND INVOLVEMENT OF WOMEN
- BUDGETARY PROVISIONS FOR ALL NON-TECHNICAL ASPECTS, INCLUDING COMMUNITY PARTICIPATION AND INVOLVEMENT OF WOMEN

MODULE II

PARTICIPATION OF WOMEN IN PLANNING, CHOICE OF TECHNOLOGY AND IMPLEMENTATION OF SUSTAINABLE WATER SUPPLY AND SANITATION PROJECTS

The present training modules on **"Women, Water Supply and Sanitation"** comprise an up-dated revision of the modules originally prepared in 1986 by the United Nations International Research and Training Institute for the Advancement of Women (INSTRAW) and the ILO Training Centre, in Turin, Italy.

This version, has been undertaken as a collaborative effort by INSTRAW, the ILO Training Centre in Turin, Italy, and the United Nations Department of Technical Co-operation for Development (UN/DTCD), through its Task Force on Women's Development. The production of the training packages was funded by UN/DTCD.

The DTCD Task Force, established in 1982, is the oldest such entity in the United Nations system, and comprises collective expertise and experience in all substantive sectors within the Department's mandate: natural resources and energy; development planning; statistics; public administration; population; and social development. The prime objective of the Task Force is to promote the integration of women in all aspects of development. The issuance of the up-dated modules is an initiative towards that end.

The training package was **up-dated** by **IRC**-International Water and Sanitation Centre, The Hague, The Netherlands. It was **reviewed** by **Ms Dunja PASTIZZI-FERENCIC**, Director, Natural Resources and Energy Division (UN/DTCD), **Mr. Kenneth EDWARDS**, Chief Water Resources Branch (UN/DTCD), **Ms Margaret HOWARD**, Programme Officer and **Ms Marcia BREWSTER**, Programme Officer, Water Resources Branch (UN/DTCD). The training package was **completed** and **finalized** by **Ms Borjana BULAJICH**, Social Affairs Officer, UN/INSTRAW.

The audiovisual support material was prepared by **Ms Adelina GUASTAVI**, Programme Manager, **ILO Training Centre**, with the support of the Media Production of the ILO Training Centre in Turin, Italy. The training package was completed under the guidance of **Mr. Giulio PIVA**, Chief Training Operations, **ILO TRAINING CENTRE.**

The team would particularly like to express their appreciation to **Ms Lilian Moro** for her patience in the word-processing of this training material, and to **Ms Denise Zoccola** for the final desktop publishing layout.

The modules are conceived as a package containing all the information, examples, exercises, audiovisual and control aids necessary for:

- the **trainer** to deliver a lesson or conduct training activities;

and/or

- the **trainee** to analyse, reinforce and apply the theoretical concepts learned during training sessions;

and/or

- the **professional** as self-learning reference material to upgrade knowledge and skills related to effective integration of women in WSS sustainable projects and programmes.

In order to reduce the learning time and improve the learning efficiency, keeping high the motivation of the user, the text of the module contains only that information and activities considered essential for the achievement of the training objectives as specified in the following pages. Additional reading material is included for those users who wish to study in greater depth specific subjects related to the subject considered in this module.

From a pedagogical point of view, the structure of the modular package consists of five components – as specified on the following page – which are easily adaptable to the needs of both the trainer and the trainee.

1. *INPUT DOCUMENT*

1.1 Target groups

1.2 Objectives

2. *BODY OF THE MODULE*

2.1 Table of contents

2.2 Text

2.3 Additional reading

2.4 Bibliography

3. *OUTPUT DOCUMENTS*

3.1 Checklists on key issues for group work

3.2 Evaluation questionnaire

4. *TRAINER'S GUIDE*

4.1 List of training material

4.2 Lesson plan

4.3 Trainer's guide evaluation form

5. *VISUAL SUPPORT MATERIAL*

5.1 List of audiovisual support material

5.2 Transparencies

The trainer will make use of the five components indicated above, while the trainee will only be provided with the material related to components 1, 2 and 3.1.

- Senior officials of Ministries of Education, Health, Planning, Public Affairs, Social Welfare, etc.
- Development planners and provincial or local authorities in charge of water supply and sanitation projects and programmes.
- Engineers in charge of designing and implementing water supply and sanitation projects.
- Representatives of non-governmental organizations, including women's organizations, which are active in water supply and sanitation projects.
- Trainers and managers of national training institutes training staff on drinking water supply and sanitation technologies, health education, community development and women's programmes.

GENERAL OBJECTIVE

To enable the users to identify the mechanisms of incorporating women in planning, choice of technology and implementation of sustainable WSS projects.

SPECIFIC OBJECTIVES

On completion of this unit, users should be able to:

- identify ways and means of involving women in planning and implementation of water supply and sanitation projects in different cultures;
- recognize various types of projects and their functions in developing effective forms of women's involvement;
- identify steps to increase women's involvement in WSS project/programme activities.

Page

1. *WOMEN'S PARTICIPATION IN WATER SUPPLY AND SANITATION PROJECTS – NATIONAL ACTION*

1.1 Introduction

The multi-sectorial nature of water supply and sanitation activities involving women requires **appropriate coordination** among the **national institutions** and **authorities** involved in water, health, sanitation, agriculture and rural development programmes, as well as bodies in charge of education and training, and international organizations. Appropriate coordinating bodies at national level should be made instrumental in the coordination between responsible ministries and women's organizations.

While it is increasingly recognised that women have crucial roles to play in achieving the goals of the IDWSS, there is **inadequate awareness as to how-to go about promoting women's** optimal **participation.** At the very outset, the nature and scope of such involvement and the benefits derived therefrom, must clearly be perceived in order to guide the practitioner in the selection of appropriate interventions.

Women's role in the use of water resources and as the principle influence on the family's sanitary habits can **contribute** a great deal **to the better planning, functioning and utilisation** of the improved **facilities,** especially when provided with appropriate training and support.

The immediate questions, therefore, are:

1) What is the **best way to approach, train,** and support **women** for these levels of improvement? To the extent possible these operational and training strategies should be based on what has actually been learned from country level experience.

2) **How can women be efficiently involved?** What are the criteria for motivation? By what processes and under what circumstances?

3) What are the specific changes which **result** when **women participate as decision makers** and not simply workers and beneficiaries?

4) **What training methodologies** have been found **useful** in equipping **women** for these broader roles?

1.2 Role of women as part of development effort

The strategy for **women's participation** needs to consider water supply and sanitation as **an integral part** of the **entire development process** along with other socio-economic sectors. Improved water supply and sanitation facilities can have many direct benefits such

as reduction of the drudgery of water collection, improvement in health, nutrition and food supply, environmental protection. Moreover, there are indirect benefits in the form of improved potential for economic and social development such as rise in productivity, incomes and improved standard of living.

Women are more than target groups. They are **active agents** who can contribute to generating ideas in policy, mobilising labour, providing resources, and disseminating and implementing innovations. By involving women, particularly **in the planning, design, and operation and maintenance stages,** as well as in complementary health education programmes, the **water and sanitation projects can be** expected to be **more effective** in achieving their ultimate objectives of improved water quantity, quality and health. Moreover, the active participation of women can lead to other improvements in women's status and roles in development.

The **ultimate success** of national water supply and sanitation activities **depends** mainly upon **concerted and integrated efforts, at the national level,** of both governmental and non-governmental groups, including women's organizations. Although the IDWSSD was launched as an endeavour by the international community, it cannot be stressed enough that the fulfilment of the Decade objectives and beyond depends above all on active involvement of the national level. Equally, the recognition and enhancement of the role of women in water supply and sanitation depends on a firm commitment at the national level.

At the **national and international levels,** governmental, non-governmental **organizations,** women's **groups** and international **agencies** have **critial roles to play.** Three points of clarification should be made concerning their **approaches to women's participation** :

1. The **strategies to enhance women's participation** do not mean that new parallel structures must be created within United Nations Agencies and at national levels. Women's participation should be part of and **integrated approach in the management for support of sustainable water and sanitation activities;**

2. The women's dimension is not conceived in isolation from government or international agency activities and policy directives. **Women's issues are an integral part of community and national development concerns;**

3. The emphasis on **women's participation** does not imply that activities should be carried out by women only. It stresses rather the **need for both men and women to address the issue.**

1.3 Roles of development planners and engineers

So far, many **countries** have **adopted policies** of community involvement and participation of women, and many **ad hoc** cases exist on how this involvement can make a difference to local support, use and maintenance. It now **depends** to a large extent on **development planners and engineers who are crucial** in terms **of putting policy into**

practice, as to whether these policies materialize in all projects and programmes, and field experiences applied on a larger scale. Women's organizations can greatly support this transition by establishing cooperative structures with engineering programmes, and training their own cadres on how they can play a more prominent role in these projects.

The following are **recommendations made by INSTRAW and the UN Task Force on Women; Water Supply and Sanitation:**

- For **women** to be involved at the **community level**, it is necessary for **governments and cooperating external agencies to adopt an unambigous policy of commitment to the involvement of women in development activities,** and water supply and sanitation activities in particular, and that funds be earmarked to make this possible. Review of whether this policy is actually operationalized, in terms of objectives, staffing, funds, activities, and, in evaluations, in terms of results, should be part of every project appraisal and evaluation.
- To prepare for **active women's involvement in planning, implementation and management**, all members of project preparation **teams need to be conscious** of, and support, women's roles, and at least one member should have experience with and expertise in involvement of women in water supply, sanitation and hygiene. Involvement of women should be part of all sections of the project document, and not be relegated to a separate chapter or section.
- **Suitable organizations** for involving women in water supply, sanitation and local hygiene education and action programmes should be **identified at the same time as technical agencies,** and **both** should be **actively involved** in the **project** preparation process. **Project budgets** need to take into **account the time, money and personnel required** to activate full community participation of men and women.
- Other important conditions emerging from field experience are that **objectives,** and the accompanying timespan of the project/programme **do not limit to quantitative, short-term objectives** on the one hand (e.g. type of scheme and size of design population, or number of latrines) and **long-term qualitative objectives,** such as improvement of well-being, quality of life and public health on the other hand. Rather, long-term objectives should be reformulated as medium-term measurable objectives, with emphasis on:
  - adequately **functioning** water supplies and sanitation programmes, in terms of **quantity** (of water, latrines), **quality** (of water, latrines) and **accessibility** (of improved water points);
  - **effective use** of improved **facilities**, that is, by all, consistently, and hygienically, **without negative impacts on water resources** or the surrounding **environment;**
  - building/**strengthening of human and institutional capacities** at all levels to sustain achieved project results;
  - building/strengthening human and institutional capacity so that agencies and other communities can replicate the same projects with own resources and capacities.

- **In implementation, all project staff, technical as well as social and health,** should have specific **tasks in involving men and women in the local planning, design and management of waterpoints** or, where applicable, systems, as well as community sanitation and hygiene improvement programmes. All should be **trained in participatory methods and techniques,** with particular emphasis on culturally appropriate tools and techniques for involving women in local planning, decisions and management. Regular **monitoring and internal evaluation of experiences and performance should be part of overall project management.**

1.4 Role of women's organizations

Within this context, some of the activities that women's organizations could play at the national level for implementation of WS/S projects are:

a) **Participation in programme activites**

- **Campaign** for increased **government commitment** to water and sanitation programmes;
- **Participate** in **government planning,** implementation and evaluation of water and sanitation programmes and ensure that women's needs and participation are duly considered;
- Advertise national programme goals and activities. Collaborate between **government agencies and other organizations** concerned, including non-governmental organizations, thereby enriching the resources available for field surveys, feasibility studies and pilot schemes;
- Open **two-way communication** with affiliated **women's groups** throughout the country, from the village to the national level, to enhance women's participation in as many phases of planning as possible, from problem identification, priority selection, resource allocation and implementation to monitoring and evaluation.

b) **Research and reporting**

- **Write** about women, water and sanitation in **women's organizations,** newsletters and publications; **involve local radio** or television stations; prepare short articles involving politicians, **film personalities, involve** schools and children.
- Prepare **case studies** on women's involvement in sustainable water and sanitation projects;
- **Collect base-line data** which are required to provide an **adequate picture of needs** and capabilities of women so as to ensure realistic planning for activities such as food production, livestock raising, water transport and storage, improved household technology and primary health care;
- Organize or support research on women's questions in water and sanitation, such as:
  - what is the impact of programmes on women's time, energy, health?
  - what are women's specific customs and beliefs about drinking water, sanitation?
  - what constraints do women face in making changes?

c) Support to self-improvements

- **Encourage and help community level women's** traditional mutual aid or **cooperative societies** to expand their activities in the community, e.g. in protecting water sources from contamination, maintenance and repair of wells and pumps; organize fund-raising campaigns;

At the **local level**, the following are some of the possible roles of women's organizations concerning technology, choice and project implementation (INSTRAW/ILO (1988), op.cit.):

- Women's organizations can **organize** or support interviews **prior to the implementation of technology** and ensure that adequate technology is chosen, particularly for women, within the existing economic, environmental and socio-cultural context.
- **By consulting with technical agencies and women** at the local level, it could be ensured that:
  - engineering **design** is **appropriate** for women's use;
  - **facilities meet the need for privacy** and conform to cultural rules;
  - **women can repair facilities;**
  - women can **afford to maintain** facilities.
- Women's organizations can contribute to decision-making about community water supply and sanitation by **providing information on:**
  - **locations for facilities** that are convenient for women;
  - **schedules for using** facilities that fit women's work patterns or time use;
  - design of technologies that suit women, and that are easy for women to use.
- Women's organizations can encourage **the involvement of women in implementation projects** by:
  - helping **recruit women managers,** engineers, hygiene educators, trainers and community workers;
  - **preparing a list of active local women's groups** which are near proposed programme sites;
  - providing **a roster of women candidates for training** courses;
  - supporting activities of local women's organizations contributing to improved water and sanitation, by providing funds, equipment and supplies, technical back-up and information materials;
  - organizing fund-raising campaigns.

1.5 Activities to Enhance National Coverage

Because of the large number of unserved communities, many water supply and sanitation programmes have placed emphasis on construction. Politically, the target has been to serve as many people as possible within the budget and according to national design criteria. In many areas, this objective has limited community participation to voluntary labour for digging trenches to reduce the construction cost to the agency. Yet in spite of this emphasis on construction, many communities cannot be served.

This number is likely to be greater than originally estimated because of the increasing necessity to improve maintenance of established systems. **To achieve total coverage, governments and agencies will also have to consider programmes to help unserved communities and households make simple improvements to their own water supply and sanitation conditions.** A study in a village in northern Tanzania has shown that such solutions can be quite cost-effective.

The end-of-Decade review by WHO shows that many countries have readjusted their targets for the International Drinking Water Supply and Sanitation Decade. Planners in these countries may well consider using the significant potential of women's organizations and agencies in national water supply and sanitation programmes. With adequate practical support, national women's organizations, which may encompass 5,000 or more voluntary women's groups, as for example in Kenya, would be able to mobilize community action effectively. Combining external interventions with effective community self-improvement in the as yet unserved areas could greatly increase national coverage within the available resources.

Women and children in this village carried in total more than 32,000 gallons of water per year at a distance of almost a mile, at a labour opportunity cost of 25 cents per gallon. Calculations showed that acquisition of an oxcart to carry a 40-gallon drum would reduce this cost to 10 cents per gallon. This cost covered both capital and operation costs, and results in a slightly greater quantity of water available for domestic use.
(McPherson, George and Jackson, Dudley (1975). Village technology for rural development. International Labour Review, 3, 2, 97-114.)

Interest in the **participation of women** and women's organizations to achieve total coverage is likely **to increase especially in low-income urban areas. Urban populations are growing at a faster rate than rural populations,** and in some areas rural growth may approach zero within 25 years. Population growth will be concentrated in the urban areas, and 45 cities instead of 16 cities at present will have a population of five million or more. Half this population is expected to be living in slums and shanty towns. More interest in and demand for cooperation with women and women's organizations in densely settled urban areas can therefore be expected.

2. *POTENTIAL FOR WOMEN'S INVOLVEMENT*

In the first module it was seen how relevant women's work, responsibilities and decisions are for the long-term success of water supply and sanitation projects. The basis for these results lies in the preparation and planning of the projects, and it is in these stages that involvement of women is of prime importance.

2.1 Position of women

If really wanted, women can always be involved in water and sanitation projects. However, as situations vary from community to community, **there is no single model of women's participation suitable for all situations.** In community-level planning, one has to begin by learning and understanding the status of women in a particular area. Different approaches need to be developed for involving women according to the different situations in which they live. **Possibilities may generally fall into one of the following four categories.** (Elmendorf, Mary and Ma Yangshent (1984). Insights from field practice. Interagency Task Force on Women. New York, UNICEF.)

a. **A society where women are actively involved in economic production.** Culturally, women are free to participate in community life. They are well organized into women's groups or organizations, although these do not always include poor women. Under such circumstances, it is usually **possible to integrate women directly into,local planning and decision-making.** One example is the mothers' clubs in Surigao.

> *The Surigao rural water supply project in the Philippines is an example of full participation of women in planning and implementation. In Surigao City, women are very well organized into Mothers' Clubs which are under the supervision of the City Health Bureau. These clubs are active in primary health care and income generating activities. As women used to travel 3-5 kilometres up the mountain to fetch water, they approached the city administration for assistance to build a gravity flow water system to bring water to the villages. The City Administration responded positively to these requests and subsequently the Surigao rural water supply project was developed. The Mothers' Club worked closely with the project technical team in the feasibility study, the design of the system and its implementation. This led to lower costs (by over 14%) and a higher coverage of the participating communities. After water was brought to the village, mothers' clubs organized environmental sanitation activities, including the building of toilets, disposal of garbage, and promotion of personal and domestic hygiene. Village sanitation has improved greatly.*
>
> *(Glasgow, Muriel (1983). Rural water supply project of Surigao City, the Philippines: a project initiated by women. Adapted from Awal A, and Mgalipan, M.A. interim project report. New York, UNICEF p. 168-169.)*

b. **A society where men's and women's tasks differ and areas of responsibilities and contacts are strictly divided.** Where segregation is practised between men and women **parallel lines for reaching men and women may need to be developed,** as was the case in Guinea Bissau.

> *Evaluation of the first phase of the Buba Tombali handpump project in Guinea Bissau showed that women did not attend project planning meetings, due to their many tasks and segregated lifestyle. The project's planning procedures were thereupon adapted. In the preparation of the well-survey, the first activity after introducing the project became to contact the women. They were visited at their working places or home areas and various points discussed as listed in a checklist. The information of the women and the survey team was summarized in the local language and discussed in a general village assembly. This meeting was in particular used to check whether all villagers were in agreement with the selected well sites and were fully aware of their role in the project. After the wells were constructed, a second meeting was held with all the women of the village, in which management arrangements for the wells were planned and practical activities carried out in response to their needs, including preparation of a vegetable garden at the pump, and selling of soap and seeds, which due to the isolated situation of the region were locally not available.*
> *(Visscher, Jan Teun and Hofkes, Ebbo (1982). The Buba Tombali Water Project. Ministry of Natural Resources, Republic of Guinea Bissau, Ministry of Foreign Affairs, Kingdom of the Netherlands, and International Reference Centre, The Hague.)*

c. **A society where women have no immediately visible role in decision-making, either at home or in the community.** Seclusion of women is a cultural ideal, even for poor women. Under such circumstances, it is more difficult to promote women's involvement. However, it is not impossible to involve them if correct approaches are taken. An example is the integrated water and sanitation project in Pakistan.

> *In the Pakistan Integrated Water and Sanitation Programmes of 1981-1986 in Azad Jammu and Kashmir, one component is to train sanitation promoters whose duty is to motivate and help promote latrine building in the villages. Since segregation between men and women is practised in the villages, the government officials are convinced that special efforts need to be made to train female sanitation promoters together with men. This was the first time that local Government and the Rural Development Department had tried to recruit women. To begin with, out of 44 sanitation promoters trained during 1982, 8 were women. An evaluation of the project carried out in 1984 showed that considering the social, environmental and organizational difficulties, the female promoters were doing a remarkable job. One female sanitation promoter explained that in villages, female motivators can visit houses with much less difficulty than male promoters because village women do not allow male strangers to enter their houses and talk to them. "I first organized a women's committee of five women and trained the committee members to keep their houses clean, burn the garbage and I motivated them to build latrines. When these committee members were motivated and trained to keep their houses clean, other village women followed them. Women motivate other women as well as male members of their families. This is how the message of sanitation and health can soon reach every household in the village and the village itself can become much cleaner".*
> *(UNICEF-assisted, Integrated Water and Sanitation Programme in Azad Jammu and Kashmir, Pakistan government Evaluation Report, UNICEF, Islamabad, September 1983.)*

d. **A society where there is a large number of female-headed households,** either on a temporary basis due to out-migration of male workers, or on a permanent basis as a result of widowhood, divorce or abandonment, etc. Under such circumstances men may still hold official positions of authority but women have influence in decision-making and often assume responsibility for project implementation such as in Lesotho.

> *In Lesotho, over one third of the households are female-headed, largely due to labour migration. About 50 percent of the adult males are employed outside the country. Naturally, women do most of the work in the house and community including installing new water systems, digging trenches, laying pipes and carrying rocks needed to construct water reservoirs. When the Government embarked on a programme to train water minders or handpump caretakers to ensure sustained proper use of systems, it encouraged the village water committees to select women to be trained together with men. Between 1981 and 1983, of the 348 water minders trained, 115 were women. One of them, Matsotang Molibeli, a mother of six, was given a five-day training course on the importance of potable water supply, the operation of the handpump and the potential breakdowns of the handpump. She was also instructed in public relations, personal hygiene and environmental sanitation. Supplied with a kit of basic tools, she returned to her village, Matlohelva, to take care of the system. Matsotang is also responsible for mobilizing her neighbours to help cut the grass around the water source and clean the distribution tank and seal boxes, collecting money from each family every month to defray the cost of diesel for the pump engine, maintenance of spare parts, transportation and the engine attendants' wages. During the winter when snow in the mountains lies 2-3 metres deep, she ensures that the pipes are covered with earth lest they freeze and burst.*
> *(Paqui, Hilda (n.d). Lesotho, a day in the life of a water minder. New York, UNDP.)*

2.2 *Type of projects*

Besides the types of society to which to adapt the forms and means of women's participation, **the type of project also makes a difference. Three factors** which play **an important role** are: size of the project, nature of the intervention and level of participation.

a) Project size

In large-scale projects aimed at serving whole areas within a specified period, opportunities to work closely with local men and women are usually smaller than in projects focusing on one or a few communities at a time. Moreover, large projects are **mostly carried out as external interventions,** by teams who do not stay in the area, and who do not get to know the people closely. It is therefore particularly **important in large projects to make the development of systematic and tested procedures for community participation and involvement of women** a primary aim of the project, to recruit or involve specific staff for this purposes, retrain them on using participatory techniques and special measures to involve women, redefine existing jobs and tasks (technical staff will also have to work differently), and integrate established procedures, particularly into country or state's project planning, implementation and maintenance systems.

b) Type of intervention

It also makes a **difference whether a completely new and external** water or sanitation **technology is introduced, or whether an existing system is improved and modernized.**

New water systems

With a **new or rehabilitated water supply,** it is **the women** who will **decide whether they will all use the system,** or whether large numbers of them will continue to use traditional sources at least part of the time, e.g. because these are nearer or involve less waiting, their water is cooler or has a better taste or colour, sources are more reliable or less expensive, or offer more privacy and meeting opportunities. The use of unimproved traditional sources should, however, often be discouraged because of the inherent water quality problems. The **users therefore must be involved fully in the choice, design and testing of new water points** and facilities. A **new sanitation system,** too, will have to be **primarily acceptable to women,** as they have the greatest personal need for a private and safe place, will clean and look after it, and will educate the children in its use.

Improvement of existing facilities – wider coverage

Apart from the external introduction of new systems, **communities are also increasingly assisted in improving existing facilities.** These projects involve assistance to local communities or women's groups to improve local water sources or sanitation with local means. **In technology choice,** design and implementation, the **communities** or groups are usually **assisted by local field staff from government services,** such as the water, community development, or health department, by national or regional women's programmes and by non-governmental organizations, including those for women.

> *An example of this type of project are the women and church groups in Kenya who, through a revolving fund, help their members to install gutters and rainwater storage tanks to improve local practices of rainwater collection and use.Projects for upgrading existing local water supply and sanitation provisions and practices have a particular potential for communities which are not served by government engineering programmes, for example because of scattered or informal settlement, low development levels, or because they are not yet included in development plans. They can considerably increase total coverage figures of improved water supply and sanitation.*

Improvement of existing facilities – general use

The **upgrading of existing facilities** is also increasingly integrated into more conventional **engineering projects** to **obtain general and sustained use** improved water and sanitation **throughout the year.** In many areas it is technically or economically impossible to install so many improved water points that women will completely abandon the use of

nearer seasonal sources. Nor is it always possible or necessary for every household to install a new latrine. Several programmes have therefore started to **combine the introduction of new water systems and latries with the upgrading of existing sources** and excreta disposal methods, to ensure year-round use of safe water and sanitation by the whole community.

> *Women are traditionally the managers of these traditional water supply and waste disposal systems. Next to the local leaders, they are therefore best placed to advise the projects on which systems to upgrade and in what respects, and to continue local management in a new design.*

c) Level of participation

Finally it also makes a **considerable difference whether the community** itself is to **manage a completed community water supply** or sanitation **system** and continue the installation of new latrines (**communit-based systems**), **or whether a specialized agency will do so (agency-managed systems).**

Agency-managed systems

In agency-managed systems, **participation of users** is usually **limited to local designs and to preventive work in operation and maintenance,** such as the identification of reliable and culturally acceptable water sources, the location and routing of pipelines from water sources, location and design of public taps, handpumps and latrines, upkeep of waterpoints and sanitary facilities, and reporting of problems. **The main work** of maintaining and managing the systems is still **done by the agency.**

> *Lack of lasting results of mass campaigns and compulsory latrine construction made the Thai government decide to switch to the development of village capacities for producing and installing rainwater collection tanks and water-sealed latrines. Village workers, including the village health workers, first only men, later also women, were trained to cast latrine slabs and rainwater storage jars. They were then given moulds and a starting capital to begin local production. Local leaders were trained and helped to establish a village revolving fund to finance the improvements. Villagers can borrow money from this fund to install a latrine or a rainwater collection tank, and pay back the loan with some interest after the harvest. Village sanitation committees are formed and trained to carry out a sanitation inventory and promote latrines. Every three months construction progress is reported. In 15 years rural latrine coverage has thus increased from 22% to 50%. Maintenance and use of latrines are not yet monitored and remain to be improved.*
> *(GTZ (1990). Sustainability and effective use: the case for community participation and hygiene education in water supply and sanitation (CPHE Series No.1), Frankfurt, Germany, GTZ.)*

Community-managed systems

In recent years, **many central water and sanitation agencies are shifting from central management of all water systems to the strengthening of local capacities** in the communities, to maintain, manage and finance completed water systems and improve local sanitation and hygiene. An example of such community-managed systems is the case of rural sanitation in Thailand:

Main reasons for the growing **preference for community-managed** water supply and sanitation **systems are:**

- a more **sustained functioning** and use of completed systems;
- **the high and increasing costs of maintaining** completed water supplies and of ongoing latrine construction;
- **the possibility of obtaining wider population coverage** with the same budgets.

When **designed** and implemented in **real partnership** with the community concerned, **community-managed systems** can **lead to better functioning at a considerably lower maintenance cost** to central agencies. This is especially the case where communities are widely scattered and agencies lack staff, transport and funds especially for maintenance and repairs.

> *In Benin, the West African Development Bank found that after an initial investment of 13% of the total construction costs for community organization and training, replacement of the central handpump maintenance system by a community-based system reduced the agency maintenance costs by 16% per year. A comparative study in Mexico of 94 community-managed water projects with 46 agency-managed projects showed that community-managed systems generally performed better. Average number of breakdowns in these systems was 27%, while agency-managed systems scored 49%.*
> *(IRC (1988). Community participation and women's involvement in water supply and sanitation projects, A Compendium paper. The Hague,/Paris. IRC/DGIS/OECD.)*
> *In Western Province, Kenya, 21% of handpump repairs in 1984/85 was done by locally trained repairmen who are paid by the well committees. In 1986/87 their share has increased to 45%. Together, these local payments accounted for 37% of the local repair costs.*
> *(Kefinco (1987). Kenya-Finland rural water supply development project in Western Province of Kenya. Ministry of Water Development, Kenya and Ministry of Foreign Affairs, Finland.)*

These maintenance savings in turn leave more funds and human resource to continue construction in other, unserved communities and achieve **higher** targets in **population coverage** and performance of completed schemes. But it also requires greater and more skillful inputs in community organization, planning and training, of which the involvement of women is an integral and specialized part.

Conclusion

Concluding it can be said that there are great advantages, especially in the medium and longer term, to allow and enable local people to manage their improved water supply, sanitation and hygiene themselves, at least at the lowest community or neighbourhood-level. When done correctly **it involves treating local people as partners instead of beneficiaries,** and gives in particular the women a chance to make the services more effective and respond better to their needs and possibilities.

Involvement of women is easiest in small projects with long and close contacts between communities and project workers, and in cultures where women are already integrated in economic and social development activities. However, and as shown by the projects used as illustrations in this module, it is also **possible to involve women actively in large projects, and in more segregrated and secluded cultures.** This requires special, and culturally acceptable efforts and inputs, on whose appropriateness the women themselves are often good advisors.

Apart from their role in **large-scale engineering projects, women** and women's organizations can also **play an important part in community self-improvement of water, sanitation and hygiene.** These projects are often carried out as part of women's programmes and programmes for community development, village technology and primary health care and can greatly contribute to both wider coverage by improving traditional systems in as yet unserved areas, and more general use, by improving traditional systems already in use along with introducing **new facilities.**

Participation in local management is in this process perhaps the most crucial phase to a reliable and acceptable service for all. Yet this cannot be achieved without laying a solid base in the preceding stages of the projects, in particular during project preparation and local planning. Forms of and experiences with women's involvement in these stages are covered in the next chapter.

3. *PREPARATION OF THE PROJECT*

One cannot overemphasize the importance of selecting appropriate water supply and sanitation technologies. **Appropriate technology does not necessarily mean simple technology, but a technology "specifically designed and chosen for the conditions under which it must function".** Some of the **important elements** to consider **are:**

- system design
- levels of service
- capital and recurrent costs
- potential for community involvement

- maintenance needs and capacities
- management and financing requirements
- health and socio-economic impacts.

The **success** of any **design** is ultimately **dependent upon the users.** Their perception of its advantages and disadvantages in comparison with the existing water supply and sanitation habits, determines the scope of use and support of the new technology. In the past, systems for improved water supply and sanitation have often failed because they were inappropriate, too complicated, or too difficult to operate and maintain. In many countries, local people also have no or a very limited say in technological choice of the water source which has subsequent limitations for the design of the water supply system.

Many cases **of rejection of improved water and sanitation facilities** and also of the responsibilities attached to their introduction have already been recorded. Such reactions cannot be attributed merely to lack of interest, cultural barriers or the inherent conservatism of poor rural people. On the contrary, their decisions are often **based on a rational comparison of cost and benefits of the old and new options.** Cases of incomplete adoption or rejection of facilities become especially understandable when viewed in the light of the existing patterns of decision-making, work and position of local women.

> *Participant observations in a rural community in Sri Lanka, for example, revealed how women prefer some water sources for drinking, and others for washing or bathing. They empty, clean and repair shared open wells, even though officially this is said to be done by the men. Siting, use and management of the traditional sources are based on practical knowledge and religious rituals. In the handpump project, no attention was paid to these socio-cultural aspects, and poorer sections of the community were not served. Half of the new pumps were rejected because of difficult access or poor water taste. Because the women were not involved in the project, they transferred age-old rituals and maintenance practices to the handpumps, causing unnecessary blockage and breakdowns. Although the women's organization was represented on the local council it was not involved in the project committee which introduced the project.*
> *(Kelles-Viitanen, Anita (1983). Water and wells, symbols of prestige, power and prosperity in a Sinhalese village. Helsinki, Institute of Development Studies.)*

Before introducing any new technologies and maintenance, management and financing systems, **it is important to seek both the community's and the women's views** on their current conditions and the proposed changes.

In larger water and sanitation projects, this is usually done through a **feasibility study.** In the past, these studies usually focused on the technical and economical feasibility of the construction of a certain type of system. **Now, sustained functioning, use and improved hygiene.** are also **taken into account,** requiring both institutional and behavioral

aspects to be included in the design of the study. **Some** of the **topics** typically included in integrated feasibility studies are (IRC/IDRC (1988). Handpumps, issues and concepts in rural water supply programmes. (Technical Paper Series 25). The Hague, International Water and Sanitation Centre):

- Demographic, socio-economic and health conditions of the communities;
- Existing patterns of water supply and sanitation, including for maintenance, management and financing;
- Potential for and attitudes to improvement;
- Environmental constraints;
- Institutional and training needs of the programme;
- Scope for coordination with other departments and agencies;
- Scope for financing of capital and recurrent costs;
- Total requirements for technical, social and health education activities plus spare parts for maintenance;
- Skills in the private sector that could be used for implementation and maintenance.

3.1 Involvement of women in feasibility studies

Communication and dialogue with the community **is the first step for involving the community, men and women, in project planning.** Through both informal and formal consultations with a broad spectrum of community members and their traditional and functional leaders, the attitudes, beliefs and values of men and women need to be obtained separately, requiring a separate sampling from each. These separate assessments are very important since men and women have different views on the importance of water supply and sanitation.

> *Where women might identify a water supply project as the first priority, as they are the ones who have to walk long distances to fetch water, men may not feel this to be top priority. The same is true of sanitation facilities. A survey in Bangladesh carried out in December 1976 revealed that the sanitary latrines are primarily used by women, as it was they who felt the greatest advantage in having a latrine installed close to home. In a few cases, two latrines can be found in one household, one for the males, and the other for females. In general, however, males and children hardly used latrines.*
> *(People, Water and Sanitation, UNICEF, Assignment Children, Vol. 45/46, 1979, p. 141.)*

Because of the **difference in point of view between men and women, it is also useful to have women interviewing women,** and if necessary, **separately from men** so that they can express themselves more freely. In many instances, male heads of household answer questions on topics about which they know very little, such as infant diarrhoea, water sources and water uses. Even when the woman is present, she will not contradict her husband. Separate interviews, or dialogue approaches and group interviews with women help respondents to speak more freely and allow projects to learn about their real needs and the extent of their knowledge.

a) Interviewing women: points to watch

When interviewing women beneficiaries or potential beneficiaries, it is wise to keep certain procedural guidelines in mind, some of which are well recognized. It is obvious **that women interviewers are likely to obtain better access** and more accurate information from women **than would male interviewers.** This is particularly the case where women have limited social contact with men outside their immediate family. The age, social class and cultural match of the interviewer has to be considered to make sure that the interviewer will be trusted and understood.

The **interview situation** is also **important.** Normally it is advisable to **try to interview women when their husbands are not present,,** but in some cultures women may be unwilling to agree to this, even with a female interviewer. The possibility of **group interiews** wherever women gather (for instance, in mothers' clubs, literacy classes or other adult education classes for women, among mothers together at nutrition centres, and so on) **should be taken advantage** of, particularly where these people already have a fairly close relationship with each other and can enter into a lively discussion on the questions asked. This technique will be particularly **useful at the pre-feasibility stage** stage during rapid assessments, where there is not always an opportunity for proper sampling of the population nor for interviewing large numbers of people. However, people who belong to such groups may not be representative of the population as a whole; this needs to be kept in mind.

In **some cultures** it is also important **to interview the young wives away from their mothers-in-law or mothers,** where the latter exert considerable influence over them and are likely to inhibit what they can say, as in parts of rural India, in Java and other countries. However, it is equally vital to understand what these older women themselves think since the young wife may have to be guided by such opinions when it comes to action. (Perrett, Heli (1985). Involving Women in Sanitation Projects. (TAG Discussion paper Number 3). Washington, World Bank, Technology Advisory Service.)

b) Participant observation

How to discuss a potential project with women, and get their views and support? Another way of doing this is for the persons **carrying out data collection to live in the villages** and **participate in the daily lives of the people.** As many activities concerned with environmental sanitation occur at dawn or dusk, living in the villages for a few days can yield valuable data on what women do and why; what problems they have in water and sanitation;

how urgent these are in comparison to other problems; how new facilities would fit into existing water use and waste disposal patterns; in what ways women could and would participate in a project; and what socio-economic and cultural differences must be taken into account.

The importance of **involving women – both as investigators and as respondents** – in this early planning cannot be over-emphasised, as it is women who will ultimately decide on the actual use of improved facilities and determine their socio-economic benefits.

c) Women's meetings

Another way to get women's views is to **ask the leaders** of the community or neighbourhood **to organize a separate meeting with the women** at **a place and time convenient** to them. Alternatively and when women are already organized, their local organizations can be asked to organize a women's meeting. In the latter case it is important to check if poor women are also members of this organization, and will attend and speak out at this type of meeting. It is not uncommon for poor women not to have the funds or clothing to take part in an official women's group, or not to have the time for such activities, since they have to earn income for their families. In those cases, other ways of obtaining their views will have to be found, such as meeting them at their places of work and gathering (traditional water sources, waste disposal sites), or in their own neighbourhoods. (Wijk-Sijbesma, Christine van (1985). op.cit.,p. 9 and 87.)

d) Neighbourhood gatherings and home visits

In more **secluded societies, small neighbourhood meetings,** home visits and gatherings at the house of a female family leader **have been successfully used** to gain insight into women's needs, practices and the ways they could and would participate. Applied, for example, in a low income urban rehabilitation project in New Delhi, India, it resulted in a high priority for, and the highest participation, in water and sanitation improvements (idem, op.cit.,p.166).

Simple checklists, such as the one used in a feasibility study for a planned UNICEF/UNDP/World Bank project can help organize these discussions and collect information in a systematic yet open manner.

Items discussed during group **interviews with women** in the preparation of a rural water supply project were:

- **Felt needs and expectations:** What do (various groups in) the villages themselves think about the project? Do they feel a need for it, and what priority does this need have? What kind of project (type of technology, level of service) do they expect? For what purpose do the various categories (leaders, men, women) want to use the water, a) at the water points, b) at home?
- **What do they think they will have to contribute** a) during construction, b) afterwards? Are they prepared to do so? Do they see any problems that may arise a) during the

construction b) in keeping the water supply working? For the men: Do they think the women should also be involved in the project? In what ways?

- **Water use and maintenance:** For what purposes is water now used in the village? Are different sources used for different purposes? If yes, for what reason? Are there arrangements for proper use and/or upkeep of traditional water sources? How are they carried out? Experience?
- **Health and Health Education:** What diseases are most common in the village? Do they have anything to do with water or latrines? What do the villagers feel are unhygienic conditions in their village? And practices (e.g. of children)? Do they think something should be done about them? Would they be prepared to do something themselves? Is health education given in the village? How is it done? How often? Do many people participate? If not, why? How practical is it to apply what is taught? Do many people practice what they have learned?
- **Position of women:** What are the greatest problems for women in the village? Do the women discuss them together? Have they tried to do something about them? Do women get together in the village (e.g. informal meetings at places of work, women group, adult education classes)? Do they have any (direct or indirect) voice in village affairs? Do they know about the proposed project? If yes, How did they hear about it? Do they expect to have any role in the project? In what decisions do they think women should participate? Will they participate in any other way? (e.g. work, payment, maintenance)
- **Expected benefits:** What is the present water situation in the village? What benefits do they think the new project will bring? Do they think they will learn new things? Would they like to use the water(point) for other purposes than just water collection? Will the women or children have more time? What for? Will a sanitation project also have benefits? Might it also bring problems?

e) Community studies

Yet **another method** applied for collecting planning information, especially in individual community projects, is **to carry out a joint community study** with a **selected group of villagers.** In this study, existing water and sanitation conditions are investigated and interest in, and willingness, to participate in replacement or upgrading of facilities assessed. These **assessments** are often **done by female volunteers** from the community, because of the importance of women being interviewed, and the greater acceptability of women visiting other women at home. Often, the volunteers are **teachers and female students,** or women who already have an improved facility, such as in Baldia, Pakistan, and in Mexico, where women who already had improved sanitation visited women in an adjoining neighbourhood for promotion and assessment. (Wijk-Sijbesma, Christine van (1985). op.cit.,p.48 and 74.)

f) Socio-economic surveys

A more **formal way** of collecting planning information is to **carry** out a socio-economic survey through a **pre-planned questionnaire.** The overall guidelines for such an exercise are described in "Methods for Gathering Socio-Cultural Data on Water Supply and Sanitation Projects". (Simpson-Hebert TAG Technical Note No.1, The World Bank,

Washington, 1983.) In an earlier publication, a basic questionnaire was adapted for various case studies to suit local conditions. (Elmendorf, Mary and Buckles, Patricia. (1980). Socio-Cultural Aspects of Water Supply and Excreta Disposal Vol. 5 in Appropriate Technology for Water Supply and Sanitation, The World Bank, Washington.) A special guide for sanitation projects, which stresses also other forms of data collection such as observations and spot interviews, is "Social Feasibility Analysis in Low Cost Sanitation Projects", by Heli Perrett.

Large-scale surveys have the advantage of structured data collection, but they are relatively costly and offer few or no opportunities for respondents to volunteer relevant information or to be actively involved in assessing local community conditions and problems.

Other frequent shortcomings are that often in the analysis and presentation of the data no distinction is made between answers from men and women, and many general statistics are collected which do not get used in the programme. (Wijk-Sijbesma, Christine van (1985). op.cit.,p.54.) Good expertise and thorough knowledge of local conditions, including the position of women,. is therefore required before embarking upon the more formal types of data collection.

3.2 Preliminary project plan

Feasibility studies yield useful information for the general planning of community or area projects. When appraisal and implementation are carried out by different organizations, this also yields **important data on existing organizational capacities** to design, implement and maintain sustainable and acceptable systems, and to design and implement the right type of hygiene education.

Based on these field assessments, the **range of technologies** which can be sustained by the different project organizations and user groups can **more easily determined, as well as the human resources** needed for the various tasks, and whether they need some more orientation or training. It can also be decided how collaborating organizations will be coordinated and the project managed as a whole, and where additional inputs are required, e.g. to allow for small-scale productive use of water and waste, and for more efficient use of time. This data in turn helps to make budgetary provisions for technical parts as well as for community participation, hygiene education and institutional development activities. Still limited data from implementation projects indicate reservations for such non-technical project components of between 7 and 17% of total investment costs. (IRC/DGIS/OECD (1988). op.cit., p.29.)

No blueprint approach in project planing

Although the preliminary plan provides sufficient data to approve the projects and make the necessary preparations for implementation, **it cannot give a fixed blueprint for**

implementation, but must leave ample space for learning from experience. In a **"blueprint approach", all data**, including social ones, **are collected** before construction, and are used to make a detailed plan from behind the desk, which is then executed according to schedule. **This kind of inflexible**, predetermined approach is **not optimal when success depends on the reactions from**, and cooperation with, **people.**

The **"learning process approach", truly participatory projects conceptualize development as a learning process** by all involved. Success does not depend on implementing detailed preplans but on the "organizational capacity to be flexible, to adapt to special needs and to learn from experiences and mistakes". (Korten, David (1980). Community organization and rural development: a learning process approach. Public Administration Review, September/October, 480-511.)

Project documents for participatory projects give enough detail to allow general planning and preparation of fieldwork, yet leave enough space to learn from experience and adapt programmes accordingly.

3.3 Pilot and demonstration projects; the programmatic approach

Initial field assessments show whether there is already enough experience and expertise, including on women's involvement, to warrant any large-scale programme, or whether it is better to carry out a pilot or demonstration project first.

a) Pilot Projects

The purpose of pilot projects is to test the acceptability and feasibility of particular technologies and methods on a small scale. They take place when major uncertainties still exist about methods of analysis and implementation, the technical and socio-cultural appropriateness of the technology, and the degree to which the dissemination or delivery system can best be organized. (Narayan-Parker, Deepa (1989). Goals and Indicators. New York, UNDP/PROWWESS.)

In the past, pilot projects were not well viewed because the **communities** involved were often **chosen for their proximity rather than representativeness of conditions,** and they demanded a unrealistically large input of time, funds, human research and publicity. As a result, the **projects could seldom be replicated** on the same scale and under the same conditions and inputs. When representativeness and replicability are taken into account and extra development costs limited to a realistic percentage of total project costs, pilot projects are, however, a useful way of testing new technologies and methods, including procedures for, and effects of, women's involvement.

b) Demonstration projects

Demonstration projects are carried out to demonstrate, especially to higher level planners and managers, that new technologies, methods and programmes **are better than**

the existing ones. They are carried out when sufficient insights and experience on technology choice, community participation and women's involvement have already been gained and project designers and implementers are pretty sure of how to start off in the field. **Monitoring of performance** and evaluation of effectiveness in functioning, use and hygiene improvements are **an important part of these projects.** (Rondinelli, D.A (1983). Development Project as policy experiments: an adaptive approach to development administration. London, Metheun.) **Ideally,** and if properly planned, the **lessons learned are then replicated** on a larger scale in existing and new programmes, and fed back into national policy and training systems.

One of the earliest examples of the systematic involvement of women in a large water supply project is the Buba Tombali handpump project in southern Guinea Bissau. In the preparation stage, a social feasibility study was carried out, in which patterns of water use, traditional maintenance, and felt problems were observed and discussed with the women. Based on this study, a general project plan was made, which included the recruitment and training of male and female community motivators, to guide the community participation process. During local planning, special steps were taken to also ensure that the women would participate in village decision-making, and when these steps were found to be less effective than expected, they were revised and adapted. Design decisions in which the villagers participate include the choice of the type of well (drilled handpump well or dug protected well with pulley and bucket), service level (one handpump well or two bucket wells per 50-100 people), location of wells, type of pump (original footpump replaced by handpumps as preferred by women) and choice of well/pump caretakers. More recently, they also set up their own financing system for maintenance and repair, and in certain areas, e.g. Cajar Island, have chosen local women for training as mechanics.

Evaluations on functioning and use of the wells by the own project staff have led to further adaptations of inputs and working methods. Women are thus actively involved throughout this project in many ways: as trainers and motivators, as members of water committees for design, construction and mangement, as caretakers and mechanics, and as partners in local evaluations.

c) Programmatic approach

Improved technologies and methods for community water supplies and sanitation will only **have an impact when applied on a sufficiently large scale.** But, as human reactions vary and unforeseen developments always take place, a need will also exist in these programmes to adapt and refine existing methods and strategies. **Good managers** therefore make sure they **get sufficient management information** through written feedback and **meetings with and visits to lower field staff to learn of new developments,** and they stimulate action to find solutions to emerging problems.

Small experiments and action research as part of an ongoing programme have been very valuable in this respect. In the communal waterpoint project in peri-urban communities in Malawi, for example, one-year action research by a Malawian social scientist revealed that local managerial problems were behind non-payment of water wares by the usergroup, and not, as the water agency initially believed lack of capacity or willingness to pay. Subsequent training and monitoring of pilot groups, including many female managers brought such improvements that they are now among the top 10% in financial performance, and the new material and methods have been expanded to the 400 other groups in the project.
(IRC (1989). Group-managed low-cost waterpoints in large settlements in Malawi. Case study prepared on request of the World Bank. The Hague, The Netherlands, IRC).

However, for **improvement** of the existing system, **for project planning and implementation** and prepared **training programmes, newly developed procedures** and methods need to **be fed back** into **these programmes and field manuals** which are based on real field experience and are accepted at programme planning and policy levels.

There is in particular a **need to adapt existing procedures, manuals and guidelines for community participation** in water and sanitation projects. Many such guidelines do not yet mention women as a separate category in the community. They do not take into account their particular roles and circumstances in the community, nor do they include specific steps and activities to ensure culturally suited forms of women's involvement, local planning, maintenance, management and hygiene improvements. (Wijk-Sijbesma, Christine van (1985). op.cit.,p.78.)

Lack of a programmatic approach in project implementation means that new experience and insights developed by individual field staff and researchers do not enter the project's system and are thus lost both to colleagues and to those who come after them. Being relatively new, involvement of women is one of the typical areas where much can be gained from such regular review of experiences and results. An example is the handpump project in southern Guinea Bissau. When its management, through a consultant's study, found that brief village visits were not effective to involve the women, the 2–3 short visits of the promoters to each project village were replaced by one longer visit of several days.

Conclusion

As women play a crucial role in traditional water supply and sanitation, and **women's tasks, responsibilities, knowledge and priorities often differ from those of men, it is essential that in the preparation of projects, views and knowledge of both groups are sought.**

For this there are many ways, from large-scale surveys to informal contacts and community self-studies, with data obtained through meetings, group discussions, neighbourhood gatherings or home visits. Whatever the chosen form, special measures will be needed to ensure that women's views, and especially those of poor women, are heard and taken into account.Examples are: the use of female interviewers and researchers, understanding of and support for women's involvement from male leaders and team members; and adaptation of meeting situations to cultural and socio-economic conditions of the area.

From this preliminary research, the general lines for the project can be set out, including for women's involvement, but care must be taken to leave sufficient room for adaptations and learning from experience. Nor should arrangements for women's involvement be confined to a separate section in the project document, as when taken properly it is part of the whole project, from objectives and initial designs to human resources, maintenance, management and monitoring systems and project evalution. Where little experience with women's involvement exists, or authorities are not clear about its value, a pilot or demonstration phase or project can be included in the overall project design to develop or demonstrate effective procedures.

4. IMPLEMENTATION OF THE PROJECT

Many **cases of rejection of improved water and sanitation facilities** and also of the responsibilities attached to their introduction **have been recorded.** Cases of incomplete adoption or rejection of facilities become understandable when viewed in the light of decision-making, work and position of women. **Facilities,** regardless of the excellence of construction and function, **will not achieve their objectives if they are not used.** Achievement of programme objectives will be affected by users of the facilities. Women as the primary users of water and, as frequently the first to use sanitary installations, may thus be singled out for the intensive user education so necessary for project success.

Once the project and approach have been accepted and preliminary preparations made, implementation in the first project area can start. **Consultation of the community members on choice of technology** and more detailed local design **can be very valuable at this stage.** Documented effects of user consultation include more reliable, acceptable and sustainable technology systems, lower investment and maintenance costs, more appropriate local financing and management systems and larger population coverage. (IRC/DGIS/ OECD. (1988). op.cit.)

4.1 Involvement of women in choice of technology and service levels

Technologies for improved water supply and sanitation have often failed because they are inappropriate, too complicated or difficult to operate and/or maintain. Simple rudimentary methods should be used and developed using local materials in view of lower

costs, and the possibility to provide for greater self-reliance from the community to the national level. The technology should be adapted to small-scale applications, suitable for community participation and management. There are **three main aspects** to be considered:

a) **health and sanitary appropriateness** – adaptation to prevailing health patterns in order to achieve national health benefits;

b) **functional appropriateness** – fitness of the equipment from the point of view of design and performances related to local attitudes, behaviours and bio-technological factors, and relevance to the objectives of providing adequate quantities of water from a reliable source available around the year;

c) **environmental appropriateness** – fitness of facilities to operate in the physical environment of the region concerned and to avoid adverse effects on the environment. Adequate attention should be given to drainage which is often neglected.

The **concepts of system design** and **levels of service** usually allow a ranking of water and sanitation improvements based upon the **variables** of:

1) water quantity

2) walking distance

3) cost

4) methods of waste transport and disposal.

When communities themselves are to manage and maintain completed **water systems** or continue installation of latrines, they should also **have a say in what they will manage and how they will do so.**

As rural and peri-urban communities often differ, what is suitable and sustainable for the one may not be so for the other. User categories also may differ in level of income, religion, ethnic group and patterns of water use and waste disposal.

a) Sustainable service levels

For small isolated villages, where harsh conditions and long collection distances limit present water consumption to less than 10 l/c/d/, a protected well which raises consumption to 20 l/c/d may be more sustainable and cost-effective in terms of improved hygiene and time-savings to women and children than a drilled well with a handpump or diesel engine which neither community nor agency can properly maintain. (Donelly-Roark, P. (1984). Women and Water. in P. Bourne, ed. Water and Sanitation: economic and sociological perspectives. New York, Academic Press.)

On the other hand, the same technology and service level would be unrealistic in a large community with good communications, a high development level and high water

demands. One general rule in such cases is to go for the highest service level that the community is willing to pay for, will benefit from, and has the institutional capacity to sustain. (Arlosoroff, Saul, et al. (1987) op.cit.) Where national or project policies prescribe standard service levels of public water points only, this policy can still be adhered to by asking users to meet all extra costs of getting an above-standard system established and operating. (Wijk-Sijbesma, Christine van (1985) op.cit.)

b) Planning strategy

For projects which have adopted a **community participation approach,** a common strategy in **local planning is to inform all users, including minority** and disadvantaged groups, **about the project**; to consult them about their needs, preferences and expectations; to discuss options and to reach an agreement on all major issues such as local designs, community maintenance and finance. (Perrett, H. (1986). Involving women in water supply projects. UNDP and World Bank, Technology Advisory Group.)

In choosing among different technologies and service levels, discussions usually include a comparison of the various pros and cons of the options in terms of capital and recurrent costs, labour demands, complexity of maintenance and administration, and implications for local financing, health and socio-economic benefits. With the help of this kind of information in clear and straightforward language, it becomes easier for a community or user group to choose the type of technology and service levels it can realistically support and maintain.

c) Involving women in decision-making

There are **two important reasons to involve local women** in this decision-making process. **First, actual decisions to use the new facilities** and the acceptability of the compromises achieved **depend on them. Second, women strongly support local maintenance when** the new facilities are **to their liking** and when they have some form of influence on their management.

To obtain women's involvement, it is first **necessary to explain** the reasons for wishing **to do so the local leaders** and to **solicit** their **support. It** is further important that **information on the project actually reaches the women.** Often it is thought that project information will reach them automatically through the men. However, research has shown that this trickle-down effect seldom takes place, because knowledge shared between men on issues is kept separate from the more domestic affairs discussed with womenfolk at home.

How best to reach women and involve them actively in the decision-making process is obviously a culture-specific issue. With help from respected local women and male local leaders, often culturally appropriate ways can be identified. The following suggestions come from a wide range of implementation projects (Wijk-Sijbesma, Christine van (1985) op.cit.,p.59-61) and can probably be expanded by the participants' own experiences:

a) Consultation in integrated societies, where women can attend project meetings.

In integrated societies, as mentioned before, it may be **sufficient to inform women on the project** of local meetings, encourage them to attend, keep meetings at times and places suitable for women, and arrange the seating in such a way that women can easily see and hear, and feel less embarrassed to speak out.

During the meetings, it is important to speak the local dialect, or arrange for a translator, if possible a local woman, because women are far less likely than men to speak the official language. Inviting women to react, allowing some time for internal consultation and choice of a respected spokeswoman can all help women speak out and have open and creative discussions.

b) Consultation in segregrated and secluded societies, where women cannot meet with men

In more segregated and secluded societies, **local leaders can usually be asked for separate women's meetings.** Information on the meetings and encouragement to attend, using locally appropriate communication channels, and holding the meetings at suitable times and places are also of relevance here. The closer the meetings are held to the women's living areas and the greater the chance that they can take part, the more the voice of women in the poorer sections is heard.

4.2 Location and design of facilities

Besides the choice of technology and service levels, the location and design of taps, pumps, drains and latrines is of prime importance.

In making **local designs, women can contribute much valuable information and commentary.** Women as water drawers often **have relevant local knowledge of water sources and water quantity during dry and wet seasons.** For example, in the Surigao rural water supply project in the Philippines, women told the engineers about the short-cut trail leading from the spring to the village. As a result, the amount of pipes and fittings originally requested for 11 systems could be used to extend service to 8 more villages. In Panama, women took the engineers to a fresh water source on the shore of the island which had not been found during the feasibility survey. (Glasgow Muriel (1983) op.cit.)

Other topics for discussion are the **location, design and applicability of sharing arrangements of taps, pumps and latrines.** In Guatemala, when standpipes had to be shared by three families, women helped in deciding which groups could share. They also made design adaptations for clothes washing and other water uses. Projects in Indonesia, Malawi and Kenya also found that sharing based on existing women networks had better results than using more arbitrary grouping such as order of registration or application of grid designs. (Wijk-Sijbesma, Christine van (1985) op.cit.)

Consulting with women on the design of latrines can often result in simple technological changes which make latrines more acceptable to users. For example, in Botswana the latrine was not used by women because their feet could be seen from the outside. In Yucatan, Mexico, the engineers recommended a squat type instead of pour-flush latrine because they thought women would refuse to carry water from the standpipe. However, after consulting the women there, they found that the women rejected the squat plate and preferred the pour-flush. In 1980 in Honduras, a pour-flush vitrified stool latrine was introduced in small numbers to rural areas. This type has since been requested by women in many Central American countries, and is now manufactured in several countries. An improved model is being tested in Brazil. (INSTRAW (1986). Women, water supply and sanitation.)

Additional facilities

Women should also be involved in decision-making on the need, design and management of additional facilities of water uses, at taps, pumps and latrines, such as **laundering, handwashing, animal drinking and vegetable growing.** As with water points and latrines, consultation on location and design are a prime condition for actual use. In rural Khuzistan, Iran, the communal laundry facilities built were large rectangular sinks, of adult waist height. However, Iranian women traditionally wash clothes and dishes in a squatting position. As a result, the laundry basins were not used. (INSTRAW (1986). Women, water supply and sanitation.)

Often, projects do not take such additional uses into account, or they simply forbid them in order to prevent contamination and unhygienic conditions. However, **external prohibitions are seldom observed in practice,** as multiple water use usually occurs from a real need. Carrying all water for washing and bathing home means much more work for women who live at some distance from the waterpoint than washing clothes and small children right at the tap where they can meet other women.

Next to need and design, **financing and management additional facilities are also to be decided upon.** Adding externally-financed facilities for washing, bathing, cattle watering and gardening may mean that less funds will be available for construction of waterpoints in other high-need communities, and that those benefitting economically do not contribute to the extra costs. When such topics are discussed, usually some mutually satisfactory financing arrangements can be worked out, in which the user groups share in problem solving. To make washing and bathing easier, a group of women in Iringa, Tanzania built a bathing facility near their neighbourhood tap. (DANIDA (1987.) The Danida-financed rural water supply programme. Iringa, Mbeya and Ruvuma Regions of Tanzania. Report prepared by a joint evaluation mission. May 23–June 20.) The following case from Zimbabwe reported by the project's engineer further illustrates how joint decision-making with women resulted in more locally appropriate design, management and financing arrangements for additional facilities.

Investigation into why women did not use the public standposts provided for them showed that location and design did not meet their needs for privacy, washing, bathing and vegetable gardening. Re-design based on dialogue with the women resulted in excellent use and maintenance. The women chose a better site, appreciated the combination of shade (for comfort) and sun (for drying) of the new design, used waste water for an enclosed vegetable garden and fed chickens on food residue washed from plates and kitchen utensils. Water use rose to 60 l/c/d, mainly from increased washing and bathing. Grey water was used productively to grow vegetables. At the time of reporting the prototype had functioned for seven years without breakdown. Originally nicknamed 'Fred's Folly' it became very popular and was renamed 'Fred's Fountain'.
(Toit, F.P. du (1980). A design for rural village water points in Zimbabwe. Proceedings of the Seminar on Water Supply and Drainage Services in Developing Countries. CSIR, National Building Research Institute, 1980).

4.3 Choice of local maintenance, management and financing systems

Many projects, both those installing agency- and community-managed systems **now involve villagers in local maintenance.** As with other decisions of local importance, community members themselves are often best placed to advise on the most suitable candidates for this work. **Local people have the necessary social knowledge** on who would be suitable candidates for training, **but need sufficient information** from the project agency **on the type of work involved** and personality needed, both in the technical and social sense, **to make a wise choice.** Without such in-depth considerations, people have been trained who were chosen only for their position or technical know-how, but who did not stay in the community, did no preventive and cleaning work, or took the job only for status, while leaving the actual work to the women and children in the family.

a) Women and maintenance

Much of the **work involved in maintenance,** in particular the more regular preventive work is particularly **suited for women. Reasons** given in project reports **include:**

- **the direct concern and personal interest** interest of women in their water supply;
- their **regular visits to distribution points;**
- **the compatibility tasks** of women;
- **easier commnication between women caretakers and women users;**their greater sensitivity to social pressure from other women to do a good job;
- the **importance of health** aspects;
- the **lower career orientation** and labour mobility of women;
- the recognition that training in modern technology will contribute to household's water supply and sanitation.

Where **women have been involved in maintenance**, their role has been closely related to their **traditional management tasks.** They have been involved especially **in site hygiene and the control of water point use.** In some cases, arrangements have been made spontaneously, thus preserving their original tasks as users and informal managers. In other cases, special tasks have been formulated in consultation with the agency. These have varied from the appointment of a nearby woman to look after the water point, to a site committee, user roster, or a team of a male and a female caretaker with the woman responsible for hygiene and the man for technical matters. (Wijk-Sijbesma, Christine van (1985). op.cit.,p.66.)

Women themselves are often very **keen to receive training in maintenance,** as they realize that any burdens resulting from time-consuming breakdowns will fall largely on their shoulders. A women's well users' group in Kenya writes:

> *We are 33 members in Ekere Women's Group. Within the group we have those who have undergone training in repairing and maintaining water pumps of our boreholes. Water supply brought us together to think of how we could develop our homes, economically, socially and healthwise. We felt that kitchen confinement is not enough.*
>
> *As most of us have now been trained as mechanics and how to use spanners, we thought of going in for bicycle repairing. In this respect we have to thank Mrs. Julia Kunguru who gave us good advice on what we should do and what we are now. We are proud to say that we are the first group within Kakamega District to join in this business of bicycle repair and also to know how to repair water pumps.*

In the Luvelezi handpump programme in Malawi, which installs up to 25,000 handpumps, one of the first groups of female pump caretakers under training asked if they could also attend the training of area repairmen as observers. Thus they would know the work to be carried out and would be able to check later quality of work on 'their' pumps.(Mauluka, Linda (1983). Community participation in the construction and maintenance of rural ground water supplies. (Falkenmark, Malin and Lundquist, Jan (eds.). Water for all: cooperation, education, participation. University of Lingköping. Dept. of Water in Environment and Society p. 162-180).

Critical attitudes to women doing maintenance are often based on social prejudice, rather than project realities. The Luvelezi project mentioned above found that such prejudice could readily be overcome by examples set by more progressive villages and leaders, the more so as the work itself is not actually unsuitable for women. A review of the daily and monthly tasks of hand-pump caretakers and scheme attendants has not revealed any tasks that could not be done or organised by women. The main problem reported with local handpump maintenance in Bangladesh and Guinea Bissau were that bolts were not fastened and bearings not oiled. New light-weight anti-corrosive pumps, including those that allow internal parts to be replaced through the top of the pump head, also facilitate

maintenance by women. In Sri Lanka, local women are not only being trained in maintenance, but through a network of cottage industries they are also involved in the manufacture and installation of pumps and production of spare parts. (Waginasundara, Mallika (1985). Women of the pump. IDRC reports, October, p. 24–25.) Further, **the physical strength of rural women** accustomed to heavy work in agriculture and food processing should not be underestimated. With the correct tools and training, they are usually **able to do all regular maintenance tasks,** and can obtain assistance from others for the occasional heavier work.

b) Maintenance planning

When **women are involved in maintenance planning,** it is advisable **to consult** them as a **group rather than as individuals.** This ensures that the knowledge they have on who would make suitable candidates is used and **makes it possible to make internal arrangements** for sharing farm work, house and childcare when the selected women are away for training. Imposing decisions on the women is usually less successful.

> *In Peru, for example, the local council appointed a nearby woman as overseer of a handpump. However, both she and a second housewife were ineffective, claiming they were too busy with domestic tasks. The pump was then padlocked, with a third housewife holding the key. This resulted in much inter village conflict and finally in the breakage and removal of the pump.*
> *(Wellin, Edward (1966). Directed cultural change and health programmes in Latin America. Millbank Memorial Fund Quarterly, 44, 2,111-128).*

Where women have taken part in decisions on maintenance, they have usually chosen candidates for training who have no or older children and are either heads-of-household, or have their husband's support for the work. They further live close to the waterpoint, use it themselves and are respected persons in their neighbourhood. A report on one of the earlier INSTRAW training courses using these modules indicated that training young unmarried women was also found effective because husbands usually gave them permission to continue the work once they got married. (INSTRAW (1988). Women, water supply and sanitation, a national training seminar. Kadugli, Sudan, 16–21 January.)

c) Planning of local management systems

An **important part** of local planning is the **choice of the organization which will represent the users** and manage local water supply and sanitation. The type of local management body can vary considerably. **In some cases,** water and sanitation improvements are managed by **the community council.** In others, water and sanitation are part of the work of existing community development or **health committies.** Where councils and existing committees already have much work or do not function optimally, a separate organization for water management is often preferred. This may be a special community water committee or sub-committee, well- or tap committees, or a users' association which elects its own water

board. Where the work can no longer be done on a voluntary basis, community committees or user groups often employ professional staff or establish a small water enterprise.

d) Planning of appropppriate financing

Community management stipulates that the direct local running costs of the systems are borne by the users. As with technology, design and maintenance planning, the type of financing system chosen must therefore be adequate, acceptable and suited to the particular local circumstances. While monthly water rates for example may be appropriate in communities where most families have a regular cash income, they are seldom suitable for agricultural communities with seasonal fluctuations in income and low availability of cash.

As part of overall management it is therefore necessary to make specific arrangements for cost-recovery and financial management (Module IV, Participation of Women in Management of Water Resources, Water Supply and Waste Disposal). In the initial **planning stage** it may be sufficient to make clear what part of recurrent **costs the users will bear, and what part of the agency; how much the amount will roughly** be for the technology and service level(s) involved; how accountability for payment and **follow-up will be established**, and how special arrangements will be made to ensure that contributions are fairly divided and well-managed.

e) Involvement of women in management planning

In integrated societies, women are usually elected to mixed management committees, but sometimes formal barriers impede their election. **Women have been excluded from decision-making and managing functions** when only heads of households have been permitted to vote and be members of water user associations, as for example in the national rural water supply programme in the Philippines. Because board members are usually chosen from association members, excellent women candidates who are not heads of household may thus be excluded. Individual membership of user cooperatives have given women a more guaranteed voice in collective decisions. As one woman in a Mexican user association states: **"sometimes I think one way and my husband thinks differently. But both votes count".** (Wijk-Sijbesma, Christine van (1985). op.cit.,p.72.)

Separate women's committees for management have been **established** in societies with segregation of men's and women's work. As further discussed in Module IV on Management, experiences with these separate committees differ. **While in some cases women are able to improve local maintenance** and management through influence from their organization, **in other areas the women's committee was excluded** from all decisions or, alternatively, was made to bear the burdens of running and financing the system.

4.4 Role of women in construction

Voluntary labour

In Latin America, Africa and in parts of Asia, **women have participated actively in the construction of facilities,** especially piped water supplies. This has taken the form of voluntary labour, especially in areas where women are traditionally involved in agricultural fieldwork. Elsewhere, they **have motivated and supported men to do unskilled voluntary construction work,** or have fed and lodged construction workers, and have raised community funds for the project. Such voluntary labour has, when well-organized and planned, led to considerable cost savings. For example, for dug wells and gravity schemes, which require a relatively high degree of unskilled earth work, this has amounted to savings of 40-60% on direct construction costs. (IRC/DGIS/OECD 1988. op.cit.)

Despite their physical support, the role of women in other project stages may be almost nil. This may be due more to negative attitudes of planners and leaders than to the women themselves. In Rukwa, women were found to be much more progressive than thought by the predominantly male village council and project staff. They participated actively in all types of work and over one quarter expressed their interest in participating as planners. (Tomoda, Susan et al (1987). Women and Special Public Works Programmes: A case study of the Mto wa Mbu irrigation (Arusha) and the water supply (Rukwa) projects, Tanzania. Geneva, ILO.)

Paid construction labour

In areas where **economic conditions are so difficult** that people are unable to provide voluntary labour, **infrastructural works** are frequently **designed** to provide **food-for-work.** In some countries, **women have** constituted a **high proportion of the labour force in such projects:** 80% to 85% in infrastructural projects in Lesotho and Ethiopia; 20% to 30% in the Republic of Korea; and in Bangladesh, 34% of the wheat distributed in 1979/1980 went to women workers.

The 1971 census of India shows a total of 200,000 registered female construction labourers, or 9% of the total construction labour force. In reality, their participation is higher because many women's work gangs are registered in the name of the male leader. **Poor women, in particular, work as unskilled construction labourers.**

Women involved as paid unskilled labourers generally belong to the lowest income groups. Of the women employed on infrastructural works in Maharashstra, India, 80% were landless or marginal farmers; 18% were heads of household; and 40% were the family breadwinners. These women also said they were in need of drinking water, child care provisions and medical aid at work site, and also steadier employment.

An evaluation in Bangladesh showed that most of the women participating in such projects belonged to landless households, two-thirds being heads of household. These findings have led to a limited number (6% in 1980/1981) of separate projects for women, with rates of work adapted to their physical capacity. However, further adaptations, such as child care provisions, first-aid kits and training in skills that will help them to find more permanent work, are also needed. The women in a food-for-work project in Bangladesh expressed interest in training in reafforestation, vegetable gardening, livestock and sanitation projects as a means of generating income. Absence of latrines and water at the work site were the problems most indicated.
(Wijk-Sijbesma, Christine van (1985). op.cit.,p.65)

In addition, **structural changes have been recommended,** such as a more **realistic national price for local food crops to stimulate production** and to reduce the need for food aid, long-term agricultural development inputs and local acquisition of food where possible. The latter would be of particular interest to women as major producers of food crops. These interests were affected negatively by the drop in prices when a food-for work project was carried out at a time when local production of food crops by women was also high.

To date, labour unions, departments of women's welfare and others, have shown **little interest in female construction workers.** Many mechanisms operate to **prevent these women from using their work as an entry point** to further advancement of their families rather than for bare survival. These mechanisms include the **lowering of wages by brining in migrant labourers** from drought-prone areas; permanently **binding families through loans** for basic necessities which they cannot repay, and wage payment systems which increase women's dependence on contractors, **money lenders,** shopkeepers and **male heads of household.** Preliminary indications are **that these problems are more serious in systems built by contractors** than in those constructed under the direct management of water departments. (Wijk-Sijbesma, Christine van (1985). op.cit., p.65.)

Conclusion

Recapitulating the previous sections, there are **several main actions** that **national government, NGOs and women's groups/organizations can take** to enhance the involvement of women in water supply and sanitation projects. **The first is to jointly formulate more active roles for women** than those of beneficiaries of projects and receivers of health education, and enable them to positively influence local functioning, use and management. **The second is to jointly operationalize these roles,** including the necessary adaptations in the composition, tasks, skills and working procedures of project preparation teams and implementation staff. **A third group** of activities lies in in the **area of knowledge development and information exchange:** arranging for articles, broadcasts; support for data collection and research; documentation of cases, and increased exchange of information on women's involvement between the various organizations and projects. And finally, a **fourth activity is to support women's organizations and groups in improving traditional water and sanitation systems,** both to expand total coverage and to obtain general use of only safe water and sanitation systems.

PART I: WHO "GUIDELINES FOR PLANNING COMMUNITY PARTICIPATION IN WATER SUPPLY AND SANITATION PROJECTS", by Dr. A.Whyte, ETS/83.8

CONSTRUCTION

1. What organization will act for the community during construction?	Options include: - same as for planning phase - subcommittee of planning organization - new committee - existing self-help organization - many neighbourhood groups
2. What responsibilities will the community organization have?	Options include: - setting up work schedules - providing or storing tools, equipment - preparations (e.g. pegging out ground) - allocating tasks - supervising labour - record keeping - applying penalties/rewards - managing community funds
3. What responsibilities will the community have for construction?	Options include: - to provide paid or free labour - to provide tools - to provide local materials - to provide food for labour - to help construction in other communities - to provide sites - to provide housing for technical team
4. Will ceremonies be held (in accordance with local traditions) to indicate landmarks in the construction?	Options include: - on choice of site (especially where religious acceptability involved) - at beginning of construction - at landmarks during construction - at end of construction - at official handover of facilities
5. How will construction tasks be phased?	To take account of: - seasonal migrations (especially of men) - religious ceremonies/seasons - other demands on labour (harvest, etc.) - effect of fasting on ability to work - effect of weather on work conditions

---

WHO, " Guidelines for Planning COMMUNITY PARTICIPATION in Water Supply and Sanitation Projects", by Dr. Anne Whyte, ETS|83.8

6. How will possible over-burdening of communities with demands for construction labour be avoided?	Check with: - community leaders - other agencies (to find out their plans) - local organizations - district/regional offices

MANAGEMENT, OPERATION AND MAINTENANCE

1. Who will be responsible for the management of facilities at the local level?

Options include:
- water agency fully responsible
- another agency (e.g. health)
- local/district government
- local water committee representing users
- community member serving as manager
- private owner responsible
- traditional community leadership
- combinations of above

2. What will be the responsibilities of the community for management?

Options include:
- report periodically to agency
- report urgent problems immediately
- arrange taxes, water rates
- organize collection of payments
- keep accounts
- pay loans and other financial dues
- sign individual contracts
- pay home visits to non-payers and other problem households
- organize general meetings for elections, public reports, etc.
- develop and apply regulations
- deal with users' complaints
- keep minutes of meetings
- keep archives, log books
- organize demonstration, official visits
- select operators
- delegate responsibilities to operator
- supervise operators
- pay operators
- organize community contributions for upgrading, extension, repairs

3. Will community managers be able to exchange views other communities?

For example:
- through Water Committee Associations covering several communities
- through periodic training sessions, meetings
- informal mechanisms

4. If they are to be managed by the community, will the completed works be legally conveyed to the community?

   Will local ceremonies be held?

5. Who will be responsible for the operation and maintenance of public facilities at the community level?	Options include: - mobile operators within water agency - agency operator locally based - community member recruited and trained and responsible to agency - as above but responsible to community - combination of above - local artisan (e.g. blacksmith) on contract - community members for unskilled tasks - national/regional agency responsible for back-up and supervision of local operation and maintenance
6. How will community members be selected as operators? Which will be the most important criteria? Who will make the final selection?	Options include: - level of education - knowledge of official language(s) - knowledge of local language(s) - previous related experience or skills - age - sex - not on government payroll - prolonged residence in local area - fair guarantee of future stay in local area - good local standing
7. What will be the duties of the local operator for public facilities?	Options include: - routine maintenance - simple repair - report immediately when help needed - report periodically to supervising body - undergo training and refresher courses - demonstrate system to official visitors - arrange community labour - collect water rates, fees - help in health education - advise and correct users - deal with complaints - control queues, disputes, etc. at standposts - apply regulations and sanctions
8. Who will be responsible for promotion, operation and maintenance of private facilities?	Options include: - as for public facilities - household group leaders - individual householders - community level worker - community health committee

1. DANIDA (1987): **The DANIDA-financed rural water supply programme. Iringa, Mbeya and Ruvuma Regions of Tanzania**, Report prepared by a joint evaluation mission.

2. Donelly-Roark, P. (1984): **Women and Water**in P. Bourne, and Water and Sanitation: Economic and Sociological Perspectives. New York, Academic Press.

3. Elmendorf, Mary and Buckles, Patricia (1980): **Socio-Cultural Aspects of Water Supply and Excreta Disposal**, Vol.5 in Appropriate Technology for Water Supply and Sanitation, The Wold Bank, Washington.

4. Elmendorf, Mary and M Yangshent (1984): **Insights from field practice**, Integrating Task Force on Women and IDWSSD, New York. UNICEF.

5. Glasgow, Muriel (1983): **Rural Water Supply Project of Surigao City, the Philippines:** A Project Initiated by Women.

6. GTZ (1990): **Sustainability and effective use: The Case for Community Participation and Hygiene Education in Water Supply and Sanitation** (CPHE Series NO.1) Frankfurt, Germany.

7. IRC (1988): **Community Participation and Women's Involvement in Water Supply and Sanitation Projects.** A Compendium paper. The Hague/PARIS. IRC/DGIS/ OECD.

8. IRC/IDRC (1988): **Handpumps, Issues and Concepts in Rural Water Supply Programmes (Technical Paper Series 25).** The Hague, IRC.

9. IRC (1989): **Group-managed Low-Cost Waterpoints in Large -Settlements in Malawi** Case study prepared on request of the World Bank, The Hague, IRE.

10. Kefinco (1987): **Kenya-Finland Rural Water Supply Development Project in Western Province of Kenya.** Ministry of Water Development, Kenya and Ministry of Foreign Affairs, Finland.

11. Kelles-Viitanen, Anita (1983): **Water and Wells, Symbols of Prestige, Power and Prosperity in a Sinhalese Village.** Helsinki, Institute of Development Studies.

12. Korten, David (1980): **Community Organization and Rural Development: A Learning Process Approach.** Public Administration Review.

13. Mauluka, Linda (1983): **Community Participation in the Construction and Maintenance of Rural Grand Water Supplies**; University of Linjköping.

14. McPherson, George and Jackson, Dudley (1975): **Village Technology for Rural Development,** International Labour Review, 3.2.

15. Narayan-Parker, Deepa (1989): **Goals and Indicators.** UNDP/PROWWESS, New York.

16. Paqui, Hilda (n.d.): **Lesotho, A Day in the Life of a Water Minder,** New York, UNDP.

17. Perrett Heli (1985): **Involving Women in Sanitation Projects.** (TAG Discussion paper No. 3), Washington, World Bank.

18. Perrett, Heli (1986): **Including Women in Water Supply Projects,** UNDP/World Bank.

19. Rondinelli, D.A. (1983): **Development Project as Policy Experiments: An Adoptive Approach to Development Administration.** London.

20. Toit, F.P. du (1980): **A design for Rural Water Points in Zimbabwe.** Proceedings of the Seminar on Water Supply and Drainage Services in Developing Countries. CSIR.

21. Tomada, Susan et al (1987): **Women and Special Public Works Programmes:** A Case Study of the Mto wa Mbu Irrigation (Arusha) and the Water Supply (Rukna) projects, Tanzania, ILO, Geneva.

22. UN/INSTRAW-ILO/TURIN Centre (1986): **Training package "Women, Water Supply and Sanitation".**

23. UN/INSTRAW: **Report-Women, Water Supply and Sanitation, a national training seminar.** Kadugli, Sudan, 16-21 January. Santo Domingo, Dominican Republic.

24. UNICEF (1979): **People, Water and Sanitation,** Vol. 45/46. New York.

25. UNICEF-assisted, **Integrated Water and Sanitation Programme in Azad Jammu and Kashmin, Islamabad, September 1983.**

26. Visscher, Jan Teun and Hofkes, Ebbo (1982): **The Buba Tombali Water Project,** Ministry of Natural Resources, Republic of Guinea Bissau, IRC, The Hague.

27. Waginasundara, Mallika (1985): **Women of the Pump,** IDRC.

28. Wellin Edward (1966): **Directed Cultural Change and Health Programmes in Latin America.** Millbank Memorial Fund.

29. Wijk-Sijbesma, Christine van (1985): **Participation of Women in Water Supply and Sanitation: Roles and Realities.** The Hague, IRC, UNDP/PROWWESS.

WHAT ARE THE EXISTING CONSTRAINTS WOMEN FACE IN PROJECT PLANNING, IMPLEMENTATION AND OPERATION IN YOUR COUNTRY?

WHAT ACTIONS/MECHANISMS WOULD YOU SUGGEST FOR MORE EFFECTIVE INVOLVEMENT OF WOMEN IN WSS PROJECTS?

NAME OF PARTICIPANT

.....

INSTITUTION

.....

OCCUPATION

.....

COUNTRY

.....

DATE

.....

Mark the box which corresponds best to your opinion on each question.

1. Your professional interest in the particular topic included in this modular unit was:

   high ☐ ☐ ☐ ☐ low

2. The objectives of this module were:

   clear ☐ ☐ ☐ ☐ not clear

3. Would you say that the objectives of this module met all, some or none of your expectations?

   3.a) Which objectives were not met?

3.b) Explain briefly why the objectives were not met.

4. The contents of this module were:

well structured ☐ ☐ ☐ ☐ badly structured

4.a) If they were badly structured, explain why.

5. The terminology in this module was:

easy to understand ☐ ☐ ☐ ☐ hard to understand

6. The visual material (slides, drawings, diagrams...) used in this module was:

clear ☐ ☐ ☐ ☐ confused

useful ☐ ☐ ☐ ☐ useless

7. The checklists have covered the subject studied:

completely ☐ ☐ ☐ ☐ not at all

8. The checklists were:

useful	☐	☐	☐	☐	useless
too simple	☐	☐	☐	☐	too complicated
sufficient	☐	☐	☐	☐	insufficient

9. Studying this module enabled you to learn:

many new things	☐	☐	☐	☐	nothing new

10. The knowledge acquired through this module will, in your present profession be:

useful	☐	☐	☐	☐	useless

11. The knowledge acquired through this module will, in the near future be:
(Reply to this question only if the answer to question no. 10 is negative)

useful	☐	☐	☐	☐	useless

12. List the topics you would like to have treated more extensively:

1) .....

2) .....

3) .....

13. List the topics you would like to have treated to a lesser extent:

1) .....

2) .....

3) .....

14. List the topics not included in this module which you think are of particular interest to your profession:

    1) .....

    2) .....

    3) .....

15. List any suggestions for improvement of this training module:

    .....

    .....

    .....

    .....

    .....

    .....

This evaluation questionnaire should be sent to:

UN/INSTRAW,
P.O. BOX 21747
SANTO DOMINGO
The Dominican Republic

TRAINER'S GUIDE

HARDWARE

1. Overhead projector
2. Screen
3. Slide projector, 24 mm with synchroniser
4. Blackboard
5. Flipcharts (optional)
6. Tape recorder

DOCUMENTS TO BE USED BY THE TRAINER

See "Module Structure", page 3

DOCUMENTS TO BE DISTRIBUTED TO TRAINEES

WII-1.1: Target groups

WII-1.2: Objectives

WII-2.1: Table of contents

WII-2.2: Text

WII-2.3: Additional reading

WII-2.4: Bibliography

WII-3.1: Checklists on key issues for group work

WII-3.2: Evaluation questionnaire

KEY POINTS	TRAINING METHOD AND ACTIVITIES	DOCUMENTS TO BE DISTRIBUTED	AUDIOVISUAL SUPPORT MATERIAL
INTRODUCTION			
1. Objectives	Presentation		
2. Role of women as part of development effort	Presentation		
PRESENTATION			
3. Women's participation in WSS projects – national level	Presentation/discussion		
4. Role of development planners/women's organizations	Presentation/discussion		WII-1 WII-2
5. Potential for women's involvement	Presentation		WII-3
6. Types of projects	Presentation		WII-4 WII-5
7. Preparation of the project	Presentation/discussion		WII-6A WII-B
8. Implementation of the project	Presentation/discussion		WII-6C WII-6D
SUMMARY			
9. Key issues checklists	Group discussion	Checklists WII-3.1	
10. Presentation on checklists	Plenary discussion		
MONITORING AND CONTROL			
11. Module evaluation questionnaire	Individual activity	Questionnaire WII-3.2	

NAME OF TRAINER .....

COUNTRY ..... **DATE** .....

AVERAGE EDUCATIONAL QUALIFICATIONS OF PARTICIPANTS .....

.....

.....

.....NUMBER OF PARTICIPANTS .....

Mark the box which corresponds best to your opinion on each question.

1. To what extent has the module achieved the objectives stated?

☐ over 80%

☐ 70 – 80%

☐ 60 – 70%

☐ 50 – 60%

☐ less than 50%

2. Did the objectives meet the needs of the group?

totally ☐ ☐ ☐ ☐ not at all

3. On the basis of the objectives stated, the subject matter is:

relevant ☐ ☐ ☐ ☐ irrelevant

4. The progression of the subject matter is:
(Give reasons for your answers)

too fast ☐ ☐ ☐ ☐ too slow

5. List the topics you would like to have treated in the package more extensively:

   a) .....

   b) .....

   c) .....

6. List the topics would like to have treated to a lesser extent:

   a) .....

   b) .....

   c) .....

7. List the topics not included in this module that you think should be included:

   a) .....

   b) .....

   c) .....

8. The technical quality of the audiovisual material was:

   high ☐ ☐ ☐ ☐ low

9. The relevance of the audiovisual material was:

   high ☐ ☐ ☐ ☐ low

10. The quantity of the audiovisual material was:

    high ☐ ☐ ☐ ☐ low

11. The sound/slide package (where applicable) was:

    too long ☐ ☐ ☐ ☐ too short

12. Your global evaluation, bearing the objectives and teaching resources of the module you have tested in mind is:
(Give reasons for your answer)

excellent . ☐ ☐ ☐ ☐ mediocre

After completion, please forward this document to:

UN/INSTRAW,
P.O. BOX 21747
SANTO DOMINGO
The Dominican Republic

WII-1: Recommended policy for:

A. Development planners, engineers and trainers
B. Women's organizations

WII-2: Recommended approaches

WII-3: Requirements for women's involvement

WII-4: Involving women in large projects

WII-5: Involving women in community self-improvements

WII-6: How to involve women in:

A. Needs assessment
B. Planning process
C. Technology choice and local design
D. Planning of implementation, maintenance, management and financing

TRANSPARENCIES

RECOMMENDED POLICY

A. FOR DEVELOPMENT PLANNERS, ENGINEERS AND TRAINERS

- FORMULATE POLICY ON WOMEN'S INVOLVEMENT
- EARMARK FUNDS
- INCLUDE WOMEN'S SPECIALISTS IN PROJECT PREPARATION
- LINK PROJECT OBJECTIVES TO ROLES OF WOMEN
- SELECT SKILLED ORGANIZATION TO IMPLEMENT WOMEN'S INVOLVEMENT
- REVIEW AND ADAPT TASK AND JOB DESCRIPTIONS, TRAINING
- ESTABLISH EVALUATION AND MONITORING SYSTEM

RECOMMENDED POLICY

B. FOR WOMEN'S ORGANIZATIONS

- PROMOTE AND PARTICIPATE IN GOVERNMENT WATER SUPPLY AND SANITATION PROGRAMMES
- ORGANIZE AND SUPPORT DATA COLLECTION AND RESEARCH
- PREPARE CASE STUDIES, ARTICLES, BROADCASTS
- SUPPORT LOCAL WOMEN'S GROUPS IN WATER/SANITATION PROJECTS
- LINK GOVERNMENT AGENCIES WITH OTHER ORGANIZATIONS
- INCREASE RESOURCES

RECOMMENDED APPROACHES

JOINT FORMULATION OF MORE ACTIVE ROLES FOR WOMEN

JOINT OPERATIONALIZATION OF ROLES

ENHANCEMENT OF KNOWLEDGE DEVELOPMENT, RECORDING AND EXCHANGE

SUPPORT WOMEN'S GROUPS TO IMPROVE TRADITIONAL SYSTEMS FOR:

- EXPANDED COVERAGE WITH SAME BUDGETS
- GENERAL USE OF ONLY SAFE WATER AND SANITATION

REQUIREMENTS FOR WOMEN'S INVOLVEMENT

OPEN ATTITUDE

CREATIVITY

ADAPTATION TO TYPE OF CULTURE

ADAPTATION TO TYPE OF PROJECT

INVOLVING WOMEN IN LARGE PROJECTS

ASSESS WOMEN'S VIEWS AND POTENTIALS

INVOLVE STAFF WITH SOCIAL SKILLS/ATTITUDES

TRAIN IN USE OF PARTICIPATORY TECHNIQUES

DEVELOP TESTED PROCEDURES FOR WOMEN'S INVOLVEMENT

ADAPT TECHNICAL PROCEDURES

INTEGRATE ESTABLISHED APPROACHES IN NATIONAL SYSTEM

BENEFITS OF INVOLVING WOMEN IN COMMUNITY SELF-IMPROVEMENT

EXPANSION OF IMPROVEMENTS TO AS YET UNSERVED AREAS

USE OF EXISTING RESOURCES AND KNOW-HOW

LOWER CAPITAL AND RECURRENT COSTS

USE OF TRADITIONAL MAINTENANCE AND MANAGEMENT SYSTEMS

ENHANCEMENT OF 100% USE OF SAFE WATER AND SANITATION

INCREASE OF NATIONAL COVERAGE

HOW TO INVOLVE WOMEN

A. IN NEEDS ASSESSMENT

- SOCIAL FEASIBILITY STUDY IN FIELD
- WOMEN ON STUDY TEAM
- INFORMAL COMMUNICATIONS WITH WOMEN
- CONTACTS WITH LOW-INCOME WOMEN

HOW TO INVOLVE WOMEN

B. IN LOCAL PLANNING PROCESS

- SUPPORT LOCAL LEADERS FOR WOMEN'S INVOLVEMENT
- FACILITATION OF WOMEN'S MEETING ATTENDANCE
- SEPARATE MEETING WITH WOMEN IF NECESSARY
- ASSISTANCE TO WOMEN TO SPEAK OUT
- WOMEN CHOOSE TRUSTED REPRESENTATIVES

HOW TO INVOLVE WOMEN

C. IN TECHNOLOGY CHOICE AND LOCAL DESIGN

- DISCUSSION OF SUSTAINABILITY OF TECHNOLOGY
- APPROPRIATENESS OF SERVICE LEVEL
- ACCEPTABILITY OF LOCATION AND DESIGN FACILITIES
- NEED FOR ADDITIONAL FACILITIES (LAUNDRY, BATHING, ETC.)
- DISCUSSION OF DESIGN, MANAGEMENT, FINANCING OF ADDITIONAL FACILITIES

HOW TO INVOLVE WOMEN

D. IN PLANNING OF IMPLEMENTATION

- CONTRIBUTIONS OF WOMEN TO CONSTRUCTION
- ROLE OF WOMEN IN MANAGING SELF-HELP
- LOCAL MAINTENANCE OF ARRANGEMENTS, INCLUDING ROLE OF WOMEN
- MOST SUITABLE MANAGEMENT SYSTEM, INCLUDING ROLE OF WOMEN
- LOCALLY APPROPRIATE FINANCING SYSTEM, INCLUDING ROLE OF WOMEN