

WOMEN, WATER SUPPLY AND SANITATION  
- a national training seminar -

Kadugli, Sudan  
16 - 21 January 1988

sponsored by

the United Nations International  
Research and Training Institute  
for the Advancement of Women

INSTRAW



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## I. INTRODUCTION

The national training seminar on "Women, Water Supply and Sanitation", was convened at the Government Palace in Kadugli, Sudan, from 16-21 January 1988.

The meeting was convened by INSTRAW (United Nations International Research and Training Institute for the Advancement of Women) in collaboration with the UNICEF office in Sudan.

Thirty-two participants represented their respective ministries, agencies and organizations (see ANNEX I).

Also participating in an observer capacity were 11 representatives of six agencies and organizations (see ANNEX II).

### A. Opening of the Seminar

The opening of the seminar was coordinated by a representative and Board Member of INSTRAW, Ms. Tawheeda Osman Hadra. Ms. Tawheeda was also a lecturer in the Department of English at the University of Khartoum, and an expert at the Arab League Education and Cultural Organization.

Ms. Tawheeda welcomed the participants and began the meeting with a quote from the Koran.

She went on to say that the seminar was part of a project which aimed to develop innovative training techniques to link the importance of women to the planning, management and implementation of all water resources. The project was carried out by INSTRAW and ILO/Turin and was made possible by the generous support of the Italian Government.

The purpose, materials and implementation of this seminar were a product of the Institute's three dimensional programme of activities comprising: research, training and information/communication. The interlinkage between these three dimensions constituted INSTRAW's basic strategy for approaching women's issues. The Institute's general programme of action, aimed at ensuring that all aspects relevant to the position and role of women, were included in the overall objectives and activities related to economic and social development especially in developing countries. This was approached through monitoring new development trends, ensuring that women's needs and active participation were pragmatically incorporated in development activities and policy design. This necessarily entailed a redefinition of the economic position of women and the role they played in particular sectors of the economy such as water supply and sanitation, industry, new and renewable sources of energy, agriculture, trade, etc.

INSTRAW's guiding principle towards achieving this end, was to enhance global awareness of women as equal partners at international, national or local levels and to change policies and attitudes towards women. This obviously required a sustained process of information dissemination, active communication, proper education and training, and a system of tracking the level and extent of incorporating all these ends.

Here, INSTRAW's innovative training methodologies focused less on the conventional approaches and more on the participatory ones, using new communication techniques. These methodologies approached training in the broader framework of today's needs by going beyond training for skills and instruction through promoting awareness and expertise on women and development at the level of development authorities and organizations involved in women's issues. It had been found that most policy makers and planners were not familiar with how women's participation and needs could be incorporated into the development process. Accordingly, INSTRAW addressed its training sessions and advisory services to three major target groups :

- United Nations field staff
- key development personnel at all levels and
- women's organizations, which were in turn training managers and community level leaders.

These target groups were selected with the understanding that they could play key motivational and catalytic roles in the promotion of women's participation in development. They were also selected with the objective to train trainers in such a way that they in turn could transfer their training techniques in a self-reliant manner within their own communities.

Finally, she said, the Institute hoped that the seminar would achieve its optimum objectives in realizing that the basic principles of participatory training - mainly changes in attitude, values, perceptions and action - were directly related to the meaning of training experiences; and their eventual potential for an effective societal change for both men and women. The Institute also hoped that this training experience would be effective enough to enable the trainees to interpret the information and skills acquired into action plans within their cultural contexts.

The Institute also hoped that this training would secure a cadre of competent and motivated trainers and facilitators who could assess training needs, design appropriate curricula, choose effective methodologies and provide a stimulating training environment.



The Acting Commissioner and Executive Officer in Charge of South Kordofan, Sayed Al Khair Mohamed Ali, then welcomed the participants.

He said that Kadugli was one of the areas where seminars and conferences like this were very much appreciated, since the water problem was extremely crucial. Also, Kadugli was among the first districts to receive UNICEF's help with regard to facilitating water supply and sanitation.

The participation of women in all sectors of the economy in Kadugli was very evident. So, to link women with this activity was opportune. Women in this area were known for their responsibility for securing water for the family as well as domestic animals.

In closing, the Commissioner wished the participants every success in their deliberations.

The participants were then welcomed by the official representative of the Government of Sudan, Ms. Amal Sayed Arbab, Deputy Under-Secretary for Social Welfare. While with the Ministry for 20 years, Ms. Amal had often been seconded to work with various United Nations organizations and also served as a lecturer at the University of Khartoum.

Ms. Amal greeted the participants on behalf of the Minister of Social Welfare and Zakat.

She said that the theme of this seminar was a very important topic. Water, she said, was life. It was clearly stated in the Koran that Allah created every living creature from water. Greek philosophers considered water as the most important of the four elements and origins of life. Ancient Egyptians celebrated the flood of the Nile by throwing a beautiful bride into the middle of its stream and they called it the bride of the Nile. Herodotus called Egypt the gift of the Nile.

She noted that women had a crucial role to play in social and economic development. They were the major users of water, responsible for collection, storage and use in the home, general sanitation and now even the maintenance of water installations.

The Ministry of Social Welfare established a Women's Department in 1973. This department carried out research on the role of women, particularly related to planning for women's projects such as income-generating activities and consciousness raising. This was carried out by Social Centres.

The Ministry of Social Welfare requested assistance from international organizations such as UNICEF and FAO in conducting research and implementation of projects, training courses for women, etc. These organizations had made a great contribution to these projects, especially during the years of drought and desertification, when economic and human resources were stretched. The contribution of UNICEF had been particularly significant. The international organizations would continue to play an important role in the Sudan to alleviate the suffering resulting from drought, desertification and war.

Women carried the major burden resulting from problems of inadequate water supply, in addition to their many responsibilities in the home.

The Ministry of Social Welfare, she stressed, had the main responsibility towards women. As a new ministry, it had to build a firm foundation for its work through programmes of staff training, identification of different sources of funding, etc. To achieve this, cooperation with international and indigenous NGOs was essential, such as INSTRAW, UNICEF and other organizations. It was hoped that cooperation with UNICEF could continue to assist in the sphere of training, information, etc., and that new links could be created with INSTRAW.

In closing, she said she hoped that this seminar, with the participation of both governmental and non-governmental organizations, would produce useful recommendations and have some impact on future policy decisions.

Ms. Jane Campbell, the official representative of UNICEF to the opening of the seminar, then addressed the meeting. She said that the objective of INSTRAW generally, and for this seminar in particular, was to demonstrate the essential beauty and reason of linking the three words, Women, Water Supply and Sanitation. Kadugli was a special example of a place, where compared to many countries, districts and towns, that projects were ahead of their time. And it was hoped, therefore, that Kadugli and Sudan might serve as an example of what could be adapted and used in other countries. Here were projects where the various government ministries and agencies worked co-operatively among themselves and with the people, on programmes sharing common goals - where the importance of women's full share in development was recognized and capitalized upon, where mothers and children - and all family members - could have access to safe water and sanitation facilities; where women had played a significant role in achieving this and which could increase rapidly in time.

One of the most important factors in success in any field was "timing", she noted. One could have the best idea in the world, but, if the timing was not right, it would not be accepted. For Women, Water Supply and Sanitation the timing was right and the place was right.



Regarding timing, for the past few years, throughout the world, women's contribution to the development of a country had been steadily gaining recognition. This had not always been so.

But now, the time was right. Women and Development would be the great development issue of the 1990s. Already, most national and international groups involved in development had the issue high on their agendas. For UNICEF, she said, the Executive Board had already made it clear that women in and for development would be the issue to receive top attention, during the closing decade of the century - the 1990s.

Sudan, she stressed, was a democracy where the selection of representatives at all levels from the village committees up to the national leaders was accepted. And, for example, the Minister of Social Welfare in Sudan was a woman. Leaders of many of the national NGOs were women. Members of the village water committees were women.

In closing, she wished every success for the seminar Women, Water Supply and Sanitation and in developing plans for use, not only throughout Sudan, but which could serve as guidelines for countries around the world.

Mr. Thomas Ekvall, Chief of the Water and Environmental Sanitation Section of UNICEF, Sudan, made an opening statement.

He felt that although a week would be spent learning how women could and should be involved, this alone would not change anything. What was required was that when the participants to the seminar resumed their duties, that they also assume the responsibility to ensure that what had been learnt, and agreed upon, would be reflected in their work, in their decisions and in their actions.

He then gave background information on UNICEF involvement in water supply and sanitation in Sudan.

Work began in Bahr El Ghazal in 1976 with bore holes and hand pumps - but, with very little being done in health education, sanitation or community participation.

In 1978, the project in South Kordofan was started, initially as a surface water programme, but later developed to include more emphasis on sanitation, health education and community involvement. It was also the first place where women were trained as pump mechanics.

Now, 12 years after the start in Bahr El Ghazal, UNICEF was supporting water and sanitation projects operating in: Yambio, Wau, Kadugli and Sinkat. Two thousand eight hundred hand pumps had been installed; 1,300 latrines had been built; and 600 hand pump mechanics had been trained. Between 1976 and 1987 UNICEF support to these programmes had been approximately US\$ 28,000,000.

UNICEF's policy in the Sudan on water and sanitation had evolved over the years from just provision of water into a more complete package of water, sanitation, health education and community involvement in planning, management and maintenance of their water supplies.

More Specifically, UNICEF policy on water programmes included :

1. Rural programmes

- a) For improved health
- b) For reducing the burden on women and children
- c) To serve as an entry point for other interventions

2. The three pronged approach

- a) Water
- b) Sanitation
- c) Health education

3. Low cost solutions

- a) Bore holes with hand pumps
- b) Latrines

4. Community participation

- a) Indication of a felt need.
- b) Commitment to sanitation and health education.
- c) Acceptance of full responsibility for future up-keep and maintenance of all installed systems.

He then outlined community activities that helped to translate UNICEF policy into action. Communities would :

- 1. buy a truckload of latrine slabs and have them installed in latrines;
- 2. buy a set of hand pump maintenance tools and hand pump spare parts;
- 3. have two villagers trained as hand pump mechanics - one being a woman;



4. establish a health committee consisting of village leaders, village teacher, village health worker, pump mechanics.

This committee would be responsible for :

1. health and hygiene education in the village;
2. ensuring that all households have and use latrines;
3. manage and maintain the village hand pumps;
4. collect sufficient funds in the village to finance the cost of maintaining the hand pumps.

All project interventions and activities would be centred around this committee. The village would be provided with all information about the programme and would decide whether to participate, with the full understanding of what is involved, namely :

1. what the village can expect from the project;
2. what is expected of the village;
3. what it will cost the village in terms of time and money.

In closing, he said that UNICEF hoped that a sense of ownership would be established; that the village would feel responsible; that latrines would be used; hand pumps would be kept working; and that the result would ultimately be improved health.

Finally, Ms. Khadiga Hussein of the Ministry of Peace addressed the meeting.

She said that it was natural that human beings needed and wanted clean water supply, and always had the tendency to live in a good environment with sanitation.

This clean and healthy water supply was the key to human development, and hence, community development.

UNICEF played a major role in relieving millions of thirsty people in many areas, who were in need of these kinds of services.

One of the basic aspects of welfare for rural communities was the improvement of health and hygiene. Health and hygiene could be significantly improved by proper nutrition, adequate and safe water supply, proper excreta disposal and clean living environment.

In this context and by observing the socio-economic, cultural and traditional aspects of communities in western Sudan in general, it could be stated that the role of women in implementing any water supply and sanitation programme was of paramount importance.

Ms. Khadiga then gave the example of the western district of South Kordofan. This area, she felt was in particular need, of implementing an intensive and quick programme of clean water supply.

In closing, she said that women's role should be considered highly, particularly in carrying out family affairs. Women had to be trained, they should participate in development activities and be motivated in activities to improve water supply and sanitation.

#### B. Election of Officers

The following officers of the seminar were elected :

Chairman :	Ms. Amal Sayed Arbab
Vice-Chairman:	Mr. Mohamed El Mahdi Siddig
Rapporteurs :	1) Ms. Amal Mustafa Morgan
	2) Ms. Amel Abdel Rahman Hamza

#### C. Adoption of the Agenda

The agenda of the seminar was then adopted (see ANNEX III).

#### D. Adoption of the Report

The participants to the seminar agreed to form an ad hoc committee to follow-up the recommendations to the seminar. They agreed to hold their first meeting three months after the seminar.

The report of the seminar was adopted as amended.

#### E. Closing of the Seminar

At the closing of the seminar, a number of people spoke to express sentiments and gratitude.

Ms. Amna Abdel Rahman Hassan, Director of Women's Programmes in the Ministry of Social Welfare and Zakat, spoke on behalf of the participants from Khartoum. She thanked the organizers, INSTRAW and UNICEF and the people of Kadugli. She noted that during the seminar a great deal had been learned and experience gained. The training package she felt, had been very useful. She said that the material would be used in the future in the work of the Ministry.

On behalf of the participants from Kadugli, first Mr. Mohamed Abdalla El Mardi, Director of Education, said that this had been a good opportunity for Kadugli and thanked the participants for coming. He also thanked UNICEF for all that had been done already in Kadugli, especially in terms of training. Mr. Ahmed Musa Harin, Director of Health Education, then thanked INSTRAW and UNICEF for selecting Kadugli to give training in women, water supply and sanitation.

Ms. Stephani Scheer de Vela, consultant for INSTRAW, said that the convening of the seminar in Kadugli had presented a unique opportunity for INSTRAW. Usually, INSTRAW activities were conducted at the national level with the expectation that national trainers would in turn conduct similar courses reaching to the village level. In this case, the seminar, while a national seminar, had had the opportunity to widen its scope and reach even further into Sudan to convey its message on women, water supply and sanitation. She thus thanked UNICEF for proposing the venue, and the secretariat, lecturers, participants and people of Kadugli for making it a success.

Mr. William Fellows, representative of UNICEF, said that even at the planning stage of this seminar, he had foreseen the considerable difficulties that would be involved in convening a national meeting in Kadugli. He was most pleased though to note, and report back to Khartoum, that it had been a resounding success. For this, he gave credit and thanks to the INSTRAW consultant and conference secretariat, the UNICEF staff, the people of Kadugli and the participants. He said he very much looked forward to the meeting that would be held in three months time and to working with the participants again.

Mr. Mohamed El Mahdi Siddig, the Vice-Chairman and representative of the National Water Corporation thanked everyone for coming to Kadugli and for participating in the seminar. He said he felt it had been a good opportunity to see how and where women could be involved in WSS projects and programmes. He thanked INSTRAW for its initiative and said he hoped that the work of the Institute would continue to be felt in Sudan.

Finally, Ms. Amal Sayed Arbab, the Chairman, said that she was not only grateful for the seminar but that it had given her and the other participants a chance to see Kadugli and a WSS project in action. She felt that it had enhanced the lessons of the material of the seminar and had further brought to bear the experiences and ideas exchanged during the meetings. She thanked INSTRAW for the seminar, UNICEF for its support and urged all the participants to work hard to implement the recommendations of the seminar.



## II. SUBSTANTIVE ISSUES

- A. Module I: Introduction of the International Drinking Water Supply and Sanitation Decade and the United Nations International Research and Training Institute for the Advancement of Women.

Module I, introduction of the IDWSSD and INSTRAW was presented by the representative of INSTRAW, Ms. Stephani Scheer de Vela. Currently a consultant for INSTRAW, Ms. de Vela served as a member of the INSTRAW staff for a number of years and was actively involved in the development of the Institute's programme, women and the IDWSSD, including serving as a member of the Inter-Agency Task Force on Women and the IDWSSD.

In her presentation of Module I, she noted that recognition of the seriousness and the vital importance of improving water supply and sanitation worldwide had been underlined by the international community at the United Nations Water Conference held in Mar del Plata, Argentina back in 1977, which resulted in the subsequent launching of the IDWSSD in 1980.

A Steering Committee for Co-operative Action was established, comprised of eleven relevant United Nations specialized agencies and organizations. The objectives of the Steering Committee were, she said, to put into operation mechanisms designed to help match projects with external sources of funds, exchange technical information between countries, shape global plans for human resource development, advise on project formulation and investment planning, and assemble comparable data for progress reporting and public information on the Decade as a whole.

In 1985, she said, that a review had been made of the progress in the Decade, in the form of a report to the General Assembly through the Economic and Social Council.

At the mid-point of the Decade, it was found that some 1,200 million people still needed safe drinking water and some 1,900 million people still lacked adequate sanitation. These numbers of unserved people represented more than twice the number of people provided with clean water during the first half of the Decade, and more than 20 times the numbers reached with adequate sanitation.

The consequences of this abominable situation she said, were extremely evident. Less evident, though vital in consideration of the situation, was the role of women.



She stressed that women were the carriers of water, managers, users, family health educators, motivators and agents of change. They were responsible in this regard not only for themselves, but also for the members of their families and the community at large.

Any strategy for women's participation thus needed to consider water supply and sanitation as an integral part of the entire development process along with other socio-economic sectors.

Within the international community, one of the mechanisms established to address the question of the role of women in water supply and sanitation, was the Inter-Agency Task Force on Women and the IDWSSD. The Task Force was created as part of the Steering Committee for Co-operative Action.

Within the framework of international co-operation, the United Nations International Research and Training Institute for the Advancement of Women (INSTRAW) was seeking to make an important contribution to the implementation of the objectives of the IDWSSD.

Mandated to act as a catalyst, the representative stated that the objectives of INSTRAW were to stimulate and assist, through research, training, and the collection and dissemination of information, the advancement of women and their integration in the development process, both as participants and as beneficiaries.

Since its inception, INSTRAW has worked to improve methodologies for training. INSTRAW remained firmly committed to innovative approaches to training, recognizing the urgent need for a shift from didactic instruction to more participatory methodologies, involving communication and media support as essential ingredients.

As part of its programme and with the support of the Government of Italy, INSTRAW and the International Centre for Advanced Technical and Vocational Training (ILO/Turin) have prepared the multimedia training package on Women, Water Supply and Sanitation.

The package reflected five years of research by INSTRAW, including a survey of material, projects and activities undertaken by other United Nations agencies and bodies, inter-governmental organizations, bi-lateral agencies and non-governmental organizations. Using a modular approach, the package aimed at two major target groups: national development officials and women's organizations. The major objective was to foster awareness of the close relationship between women and water, and help to ensure women's participation at all levels and stages of water supply and sanitation programmes and projects.

Now before the package was reproduced in its final form and distributed world-wide, she noted, four national training seminars, such as this one, were being conducted to determine its applicability.

In closing, she said that in distributing the training package, INSTRAW hoped to strengthen the institutional capacity of developing countries in water supply and sanitation.

Mr. Mohamed El Mahdi Siddig, a representative of the National Water Corporation (NWC), made a presentation on community involvement in water supply systems in Sudan.

He said that rural water resources development, operation and maintenance of water supply systems (WSS) had been the responsibility of the Government through the NWC since 1945. Many plans and crash programmes had been launched to provide adequate and safe water in all parts of the country.

Unfortunately, poor operation and maintenance practices had largely contributed to decreased utility and early failure of newly constructed WSS systems. Thus the benefits had not been realized; capital investments had been partially lost; scarce resources were expended on replacement and procurement of equipment for the rehabilitation of facilities.

This situation was causing increasing concern to the NWC and external agencies associated with water resources development. Planners had come to realize that community participation (CP) was an essential ingredient for the projects to be successfully planned, designed, operated and maintained.

Against this background the government had allocated substantial budgetary resources for subsidizing community involvement programmes in the four-year plan for 1987-1991. To realize this programme, community participation and especially the role of women had to be organized and developed to achieve the goals.

Mr. Mohamed sought to briefly assess the role of women in operation and maintenance of surface water supply systems, identify areas of involvement and overcoming the anticipated constraints, in order to achieve the overall goals of the IDWSSD

Regarding rural surface water supply systems, he noted that they consisted mainly of :

- hafirs and dams
- slow sand filtration
- irrigation canals
- River Nile system and tributaries.



Raw surface water was usually contaminated and required treatment. Slow sand filtration (SSF) had been internationally accepted as an economical and efficient method of treatment consequently adopted in Sudan.

Surface water supply systems if not carefully supervised and immediately maintained were liable to fall into disrepair and deterioration. Thus simple repairs had to be made in time otherwise it would lead to disastrous damage. The activities which could be performed by local villagers, of course including women as an important element of the community, were shown in Table 1. The savings achieved through community participation were also shown in Table 2.

In order to provide rural communities with safe drinking water and appropriate sanitation, release of funds from government, external agencies and local communities had to be stimulated. Although no clear policy or plan towards community participation had yet been set, it was observed that many projects in the field of water supply and sanitation had been successfully constructed and operated through community participation.

Usually, the villagers were motivated by observing the success attained in nearby villages or towns and always requested implementing agencies to have the same system. The cost of the new project would be met by the locals if it was within their capacity, otherwise they deposited the money collected and waited for the project to be included within the national implementation plan.

The revenue collected from some existing services might sometimes be sizeable in relation to the project improvement cost. The local committees might put a flat rate for users or they might sell subsidised items like sugar with extra cost which was saved to meet the cost of the new project. In many villages along the Nile, the water committees paid for spare parts, fuel and salaries of operators.

To encourage, organize and develop community participation to improve water supply and sanitation, a total approach integrating both men and women in the whole project process without being biased to men should be considered. Women had to play a leading role in community participation. This could be addressed if the following points were considered :

1. The problem of water supply and sanitation must be looked at from the view of being a cornerstone to integrate development of the community.
2. Integrated rural development policy, strategies and plans should be based on a realistic feasibility study bearing in mind involvement of the community participation element.

3. Selection criteria for women's training should start with school girls as level of education, availability of place, time, teachers, etc., favoured such type of training. They also had to convey the message to their mothers at home.
4. It was advisable to include rural development topics in school curriculum at early stages.
5. Operation manuals and guidelines in easy local language should be made available.
6. Training of locals to operate and maintain the installed system should be provided.



T A B L E 1

Type of System	Average initial construction cost LS.	Savings through Community Participation	Average Annual operation and maintenance cost	Savings through Community Participation
- Hafir (30,000 M <sup>3</sup> )	150,000	20,000	30,000	20,000
- Slow sand filter 20 M <sup>3</sup> p.h.	180,000	40,000	10,000	10,000
- Irrigation canal and Nile system projects	300,000	60,000	12,000	12,000

TABLE 2

<u>Type of system</u>	<u>Planning and Design</u>	<u>Construction</u>	<u>Operation and maintenance</u>
Hand dug wells	Provision of data/Choice of technology	1. Preparation of local materials	- repair of platform
Hand pumps		" " "	- upkeep of system
			- spillage control
			- collection of revenue for spare parts
Hafirs and dams	" " " " "	1. local materials	- repair of Emb. fencing, outlet system
		2. camping facilities	- removal of weeds, silt
		3. hand excavations	- repair & construction of diversion structure
			- revenue collection
Slow sand filtration	" " " " "	- local materials	- repair of fencing
		- filter media	- control of spillage
			- resanding process
Irrigation canals and Nile systems	" " " " "	- local materials	- repair of fencing
		- exec. of trenches	
		- transportation of materials	
		- storage facilities	

In the general discussion that followed, a comment was made that the modules talked about water supply and sanitation concerning only man while, especially in rural areas, we could not separate man from animals, because animals need water as well.

It was noted that the four-year-plan as discussed by Mr. Mohamed might change according to the political situation. It was replied that the main objective of the four-year-plan could be viewed as a starting point.

Finally, it was stressed that while we could raise the awareness of women through primary school children, the role of men, though, could not be discounted nor ignored, so that a method of approaching the issue through them should be developed.

B. Module II: Participation of women in planning water supply and sanitation projects.

Module II, participation of women in planning water supply and sanitation projects was introduced by Ms. Amna Abdel Rahman Hassan, Director of the Women's Programmes Section of the Ministry of Social Welfare and Zakat.

Ms. Amna who was with the Department of Social Welfare before the creation of the Ministry, had been actively involved with the development of education and training activities for a number of years, particularly with regard to the role of women in development. She had also worked with and lectured at the High Nursing College, University of Khartoum, Faculty of Education, National Training Centre for Kindergarten Supervision and Ahfad University.

In her presentation, Ms. Amna gave a brief introduction to the women's situation regarding water supply in the rural areas of the Sudan, and stated clearly the objectives of INSTRAW in relation to the participation of women in water and sanitation projects. Health, education, environmental conditions, transportation, socio-economic aspects which were associated with water problems were also addressed.

Then, much emphasis was given to the integration of efforts and programmes together with the participation of local women and members of the community, and at the national level of governmental and non-governmental groups with existing women's organization. Motivation and mobilization of community members to be involved as partners in planning water projects was discussed.

Emphasis was also given to the participation of women in planning through local needs assessment, consultation, decision making, choice of relevant information and appropriate technology, in respect to traditional technology. Detailed information about the importance of women's involvement in water and sanitation in relation to health, training, economic and projects benefits was discussed and attention was given to women's participation and contribution in the process of project implementation, monitoring, evaluation and even in the maintenance and repair of equipment, as well as planning.

She felt that institutions and formal education sectors should be stimulated to be aware of women's issues in relation to water and sanitation, and to ensure that more efforts were put on training and advancement of women to enhance their participation in planning for WSS.

She felt that recommendations brought out by the module in regard to the various approaches should be examined carefully in order to determine those relevant to the Sudan.

She stressed the need for discussions concerning health education sessions for training women so as to use them as health educators and promoters.

Finally, some examples concerning water and sanitation from different parts of the world were examined in order to find out the successful areas of women's participation and local village people's contributions. The presentation was accompanied by some educational materials shown simultaneously.

During the general discussion that followed the presentation, it was noted that water supply and sanitation could not be divorced from other issues of relevance to women.

Informal education was discussed and it was felt by one participant that informal training was insufficient in villages.

It was also discussed that while the role of women in water supply and sanitation should be enhanced, it should not mean that more work should be given to women. It was also clarified that training should include men as well, where appropriate.

Regarding training for women, the problem was raised that sometimes after women were trained, they got married and left the work force. Another point that was raised was that women needed motivation and that the trainees should be selected by village women themselves.



The participants then met in working groups. What follows are their reports and recommendations as amended and adopted by the seminar.

Group 1 :     How can we train women for planning in water supply and sanitation? Make recommendations in this regard.

Chairman:     Ms. Rabab Hamid El Mehiena

Rapporteur:   Ms. Asha Mustafa

The group discussed the topic extensively, drawing on various experiences of group members and the seminar objectives. They raised the following relevant points :

1.   Sectors for undertaking training of women for planning water supply and sanitation :
  - a) administrative
  - b) formal and informal
2.   Units of training at different levels : national, regional, district and village.
3.   Existing programmes of relevance to water supply and sanitation and to training at various levels in different units.
4.   Suggestions for informal education and training.
5.   Formulation of specific recommendations for subject.

#### Recommendations

Women should be represented at all levels of administrative councils and units : at village, rural, district, provincial, regional and national levels.

1.   Sub-committees should be formed to select trainees at the grass-root level.
2.   Social surveys should include interviews with women and should be conducted by women, where feasible.
3.   Community development centres should be activated and made the focal point for training women in water supply and sanitation. They should also coordinate with other training centres and organizations in this regard.
4.   The formation of women's organizations and cooperatives should be promoted and their participation in the formal decision-making force should be encouraged.

5. Women's training needs for leadership and planning should be specified at the national level.
6. Training at the national and regional levels should include :
  - a) specialized university departments and other institutes
  - b) courses for training of trainers, fellowships, seminars etc.
  - c) inclusion of water supply and sanitation elements in training courses conducted at technical and non-technical institutes, in the field of development and planning.
7. Intermediate level training should be conducted at the site of the water project.
8. Core training courses for intermediate level training should be conducted with other countries to exchange information and experiences.
9. Women village leaders should sit on local councils as representatives of women.
10. Girls who leave school early should be trained through community development centres as noted above.
11. Programmes for women promoters should be included in the work of field officers for development projects.

Group 2 :                    How can governmental and non-governmental agencies and organizations be mobilized and integrated to enhance the participation of women in planning water supply and sanitation projects.

Chairman:                    Mr. Andrew Shepherd  
Rapporteur:                  Mr. Makki Ahmed Al Tigani

The group first discussed the following issues :

1. Who could enhance the participation of women in planning ?
  - What ministries were involved and could be involved in planning for water supply and sanitation projects ?

Ministries of Social Welfare, Health, Education, Agriculture, Youth, Information, National Rural Water Corporation.

- What coordinating body existed at the national level ?  
The National Action Committee for the Water Decade.  
Also, the National Committee for Women (recently reconstituted).
- 2. How could activities be organized at the grass-roots level ?
  - There was a need to involve all the existing extension workers (agriculturalists, health workers, adult educators, etc).
  - They could be used to mobilize women for planning. This might utilize existing women's groups or might require the formation of new groups.
  - Other organizations such as Ahfad University could play an important role in training extension workers to mobilize women.
- 3. How could this be coordinated / what would provide the catalyst for organization of activities at grass-root level.
  - The Community Development Centres of the Social Welfare Ministry. Certainly, the Ministries of Health and Social Welfare could play a crucial role.
- 4. Were financial incentives necessary?
  - Certainly, salary increases were required (as already suggested by the Prime Minister) perhaps per diems/allowances were needed for attendance at courses.
  - This could perhaps be paid for by local resources or by the Ministry of Social Welfare.
- 5. How could coordination for mobilization of women be organized at the district level?
  - Need for district committee to bring together professionals from different ministries, departments and representatives of NGOs.

#### Recommendations

1. Review the work of the National Action Committee. Petition the National Action Committee, in its work and as it develops, to include the participation of women in planning water supply and sanitation.



2. At the grass-root level, involve and provide incentives for extension workers from different departments (e.g. health workers, teachers, nutrition guides, adult educators, social workers, etc) to promote women's participation in planning water supply and sanitation; and to organize women to this end, where necessary. This should be supported by a committee at the district level.

Group 3 :     Identify the stages of planning water supply and sanitation projects in which women can participate. Make recommendations in this regard.

Chairman :    Mr. Mohamed El Mahdi Siddig  
Rapporteur:   Ms. Samia Abdel Bagi Mohamed

The group first identified specific issues within the topic.

1. Women were involved in water supply and sanitation projects as :
  - a) Professionals
  - b) Target groups
2. Stages of planning water supply and sanitation projects included :
  - a) Project identification
  - b) Design and appraisal
  - c) Project formulation
- A. Project identification (following a socio-economic study)
  1. professional women could participate as members of the planning group.
  2. target groups could participate serving as a source of reliable data which included:
    - a) number of population and livestock
    - b) traditional source of water (dependability, reliability); per capita consumption
    - c) potential area of agricultural/grazing)
    - d) division of labour
    - e) means of transportation (water) and storage at houses.
    - f) socio-cultural data.

## B. Design and appraisal

This included :

- identification of problems and establishment of priorities
  - defining objectives and goals of the project
  - defining scope of work and study of alternatives and selection.
1. Professional women could participate as members of the planning team, but may also have the ability to collect more reliable information from grass-root level.
  2. Target groups could contribute through participation in some activities which would affect the cost and scope of work.

## C. Project formulation

This included:

- project components
- managerial organization
- phasing of the project
- implementation chart

Participation of women at different levels of planning could be illustrated as follows :

<u>Professional</u>	<u>Level</u>	<u>Target group</u>
decision-maker (dm)	national	
dm/professional	regional	women's association
professional	provincial	women's association
official/professional	rural councils	women's association
official	villages	village women's committees and individuals.

The group then made the following recommendations:

1. Women, as community members closely related to water and sanitation, should be involved at the different stages of planning of water supply and sanitation projects.

2. Participation of women in planning water supply and sanitation projects should include them as individuals, associations and organized groups at different levels within the administrative and managerial hierarchy.
3. Women's customs, traditions, preferences and priorities should be considered in project identification.
4. To ensure proper participation of women in planning water supply and sanitation, women should be trained in health and hygiene education.

Group 4 :      What should be the role of women's organizations with regard to the participation of women in planning water supply and sanitation activities? Make recommendations in this regard.

Chairman:      Mr. Siham Mukhtar Mohamed  
Rapporteur:    Mr. Bashir Mohamed El Hassan

The group first identified different organizations as follows :

A. Women's organizations

1. Women's organizations that belonged to political parties such as; The Omma Party Women's Secretariat, Democratic Unionist Party Women's Secretariat etc.
2. Non-governmental, non-political voluntary organizations, such as the Hawa Society, Sabah Society etc.
3. Women's committees, mostly at the village level, e.g., Dara committee.

B. Associated organizations including sub-committees for men and women, such as the youth associations.

The members of the group agreed that the above-mentioned women's organizations were important and should be considered as the target to which development messages should be directed, since the members of such groups were more or less residents in their different localities, the issue of programme continuity would be maintained.

Recommendations

1. The committee members should be well informed and appropriately trained, not only in the relevant aspects of water supply and sanitation, but also in other socio-economic development issues.



2. Since the committee members were part of the community, they should be sensitive to community needs, and be able to express them and set priorities.
3. The members of the committee in consultation with the community should be able to propose possible solutions to problems of water supply and sanitation.
4. The committee should develop proposals with regard to :
  - possible sources of water supply
  - available alternative sites
  - required appropriate technology
  - community contribution towards the realization of the project, either in cash or kind.
5. As far as training was concerned, the committee should provide follow-up and continuous supervision.
6. The finally adopted plans should be endorsed by the community.

C. Module III: Involvement of women in the choice of technology and implementation of water supply and sanitation projects.

Module III, involvement of women in choice of technology and implementation of water supply and sanitation projects, was presented by Mr. Ken Maskall, Project Officer for UNICEF in South Kordofan.

Mr. Maskall, a civil engineer specializing in public health, had been in Kadugli, in charge of the South Kordofan Water Supply & Environmental Sanitation project, for three years. He spent a number of years, prior to coming to Sudan, working in community water supply, construction & sanitation programmes in the Middle East and South East Asia.

In presenting Module III, Mr. Maskall drew extensively from the experience of women's involvement in choice of technology and implementation in the project underway in Kadugli, Sudan, namely, the above-mentioned South Kordofan Water Supply and Environmental Sanitation Project.

## Technologies for Water Supply and Sanitation Projects

He said that this project began in 1978 with the original emphasis upon development and rehabilitation of surface water sources (hafirs). Being one of many provinces in the Sudan which relied heavily upon the availability of surface water for watering large herds of livestock (mostly cattle in this case), it was probably that economic factors in terms of livestock breeding and sale were overriding in the choice of 'source' for development. The technology employed to improve access to surface water supplies (heavy mechanical equipment for excavation and water treatment plants for improved water quality) was chosen without due consideration for the institutional and financial capacity at village level, for the operation and maintenance of the water supply system. Subsequent breakdowns pointed to a lack of consultation between the communities served and the executing agency on matters such as the choice of technology, site management, local maintenance capability and cost recovery methods. An alternative water development strategy was conceived after a review of priorities expressed by the community, executing agency and major donors. Low-cost installation/maintenance and improved water quality factors pointed to the exploitation of groundwater sources through small-diameter drilled shallow wells fitted with handpumps.

This technology, he felt, proved to be much more compatible with the demands from women users, expressed in terms of higher service levels, lower operating and maintenance cost and improved water quality. He stressed though, that while women were taking on new responsibilities for the operation and maintenance of handpump water supplies, it would be wrong to say that their participation in the choice of technology had been greatly significant to date. The presentation aimed, therefore, to investigate the reasons for this, and to propose locally-appropriate solutions.

### Why and how to involve women in the choice of technology

Several handpumps had been tested by the project in order to assess their appropriateness to the user as well as technical efficiency. Only two of these were considered to be technically appropriate, with women as the main users preferring the India Mark II pump for its simple operation. Similar discussions with women householders upon the design and completion of latrine superstructures led to modifications in squatting slab designs. Both examples illustrated the need to involve women in the design and choice of technology employed. Knowledge about women's perception of appropriate water and sanitation systems expanded with the assignment of more female extension workers to the project. Efforts were being made to incorporate water hygiene and health education into a social programme being developed by a local women's association (Hawa Society). These examples demonstrated the need to address matters most concerning women through women.



## Intervention and Involvement of Women in Implementation

Women, as regular users of water pumps were clearly more suited to the role of educating other users in tasks of preventive maintenance and, because of their greater sensitivity to social pressure from other women, were more likely to do a good job in carrying out repairs on the pump. Training of women handpump mechanics in South Kordofan began in December 1986, with courses jointly sponsored by UNICEF and the Youth Training Centre in Kadugli. The majority of these were young single women, since the husbands of married women were reluctant to see their wives take on new responsibilities outside the home. Experience showed however, that women were likely to continue in their maintenance role after marrying if they expressed a wish to do so to their new husbands.

He noted that in cases where the sheer physical strength needed to remove down-hole components of the handpump had been a problem, women mechanics acted as 'supervisors' of a team of young male volunteers.

Problems experienced by young single women with the collection of money to pay for spare parts, either from the users or from the local council administration, indicated the need for the establishment of a 'users co-operative,' in order to apply 'group' pressure on local authorities and users alike in collecting funds and following up on repairs. A careful division of responsibilities between the executing agency and community for site management and repair arrangements needed to be made upon the basis of the real capacities and interests of both parties. The main objective in this respect was to bring men and women of the community together to make decisions on water supply and sanitation issues as well as reinforcing the status of women through the eyes of their male counterparts.

## Local Administration

While the experience of women's involvement in pump maintenance was confined to the urban district of Kadugli (more than 80 pumps in this area), problems associated with local authority cooperation were much the same at village level. Here, the traditional leadership, the sheikhs council, was less likely to permit women to take full responsibility for site management and repair arrangements, when doing so would constitute an undermining of their own status. Of course, this phenomenon was the main obstacle to further involvement of women at all levels of water supply and sanitation programme implementation, serving to underline the importance of setting up service management bodies which protected the common interests of all parties. Separate parallel women's committees were established to coordinate follow-up of the construction of pit latrines in some villages, usually with older women heads of household as leading speakers. Their effectiveness seemed to be as much a function of the strength of the sheikhs council as their own organizational capacity.



He emphasized that these initiatives needed to be reinforced by agency inputs which stressed the value of joint cooperation between men and women in making decisions on matters concerning water, health and sanitation in the village.

The town council administration in Kadugli had recently shown a greater commitment to supporting women handpump mechanics in their work by offering to cover their labour costs, tools and spare part purchase from the revenues on local sugar distribution. While these initiatives were welcomed as valuable precedents at central administration level, greater efforts needed to be made at town district and village levels to ensure effective and timely payment.

A further arrangement for local administration of water supplies being attempted in South Kordofan, concerned the 'leasing' of pumps to individuals and user committees. These arrangements were more appropriate at pumps frequently used by water vendors in the town centre and required a fee to be paid (five piastres) for each jerrycan of water drawn from the pump. This money was then used to pay the salary of a pump attendant as well as for the spare parts and services of a pump mechanic or NRWC maintenance team. He stressed that these arrangements were considered preferable only when the majority of pump users were selling water or when open access to the pump was limited at certain times of the day (such as within school compounds).

Women mechanics had also been instrumental in solving local disputes between residents of neighbouring town districts about the sharing of access to centrally located handpumps. This point again demonstrated the greater suitability of women as mediators in disputes concerning water access and use, purely by virtue of the fact that they were more sensitive to these issues while being users and operators themselves.

#### Programme Development and Policy Making

The experiences in South Kordofan with women's direct participation in the water and sanitation programme were now being reviewed for inclusion in field manuals for agency as well as community level workers. Clearly, in a country with such diverse ethnic composition and cultural backgrounds, these experiences needed to be translated into broad guidelines which took account of the particular role and circumstances of women in the community. Measurable and realistic medium-term objectives needed to be set in order to qualify and quantify the inputs required of women participants.

The achievement of new objectives for women's involvement, he felt, could only be effectively guaranteed if executing agencies committed themselves to a recognition of the need to incorporate female staff members in the decision making and implementation phases of water and sanitation projects. Their role should be seen as complementary to that of their male counterparts and in-service grading and promotion procedures should be reviewed in an effort to encourage this trend of development. Some of the compositions written by secondary school students which were displayed during the seminar gave some interesting insights to progressive thinking on this subject.

In closing, Mr. Maskall said that the experiences and initiatives put forth in this and other presentations were aimed at further promotion of an integrated approach to the involvement of women at all levels of programme development and policy making. International donors and agencies were continuing to promote the establishment of women's development departments, women advisors, and advisory groups within their own organizations.

He felt that the seminar served to highlight the need for a 'balanced' course for development. Further efforts should concentrate on seeking a clear concept of the potential role to be played by women in choosing technology options and sustaining water and sanitation systems. The mediation of women field workers in dealing with women-specific issues should become clear and the need to sensitize male colleagues to the benefits of establishing a complementary working arrangement with their female counterparts needed to take urgent priority.

The group then discussed the presentation and the subject of the involvement of women in choice of technology and implementation of water supply and sanitation projects.

It was noted that the maintenance of hand pumps by women was accepted by the men in Kadugli, but it was inquired whether during the training there had been complaints from parents, especially men.

Mr. Maskall replied that at the beginning, as with any project, there was resistance, but that this had been overcome.

The group also discussed the question of types of containers - particularly in regard to avoiding spillage and waste of water.

It was suggested that the jerrycan should be opened more or an extension pipe created to attach to the container.

It was felt that people trained to maintain handpumps could be shared between villages and that women who had been trained, in order not to lose the skill, should visit other villages, for refresher courses and reinforcement of acquired skills.

Finally, it was acknowledged that UNICEF had done a lot in the field of training for women, but that a great deal remained to be done.

The participants then met in working groups to discuss further certain issues that had been identified during the presentation. The following are their reports as adopted.

Group 1 :      How should women be involved in the choice and transfer of technology? What are the main present constraints and how could they be overcome?

Chairman:      Mr. Agabna Koko Ammar  
Rapporteur:    Mr. Mohamed Adam Khalil

The group discussed extensively the question of how women should be involved in the choice of technology, and the constraints as well as how to overcome them.

They then made the following recommendations:

1. For choice of technology:

- a) Introduction of rural and urban technology through incorporation of women in pilot programmes.
- b) Enlightenment programmes - considered vital for women to make them aware of the types of technology.
- c) Participation of women at different levels of decision making, for selection of the appropriate technology.

2. For transfer of technology:

- a) Arrangement of formal and informal training for women at different levels.
- b) Demonstration of the new technology through different means of communication.
- c) Establishment of rural technology centres for training.



3. Overcoming constraints:

- a) Raising the consciousness of society through education and awareness to overcome the usual socio-cultural impediments.
- b) Raising the sense of belonging through mass participation in different activities to overcome the socio-cultural barriers.
- c) Full utilization of the available means of communication and education to overcome the related socio-cultural barriers.
- d) Community participation to enhance availability of funds and develop infrastructure to overcome economic barriers.

Group 2 :      What criteria, policy and regulations are used in Sudan for the selection and transfer of technology? How could these be improved?

Chairman:      Mr. Abdel Moniem Gamal El Din

Rapporteur:    Mr. Gylani Osman Babiker

The group experienced some difficulty in the interpretation of the question owing to the fluctuating nature of central government policy and regulation structure, as well as their own level of involvement in such matters.

It was felt that the recent re-centralization of government policy and regulation had had a negative effect upon the encouragement of participation of women in water supply and sanitation programme development, particularly in the setting of quotas at regional level for the training of technical staff.

While environmental considerations were acknowledged as being important in making technology choice decisions, the following recommendations were put forward.

Recommendations

1. The choice between technology options should be appropriate to the institutional and financial capacity at village level for construction, operation and maintenance of water supply and sanitation systems.

2. Donor agencies must be more flexible in meeting requests, from implementing agencies, for specific technology systems which had proved to be suited to local operation and maintenance capacities. Governmental agencies should prepare development plans for water supply and sanitation and identify the constraints so that donors can determine where they fit in and so assistance can be optimized.
3. Government inter-agency planning committees must be (re) activated in efforts to consider multi-sectoral priorities when technical decisions were being made.
4. Central government directorate bodies should encourage the involvement of women students in technical studies, and should thereafter demand that all students in technical disciplines, spend at least two years at 'hardship' locations throughout the country.
5. Accommodation facilities for single and un-accompanied married women should be established at regional and sub-regional levels in order to encourage skilled female engineers and technicians to travel and work around the country.
6. Government departments responsible for cultural, social and religious affairs should be encouraged to take up the issue of encouraging men to support the participation of women in technology choice and transfer options.
7. The potential for sharing facilities at existing technical and vocational training centres throughout the country should be investigated, for the training of women in construction, operation and maintenance duties.
8. Realizing the benefits gained by women's participation in handpump operation and maintenance by UNICEF (e.g., Kadugli), it was requested that an evaluation be undertaken to extend this programme to include other water supply systems.

Group 3:            Is training provided for women to operate and maintain equipment? If so, how could this be improved? If not, what would you do about it?

Chairman:           Ms. Liz Stanley  
Rapporteur:        Mr. Makki Ahmed El Tigani

### Summary of discussion

1. How to interpret the question? It was decided to interpret it in a broad way to refer to the whole of Sudan, to cover different types of technical training, and to change the word "equipment" to "facilities".
2. The group discussed different "technical" or "practical" activities which were traditionally carried out by women eg. making 'ziars', grinding grain, building (eg. Darbar).
3. To what extent was training being given? Training was given to women. The training of women to maintain handpumps in Kadugli district was a good example. Some women received formal technical training at the university or polytechnic level. However, there was a big gap in terms of number of women trained, geographical areas covered, etc.

### Recommendations

1. Give women technical training at all levels, from village to university. Train women as trainers to pass this technical knowledge to other women, especially at the village level.
2. Provide training courses for women in the villages related to the following simple technologies:
  - a) maintenance of water supply systems, e.g., handpumps, simple diesel engines;
  - b) maintenance of water sources in sanitary condition (handpumps, wells, hafirs);
  - c) hygienic use of water sources, e.g., cleaning containers, separating animals;
  - d) construction and maintenance of latrines;
  - e) methods of water purification (slow sand filters, boiling, solar disinfection, etc), and clean storage of water;
  - f) disposal of waste;
  - g) simple technology for agriculture, e.g., animal ploughs, irrigation;



- h) food technology for women, e.g., fuel - efficient stoves and ovens, biogas;
  - i) pest control.
3. Revision of school curricula to introduce technical subjects for girls, especially at primary school level. Establishment of technical schools (high secondary) for women. Expand curricula in existing technical schools for girls.
  4. Training should be practical, on-going, directly relevant to the needs of the community. Where possible, it should be linked to possibilities for income generation.

Group 4:      How can the participation of women in simple repairs and preventive maintenance of equipment be linked to opportunities for income generation?

Chairman:      Mr. Mohamed El Mahdi Siddig  
Rapporteur:    Mr. Widad Abdel Rahim Hag Omer

The group very briefly discussed the subject and then made the following recommendations :

1. Rural councils should recognize the role of women working in handpump repair and maintenance.
2. Water supply systems users (e.g., handpumps) should pay nominal fees towards use of water to provide funds for repair and maintenance.
3. The village committee should supervise collection of revenue and allocation for repair and maintenance.
  - a) Women should be encouraged to utilize spillage and surplus water if any.
  - b) The village committee should coordinate with concerned organizations and direct the proper utilization of water.
5. Saved time through properly functioning water utilities should be directed to enhancing productive skills.
6. As water is always scarce, spillage or wasted water should be avoided. Concerned agencies and organizations should guide and instruct women's associations to utilize this water to grow high - value crops.

D. Module IV: Role of women in education and training activities for water supply and sanitation

Module IV, role of women in education and training activities for water supply and sanitation, was presented by a panel of three people from the Ahfad University for Women, Ms. Amel Abdel Rahman Hamza, Ms. Madina Osman Elmusharaf and Ms. Zeinab Mohamed Blandia.

Ms. Amel is a teaching assistant at the School of Rural Extension Education and Development, Ahfad University for Women and is a member of the National Committee for Water, Sanitation, Child and Health of Ahfad University.

Ms. Madina is also a teaching assistant at Ahfad University and member of the National Committee for Water, Sanitation, Health and Child, as well as Circulation Manager for the Ahfad Journal.

Ms. Zeinab is a third year student of Family Science at Ahfad University and member of the National Committee for Water, Sanitation, Health and Child.

In their presentation, the panel noted that since 1985, Ahfad University had been working with UNICEF in the field of water and health, particularly with regard to women's participation. The study prepared for the seminar was designed to concentrate on the role of women in education and training activities for water supply and sanitation, to which end three members of the committee carried out a short field survey in Kadugli at the end of October.

Several research methods were used during the course of the field work based in five villages which were chosen for the diversity of their water supplies. These included three questionnaires (one for village women, 67 samples; one for secondary school students, 48 samples; and one for primary school teachers, 23 samples), slides, drawings by primary school children, discussion and observation.

The different villages varied greatly in cleanliness, hygiene and medical/health facilities. However, they all relied primarily on traditional agriculture for their main source of income.

The results of the questionnaire for the women showed that the illiteracy rate of the women was almost 100%. Water was transported mainly by the women on their heads, taking from 10 minutes up to, in some cases, two hours (Tash). On arrival at the house, it was stored in covered containers but rarely treated, unless filtered through a cloth. Clarity varied from one source to another, but it was consumed regardless. The relation between water and disease was realized by the majority but not fully understood.

From the results of the questionnaires of students, trainers and primary school teachers, there seemed to be general satisfaction with the standard of health education, despite the lack of practical work and any special training. The problem appeared to be the relation of their studies to everyday life. Bilharzia, malaria and dysentery were recognized as such by the students and some of them discussed the problem of diarrhoea. The students saw their role as transferring information to their families.

The presenters felt that women should be involved at all levels of education in water supply and sanitation as it was they who were primarily responsible for all aspects of water, from the well to the home. However, women were found to be scarce at the decision and policy-making levels and similarly at the maintenance stage, although quite capable of both. Where possible they should also be involved in training and education of others.

It was also proposed that a programme be established to include teachers, nutritionists, health workers (at different levels), and social workers of both sexes. They should be trained in other subjects besides merely healthcare. This programme should be aware of the needs of each individual community and the feasibility of its plans. They should also be attuned to feelings in each area. Along with the training of the members of this programme in methods of extension work, parallel programmes should train primary school teachers, with more practice in home-visits, observation, material production and communication methods. They should also be encouraged to introduce more practical work into schools.

They felt that the selection and training of a woman village leader was also important, especially because of women's high responsibility in water-related matters. She should be married, with a strong personality and capacity for leadership. Ultimately, she may herself become a trainer. Obviously, the establishment, duration and location of a training programme for such women depended on many variables but had at all times to be properly and centrally co-ordinated. Training should include not just water-related matters but also nutrition, child care, income-generation, etc.

In conclusion, it was felt that there was a great necessity to involve women far more fully than they were at present in all aspects of water, to which end the training of a woman as a village leader would be invaluable.

The group then discussed the findings of the presenters.



The representatives of Ahfad University were asked for their evaluation regarding the village leaders as well as where training could be done.

They replied that they had not been in a position to evaluate the village leaders and that it was often preferable to have training in the village itself, but that training in established institutes also had advantages.

They noted that the work in Sinkat and White Nile was different because in those areas women did not participate, nor were they involved in the work. In Kadugli, however, it was found that women were involved in most of the work.

It was also noted that fixing the term of training was very difficult, but by experience women got more benefit by six months of training.

The group also discussed health education in school, and it was emphasized that health education was considered a general science.

Group 1:            How can we set a curriculum for a formal training institute to enhance the role of women in education and training activities for water supply and sanitation? What should be included?

Chairman:        Ms. Suad Ahmed Mohammed Osman  
Rapporteur:     Mr. Hassan Goudir Konera

#### Summary of discussion

- A.    How can we set a curriculum for a formal training institute to enhance the role of women in education and training activities for water supply and sanitation ?
- for setting any curriculum the group first considered the objective of the curriculum, which in this case was water supply and sanitation
  - co-operation with water departments and all other departments responsible for health and education to illuminate the most important topics to be taught and to select the trainers; also, co-operation with voluntary organizations for finance and other facilities

- a study of the different areas by collection of data about water supply, treatment and sanitation by different means, e.g., questionnaire, study of the history of the area; also investigation of the area served and the technology already used
- determination of the criteria and policy for the selection of women trainees to add compulsory courses concerning women
- arrangement of the curriculum in such a way as to fulfill the needs of the urban and rural areas; and to suit the target groups as well as the professionals.

B. What should be included in the curriculum?

- water supply and sanitation
- maintenance of equipment and facilities
- civics education
- vegetable cultivation
- more stress on the practical aspects

Recommendations

1. Strengthen existing institutes for water supply and sanitation; prepare and add new course material.
2. Encourage the trainees of these institutes by paying them or giving them subsidies.
3. Priority of admission to trainees to these institutes should be for those from deprived areas in terms of water supply and sanitation.
4. There could be a quota system for in-service training of women.
5. Facilities for accommodation of the women trainees should be provided.

Group 2:            How can experimental groups be used to train women in water supply and sanitation?

Chairman:            Mr. Adam Ahmed Idris  
Rapporteur:        Ms. Asha Mustafa

Definition of experimental groups :

- a) rural women trained at institutions, e.g., Ahfad University
- b) village women trained by those trained at institutions.

How could these groups convey the message to others at provincial, district and village levels .

Methodology of education was considered important, as well as follow-up and supervision to ensure that the course was followed. There should also be follow-up from the village level.

Recommendations

1. At the provincial level, professionals should be seconded from different ministries (Health, Education, Social Welfare, NRWC, etc.), if possible women, to act as trainers.. A training course should be held for them in water supply and sanitation, preferably in the provincial capital.
2. Provincial trainers should select and train village committees including midwives, teachers, i.e., local professional staff, to be trained to become trainers for the villagers.
3. The village committee should raise awareness of villagers to assist in the implementation of water supply and sanitation programmes.
4. Standard teaching programmes and materials should be provided/developed; also communication skills.
5. There should be an organized system of supervision and monitoring from the regional to district to village level, such as visits to observe the activities of the committees, follow-up questionnaires and feedback, workshops and refresher courses.



Group 3:            With regard to informal education, how can we integrate a water supply and sanitation component into the curriculum?

Chairman:        Mr. Ibrahim Hassan Osman  
Rapporteur:     Ms. Amna Abdel Rahman Hassan

Summary of discussion

The group, after careful consideration and prolonged discussions regarding its assignment, decided to tackle it through a number of steps:

- A. Identification of informal education institutions;
- B. Identification of target groups;
- C. Formulation of training activities in order to achieve the objectives of the assignment.

These deliberations were summarized as follows :

A. Types of informal education institutions that could be approached to organize programmes.

1. Recognized informal education institutes

adult education, community development centres, youth training centres, youth centres, vocational training centres, social welfare training centres, maternity and child care centres, nutrition and school gardening centres, NGOs (e.g., family planning associations, etc.), and others

2. Informal education activities within formal education institutions

Khartoum Polytechnic, University of Khartoum, Shambat Agricultural Institute, etc.

B. Target groups

- 1. drop-outs
- 2. illiterates in local communities
- 3. housewives
- 4. Trainers and village women leaders

### C. Training activities

1. formulation of objectives to meet the felt need
2. formation of a committee representing the concerned ministries and relevant institutions to work out the appropriate programmes in the relevant water supply and sanitation aspects.
3. programmes that are task oriented and community related; they should be detailed with regard to objective of each subject, course content, number of hours, theoretical and practical, minimum standard of instructors, possible numbers of trainees, evaluation methodology, etc.
4. prepared programmes should be approved by the concerned bodies (teaching institutions and potential employers).

The group realized that these informal training institutes were normally busy conducting their own regular courses, e.g., nutrition, home economics, handicrafts, etc. They would have to be encouraged to integrate the prepared programmes on water and sanitation within their programmes or run special programmes. These institutes should arrange for collection of fees, instructors, facilities, equipment and logistics. The group recognized the need for different levels of programmes, duration and emphasis.

### Recommendations

1. Identification of informal training institutes:
  - a) recognized informal education institutions;
  - b) activities within formal education institutions.
2. Identification of target groups.
3. Training activities - these should be :
  - different levels, duration and emphasis;
  - task oriented, community based;
  - prepared programmes on water supply and sanitation should be integrated as components with regular programmes.

Group 4:      How can we introduce technical education related to water supply and sanitation in primary schools? How can girls be motivated towards technical studies, beginning at the primary level?

Chairman:      Ms. Madina Osman Elmusharaf

Rapporteur:    Ms. Samia Mohamed Ibrahim

The group first discussed what was meant by technical education related to water supply and sanitation.

1. water resources
2. water treatment and sanitation
3. operation and maintenance of water supply and sanitation systems
4. personal hygiene and environmental health
5. home economics/home science
6. income generating activities related to water (e.g., gardening, small stock animal raising, fishing, etc.).

These should be included theoretically and practically in the school syllabus, e.g., water related subjects to be included in geography; water treatment and any subjects related to hygiene and sanitation could be included in general science courses.

They then made the following recommendations on methods to convey technical education.

1. Teachers should be trained in the subject at teachers training centres and aided or supplied with teachers manuals (in Arabic); also to be supplied with posters and necessary audiovisual aids if available. The school should be provided with technical, simple tools (preferably local materials when possible).
2. Student societies should be established on a voluntary basis, aiming for area development programmes (e.g., cleaning, drainage, garbage collection, etc.).
3. The Ministry of Culture and Information should be requested to broadcast programmes related to the subject especially in entertainment programmes, which were considered to be a source of attention.



In this respect, central and regional information centres should create programmes relative to society considering socio-cultural aspects, such as local languages and attitudes.

For the second part of the question, the group made the following recommendations:

School girls could be motivated by:

1. selecting technical topics suitable to age;
2. conveying successful experiences with women's participation in water supply and sanitation projects to stimulate others to participate;
3. increasing awareness through songs and cultural activities that increase women's participation in technical aspects;
4. highlighting benefits of women's participation in technical matters;
5. creative school girls, as well as boys, should be encouraged or rewarded.

E. Module V: Evaluation of water supply and sanitation projects.

Module V, evaluation of water supply and sanitation projects was presented by Mr. Bashir Mohammed El Hassan, Associate Professor of Mechanical Engineering in the Faculty of Engineering, University of Khartoum.

Mr. Bashir previously served as the Dean of the School of Hygiene, University of Khartoum, and had a great deal of teaching experience at both undergraduate and post graduate levels. He had also worked extensively with different United Nations organizations in regard to water supply and sanitation.

In his presentation, Mr. Bashir emphasized that the primary concern of water supply and sanitation (WSS) projects was to improve the health, welfare and economic status of the users. But, it had also been emphasized over and over again that the maximum cost effectiveness of WSS could be achieved if women's involvement was assured. The involvement of women should not be a remedial measure, but a basic primary component that should be activated and listened to from the very beginning of the project (i.e., at the planning stage).

In Module V, he felt that the answers to the following questions could be found:

1. Are we getting the maximum possible positive impact from the provided WSS facilities?
2. Have we managed to involve women in these projects from the start and through the various progressive phases of the project?

Evaluation as a term he felt, could be defined as a continuous process of learning from experience to avoid mistakes and improve cost effectiveness.

It was not meant to be a "head-hunting" exercise, and as such should include:

- identification of problems and shortcomings
- identification of causes of problems and shortcomings
- recommendations for remedial action in functioning projects
- recommendations for improvement in planned and/or designed projects.

This should all be conducted with women in mind, both as a tool and a beneficiary, for the achievement of the overall objectives of the project. Evaluation could be both a very extensive and expensive exercise and the required cost, effort, and time might be prohibitive and unaffordable to some communities. So, to overcome this prohibitive dimension, the World Health Organization (WHO) developed the Minimum Evaluation Procedure (MEP).

The MEP addresses the following:

1. Is the unit functioning?
2. Is it utilized?
3. Have the projected benefits on impact been obtained?

The above questions could be resolved as outlined in the MEP through one or a combination of evaluation activities:

functioning	:	Technical
		Administrative
		Resource

Utilization:	Sociological Administrative Technical
Impact:	Health Sociological Economic

It was deemed obvious that benefits could not be attained unless the facility was functioning correctly and utilized by the community. Thus the MEP was designed to evaluate functioning and utilization, and concluded with a discussion of impact study on methodology and findings from documented impact studies. Evaluation focused on any of the three stages of functioning, utilization and impact. Deficiencies found in evaluation of a particular stage called for improvements in the output of the previous stage or in the inputs to the stage under review. Therefore, evaluation of the impact could only be appropriate for a project which was correctly functioning and well utilized.

So evaluation was meant to be the identification of problems, causes and recommendations on actions for:

- better functioning and utilization
- benefits, modification for future projects
- messages of improvement for other projects and agencies.

The degree of the involvement of women with WSS facilities as reflected in materialization of the expected benefits, was beyond any doubt. Hence, this called for encouragement and appreciation of women to play a greater role in all stages of the WSS facilities provided or to be provided. So any projected evaluation should assess women's involvement as an indicator for success in these projects through the various stages of the project, i.e.:

1. The need for the WSS project - have they taken part in any form to express the need?
2. Feasibility study - have they been involved? And to what extent?
3. Design - have their interests been accommodated?
4. Construction - have they taken part in any form? Have they benefitted?
5. Operation and maintenance - are they involved?
6. Utilization - are they involved as operators, users, community educators?



- . Benefits - are they benefitting?
  - a) Health-wise - themselves and their children
  - b) Time-wise - are they now saving more time?
  - c) Welfare, comfort, life enjoyment - less effort and more benefit; and hence are they saving energy and time for other community development activities?

The evaluation should reflect their involvement as a positive contributor in all aspects of the project, i.e. their impact on the project from the start. This should include the impact on them; whether they play an active role in the design, formulation and execution of any evaluation process : in identifying objectives, collection of data and analysis, together with recommendations.

He noted that evaluations of WSS projects tended to start with conclusions, that is, to measure or assess impact such as the assessment of the prevalence of water and/or excreta-related diseases.

In closing, he felt that evaluation according to MEP, was considered to be logical and acceptable, starting with functioning and utilization, in order to be able to talk sensibly about benefits. Proper evaluation and assured benefits called for deeper involvement of women.

Group 1:      How can we evaluate the role of women in the functioning of water supply and sanitation?

Chairman:      Mr. Makki Ahmed Al Tigani

Appporteur:   Mr. Abdel Moniem Gamal El Din

#### Summary of the discussion

- . Setting the objectives, the evaluation should aim to find out the role of women in regard to operation and maintenance of water supply and sanitation facilities.
- . In water supply the role of women should be determined in the protection of water sources (e.g., cleaning the area, preventing children from improper use); maintenance of water sources (e.g., handpumps, hafirs, wells); operating the water supply system. In sanitation, the role of women should be determined in latrine operation and maintenance; proper rubbish disposal; proper waste water disposal.

3. The objectives of the evaluation must be clear. The factors expected to affect the functioning were: location, duration, reliability, quantity, quality, suitability of design, proper construction, individual preferences, maintenance and protection of the facility, demand, maintenance system including training and availability of spare parts.

### Recommendations

What methods should be used to evaluate the role of women in the functioning of water supply and sanitation facilities. Different methods could be combined:

1. Observation - should be carried out by a trained observer who may be assisted by student trainees. Observation should be made of common facilities (e.g., water sources) and household facilities (e.g., latrines). Observe who is operating and how they are operating.
2. Group and individual discussions - with women and men to discuss how facilities are used, duration, difficulties, participation of women and village in site selection, design, technology selection, maintenance. Checklist based on factors mentioned above and observation.
3. Make use of existing reports and data (i.e., desk work) before field work.
4. Carry out household sample surveys, that include all members of the household, inventory surveys and water source surveys. Survey questionnaires should be designed by statisticians and other specialists, and consider socio-cultural constraints in order to obtain representative results.

All methods should focus on the role of women.

Group 2 :      How can we evaluate the role of women in the utilization of water supply and sanitation facilities?

Chairman:      Ms. Zeinab Musa Darjol  
Rapporteur:    Mr. Mohamed Adam Khalil

The group dealt with the question by discussing assumptions, definitions, areas to be surveyed, determined methods of evaluation, and then reached conclusions and recommendations.

### Assumption

- water supply and sanitation facilities are functioning properly.

#### Factors affecting utilization

- knowledge, attitudes and practice (KAP)
- utility supervision

#### Objectives of evaluation

- optimum use of facilities (source of water supply and sanitation units)
- optimum use of resource (water)

#### Means of evaluation

- observation
- interviews
- questionnaire (sampling method)
- assessment of data

#### Recommendations

Evaluation should be made of the level of awareness of women towards water source, usage and sanitation facilities (unit of utilization).

Evaluation should be conducted of the training programmes devoted to water supply and sanitation projects with regard to the role of women in utilization.

Evaluation should be made of the change of attitudes resulting from the training programmes in water supply and sanitation.

Group 3 :      How can we evaluate the impact of water supply and sanitation projects on women?

Chairman:      Ms. Samia Mohamed Ibrahim  
Rapporteur:   Ms. Suad Ibrahim Abdalla

#### Summary of discussion

Impact of water supply and sanitation projects on women included :

1. health benefits;
2. saved time and effort;
3. other benefits realized during construction operation.



1. Health benefits were realized by:
  - a) provision of adequate quantity and quality of water for domestic use (drinking , personal hygiene, bathing, washing etc.);
  - b) improvements in sanitation facilities (e.g., provision of latrines, bathrooms, washing slabs, garbage collection, pest control, drainage systems);
  - c) other measures taken for water related disease control.
2. Provision of a water conveyance system facilitated extraction of water from a reasonable distance. This resulted in saving time and effort exerted by women in transporting water. Saved time and effort could be utilized for acquiring skills through training in the fields of:
  - (a) home economics;
  - (b) handicrafts;
  - (c) sewing and needle work;
  - (d) cultural activities;
  - (e) child care;
  - (f) literacy training;
  - (g) adult education.
3. During the construction phase, women and villagers might gain employment and acquire new skills.
4. During operation, excess water could be utilized in small stock raising, gardening, etc., and thus offer chances for income-generation.

#### Recommendations

1. Evaluation of impact of water supply and sanitation projects on women should include:
  - health impact;
  - socio-economic impact;
  - environmental impact.
2. To ensure realistic evaluation of impact of water supply and sanitation on women, women from grass-roots level to professionals should participate in the evaluation.
3. As the impact of water supply and sanitation systems could not be felt by improving the systems alone, all governmental and non-governmental agencies and organizations should start integrated interventions to achieve these goals.

Group 4 :      How can we evaluate the impact of women's participation in water supply and sanitation projects?

Chairman:      Mr. Yassin Mohamed Nour  
Rapporteur:    Ms. Rabab Hamid El Mehiena

#### Summary of discussions

The group discussed in detail the various components of water supply and sanitation projects that needed to be considered in order to reach the specific objectives of evaluating the impact of women's participation in water supply and sanitation projects.

The group agreed that the evaluation should be made on a hypothetical, project where women had been involved directly from the beginning (i.e., through the functioning of the project and its utilization), and to find out whether women had succeeded in those various stages:

#### Functioning

- a) identification of the project
- b) need
- c) design
- d) construction
- e) operation and maintenance

#### Utilization

facility being used

#### Impact

- a) functioning - technical, administration, resource evaluation
- b) utilization, sociological, technical
- c) impact - health, sociological and economic (since functioning and utilization were dealt with by group 1 and 2, they focussed only on impact of women on the realization of project benefits)

### Recommendations

1. Involve women at all functioning stages (i.e., data collection, need identification, design, etc).
2. Involve women in utilization (i.e., promotion of use).
3. Involve and enhance community participation (promoters and participants).
4. Involve women in health education.
5. The optimum functioning and utilization of the project through women's participation should be reflected in :
  - a) health benefits;
  - b) economic benefits;
  - c) social benefits.
6. Use standard tools of evaluation, such as observation, participation, questionnaires, etc.



## A N N E X I

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# A N N E X III

## Agenda

WOMEN, WATER SUPPLY AND SANITATION  
- a national training seminar -

KADUGLI, 16 - 21 January 1988

INSTRAW/UNICEF

1. Opening of the Seminar
2. Election of Officers
3. Adoption of the Agenda and Programme of Work
4. Module I: Introduction of the International Drinking Water Supply and Sanitation Decade and the United Nations International Research and Training Institute for the Advancement of Women
5. Module II: Participation of Women in Planning Water Supply and Sanitation Projects
6. Module III: Involvement of Women in Choice of Technology and Implementation of Water Supply and Sanitation Projects
7. Module IV: Role of Women in Education and Training Activities for Water Supply and Sanitation
8. Module V: Evaluation of Water Supply and Sanitation Projects
9. Adoption of the Report
10. Closing of the Seminar