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**Gender in Education and Training
for Water Supply and Sanitation :
a literature review**

IRC International Water and Sanitation Centre

The Hague, The Netherlands
1997

202.1-97GE-14529

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My darling Maini asked, Mother,
to school can I go?
Alas, my daughter Maini
To this I must say No.
When I'm gone for work,
Who'll take care of the young one?
Poor child Maini
she wept in desperation.
Rolling, thundering, deafening,
The wheels of education...
Maini stays home,
The wheels are all gone.*

*From "A Girl is Born" by Jyoti Mhapsekar. Quoted by Munyakho, D. 'Girls education in Kenya: Status, obstacles and challenges'

TABLE OF CONTENTS	v
PREFACE	vii
EXECUTIVE SUMMARY	ix
1. INTRODUCTION	1
1.1 Importance of water supply and sanitation for human health, well-being and development	1
1.2 Need for well-educated people in the sector at all levels	2
1.3 Gender aspects in water supply and sanitation Gender approach A gender approach in water supply and sanitation	4
1.4 Male-female education and training : trends in general and in the sector Gender and education Emerging trends in education and training for water supply and sanitation	8
2. THE WATER AND SANITATION SECTOR AND BASIC EDUCATION	13
2.1. Gender balance in primary school attendance and completion	13
2.2 Reasons for low female school attendance and sector implications Sector-related reasons for low female school enrolment and attendance	15
2.3 Promotion of gender balance in school attendance and finishing Reducing gender imbalance through adult education Addressing sanitation constraints to girls education	20
2.4 Sector awareness raising in schools Does awareness raising include gender aspects?	25
2.5 Gender specific infrastructure and curricula Job preparation	29
2.6 The sector and non-formal education for children	32
3. THE SECTOR AND GENDER IN TRAINING COMMUNITY MEMBERS	37
3.1 Trends in training community women Why train local women? Training women in sanitation technology Training women in water technology Women trained for managerial tasks Women's access to training Gender in training and training methods Employment and work after training	37
3.2 A gender balance in training	51
3.3 Effectiveness of gender sensitive training	52
4. TRAINING OF MALE AND FEMALE FIELD, PROJECT AND AGENCY STAFF	55
4.1 Improving gender balance among staff	56
4.2 Less stereotyped staff roles	57
5. GENDER IN SECTOR HIGHER LEVEL SECTOR EDUCATION AND TRAINING	59
5.1 Gender balance in higher level sector education	59
5.2 Higher level education and gender biased curricula and choices	61
5.3 Men and women in sector international courses abroad	64

6.	GENDER IN HEALTH AND HYGIENE EDUCATION	69
6.1	Women and girls as principal target groups	69
	Women in planning of hygiene education programmes	
	Women in implementation	
	Differentiation between women	
	Motivated and trained health staff	
6.2	Limitations to a women's approach and need for a gender angle	74
6.3	Effectiveness of a gender approach in health and hygiene promotion	75
6.4	Socialisation of boys and girls in health and hygiene	77
	The family and the socialisation of boys and girls for hygiene	
	Schools and socialisation of boys and girls for hygiene	
	Other key elements in hygiene and health education	
7.	THE SECTOR AND GENDER IN COMMUNICATION	83
7.1	Gender and communication strategies	83
7.2	Breaking through stereotypes	87
8.	GENDER IN SECTOR POLICIES ON EDUCATION AND TRAINING	91
9.	CONCLUSIONS AND RECOMMENDATIONS	95
	REFERENCES	99

PREFACE

The development of water supply and sanitation provisions will greatly benefit from educated, trained and skilled people, in communities and agencies. Skilled human resources are even more important now that decision-making and management in the water supply and sanitation sector are in the process of being decentralised to the lowest appropriate levels.

In human resources development, it is especially important to educate women. Educated women will take the steps to improve family hygiene and nutrition, they tend to have smaller and healthier families and better educated children. However, although women play such a crucial role and are the managers of water supply and sanitation in the households, they are often excluded from education and training.

This literature review highlights how education and training actually reach women and men, both generally and in the sector. It shares examples and cases where conscious approaches and innovative actions have brought out the gender element in education and training, to the benefit of programmes, communities and the participants themselves. It indicates what efforts are being made in various countries to reach a gender balance in education and training and how agencies' sector policies take gender into consideration in their education and training programmes. The document also focuses on how hygiene education programmes target men as fathers and as providers of income for household hygiene, and how communication for sector improvement uses a gender approach to reach also women.

The document is meant for agencies' staff, sector decision-makers and planners, field workers, trainers and researchers. Its aim is to bring them some insights into the importance of a gender-balanced education and training.

EXECUTIVE SUMMARY

EDUCATION AND TRAINING : CORE ISSUES IN THE WATER SUPPLY AND SANITATION SECTOR DEVELOPMENT

The importance of water supplies for public health, farming, productivity, social organisation and well being is being reported since the 1880s. Water supply systems liberated women from fetching water with gains in time saving and energy for productive activities, education, leisure, longer time for food preparation and taking care of children, personal and family hygiene. Governments, donors, agencies, international organisations and NGOs are aware that the lack of proper water and sanitation is a cause of many social and health problems and lead to substantial financial losses.

Education and training play crucial roles in the development and improvement of the water supply and sanitation sector. Educated and trained people are the ones who benefit most from the water, have changed attitudes and know what to use it for.

In a process of decentralisation of decisions to the lowest appropriate level, community members need to be informed, trained and educated to be able to influence decision-making at the lowest possible level. Communities school teachers, nutritionists, extension workers, operators and managers of supplies, need to be educated, trained and informed.

At national level, agency staff and decision-makers need to be trained and educated to decide and put policies into operation. It is particularly important to educate and train women. They are the managers of water in the household and they take the steps to improve the health and nutrition of herself and the family, tend to have smaller families, healthier and better educated children.

Women have to be better represented in the higher levels of decision making. This means that more gender equity is needed in education and training.

MALE-FEMALE EDUCATION AND TRAINING : TRENDS IN GENERAL AND IN THE SECTOR

Traditionally, boys and men were the ones who were receiving education. In the last decades, however, there has been an enormous increase in female education especially in Latin America and East Asia.

The education of women is especially important and the social returns to investments in women's education and health is higher than to the same investments in men, largely because of the strong correlation between women's education and family health, nutritional status, and fertility levels and the education, health, and productivity of future generations.

In the water supply and sanitation sector, despite the fact that women have a crucial role in the provision of domestic water and the care of environment, when new installations for water supply and sanitation are provided, the information on the new technologies tends to be passed on to men only. This tendency changes when women become recognised as agents of change and are performing tasks traditionally held by men. In this shift in emphasis, men are also acquiring new roles which call for a shift in education and training, at all levels: basic and primary education; training of community members; training of field, project and agency staff and higher levels of education and professional training.

THE WATER AND SANITATION SECTOR AND BASIC EDUCATION

Sector elements are being included in basic school curricula and programmes. These modifications will reach equally both girls and boys depending on whether both are attending school. Although the enrolment of girls in schools has increased in the last decades, their rate of enrolment and attendance still lag behind. This is due to various reasons. Some of these reasons relate directly to the water supply and sanitation sector. For example, girls are helping their mothers in domestic chores, specially fetching water, which leaves them without time nor energy to attend school. Another important reason for the low female school enrolment and attendance is the lack of water and sanitation facilities in schools.

Governments, development agencies, donors and NGOs are taking steps to further increase primary and secondary female school enrolment and attendance. They are formulating measures for and implementing the provision of safe water in primary schools and the construction of appropriate sanitary facilities.

In primary schools, sector awareness is being raised mostly through school sanitation, environmental sanitation and care, and hygiene and health education programmes. Hygiene education programmes are being combined with the provision of school facilities but this is not sufficient if teachers are not well trained and are not committed to the importance of the subject and curricula are not adapted to local circumstances. Alternative and innovative education materials are also strong tools for sector awareness raising among school children. Besides children, teachers and other adult key persons are also disseminators of hygiene messages and practices. They serve as models of hygiene behaviour patters to parents and other members of communities. Many initiatives are being taken to break through gender stereotypes in the context of these programmes. For example, girls and boys are being involved in hygiene and cleaning activities.

Also, some initiatives are being undertaken in primary schools for having girls taking subjects which open the higher grades in the educational system to them and prepare them for more valued jobs in the labour market, with a greater scope for decision making.

For girls who do not enrol in the formal educational system one alternative is the 'home-school'. There are also organised training courses for girls and boys who have dropped out of schools. These include basic plumbing and masonry skills; repairing of leaking public standposts and washing slabs; how to contact government officials; how to prepare nutritious meals, arithmetic, carpentry and the understanding that skilled young men and women can contribute to effective changes in society, which raises students' self respect.

Sector awareness raising can also be done through books, magazines and expositions especially targeting youngsters and including topics like drinking clean water, clean house surroundings, hygiene habits and health. The review contains several examples of innovative and inspiring programme in this field.

THE SECTOR AND GENDER IN TRAINING COMMUNITY MEMBERS

At community level, women are being trained for an effective participation in projects, as it has been proved that projects where women have explicit roles in planning and management are more effective than programmes where no specific arrangements for their participation are made. They are trained also because of their special relationship with the environment due to the managing roles they perform. Women have been trained for certain technological jobs in the water supply and sanitation sector because they can have a better access to make repairs

inside homes, especially in secluded societies; because of their direct interest that handpumps and latrines function well; because of the opportunities training will offer women for a paid job in the sector and also due to high male migration. Women are also increasingly being trained for managerial tasks.

Women are trained because they have a potential for development which should be used and from which the sector would greatly benefit. They will be motivated in training other women. Society will get a more positive attitude towards educating girls if these women perform well in their tasks. Experience has shown that, like the men, women can be a good technician but also that they are more careful. As a consequence, in general the repairs made by women will last longer than repairs made by men. However, field evidence has shown as well that care is needed to avoid that new imbalances emerge, and a situation is created where women are expected to work as volunteers and men may withdrawal from their responsibilities.

Development theatre, monitoring and evaluation, surveys and thematic evaluations are some of the events which offer opportunities for the transfer of knowledge and skills to women and men, and for the integration of gender considerations.

There are training activities for women which provide them with loans or tools for their future work and advice on marketing, design, equipment and production. This stimulates them and helps them to initiate their work after the course. A very important result of training is to raise self confidence for a better performance in their work or job.

When training is exclusively offered to women, negative impacts may occur: men are left outside and feel jealous; men will challenge the authority of women; all work is left for women who are already overburdened and men withdraw from their training responsibilities, indicating that water supply is a women's issue. Opposition from male relatives to training of wives and daughters has generally been overcome by obtaining support from male leaders and by involving husbands in some of the activities. Special practical arrangements are being made for women to participate in training

Training should not be given exclusively to women as both men and women should be involved with water supply, hygiene and sanitation. Women have also requested training and involvement of husbands to alleviate their burden and also to be able to exchange ideas with male relatives.

The main reason to break through gender stereotypes in training is the need to also have women in decision making positions at community, agency and national level. A gender balanced approach to training will have an impact on longer term sustainability, and tasks, roles and responsibilities for maintenance, management and financing will be more equally shared.

TRAINING OF MALE AND FEMALE FIELD, PROJECT AND AGENCY STAFF

A wide variation in gender attitudes can be found among project staff members, ranging from open hostility to keen interest and commitment to contribute to the improvement of programmes from a gender perspective.

As this is a quite common situation, several programmes have included a gender course or session in their training for the sensitisation of staff on gender. But a positive attitude towards gender among staff is not sufficient. It is also important to know how to apply a gender approach in a water supply and sanitation project, which includes training in ways of

communicating with women and men and use of gender-sensitive tools and techniques for community participation.

The increase in decentralised services and the need of users -- men and women -- to participate in operation and management of community based projects has led to a shift in the recruitment of staff in the water supply and sanitation sector agencies. Water companies are giving more attention to the recruitment and training of staff interested and motivated in working with communities than to technical skills alone.

When gender imbalances are recognised, agencies may make an effort to achieve more equity. Higher level education and professional training for men and women will help a more gender-balanced division of labour among field, project and agency staff.

GENDER IN HIGHER LEVEL SECTOR EDUCATION AND PROFESSIONAL TRAINING

The equal representation of women at higher levels of planning and decision making on water resources distribution and management will positively influence the reinforcement of gender equity, the breakthrough of gender stereotypes, the promotion of education and employment for women and the optimal use of female intelligence, skills and ability to work in more scientific, technical and managerial functions.

For a gender balance in participation and decision making at all levels of the sector, both men and women should benefit from education also at higher levels, and of careers which lead also the women to decision making positions. Young women who enter college in fields such as mathematics and engineering usually lack a strong basic education and technical training and are competing in a male dominated circle of students, with no or very little examples of women scientists and engineers. Their success and employment opportunities are very limited and they have to struggle harder to achieve an equal performance.

The proportion of male participants in universities is much higher in the courses where engineering and management are the main topics than when the focus is on hygiene, for example. The same pattern appears in higher level professional training. It is very common that women choose studies and careers which are not valued in terms of position, salary and decision-making thus not valued by society and by the women themselves. To ensure a more gender-aware perspective in water and sanitation and to combat discrimination against women within the organisations, the number of women in technical and managerial subjects in the universities and higher level professional training should be increased.

Needed are: the introduction of a non gender-biased curriculum, the strengthening of gender expertise of staff in the existing education and training institutes for water supply and sanitation; new course material which is not gender biased; presence of female trainees; to give priority for the admission of trainees coming from deprived areas in terms of water supply and sanitation; establishment of a quota system for in-service training of women and to provide facilities for accommodation of the women trainees.

GENDER IN HEALTH AND HYGIENE EDUCATION

In household hygiene, women play a crucial role as they are the managers of family hygiene, often helped by their daughters. Dissemination of information and knowledge and decisions concerning health, nutrition and hygiene practices take place in informal women's groups,

informal individual contacts, in various practices by women (ceremonies, birth attendance, caring for the sick, caring for children and the elderly) and during collective work and chores.

However, hygiene programmes should also give attention to the incorporation of boys and men because of their involvement in related activities not only in the home but also in schools and in professional life. All members of the household should understand and accept new hygiene behaviours to avoid contamination. Also, women and girls in general do not have the necessary power to critically address and change the men and older boys in their family on their health / hygiene behaviour; and for improvements in health, all should change their critical health conditions and practices. Also, if only women and girls will be addressed by hygiene programmes, their already heavy workload will be increased.

Among women themselves, different attention should be given to women with different levels of authority in the household, as for example younger and older daughters, young wives and older mothers-in-law.

Mothers, fathers and older siblings play an important role in the socialisation of boys and girls. As fathers, men should not be left out of the process of socialisation in the households. In the schools, it is important that hygiene education is not gender biased, that the work of cleaning school facilities and environment is seen as an activity to be done by both girls and boys and that parents and teachers are committed to a non-gender-biased approach.

GENDER IN COMMUNICATION

Communication became an important component for the success of water supply and sanitation programmes. In many situations despite the fact that women have a closer relation to the environment, men are approached and women are excluded from the communication circuit.

Women are exposed to the informal network of information they create among themselves, women have a lower level of literacy and experience with written material. The situation of those living in a secluded society limit them to rely on information from other women and on the radio.

Two-way interpersonal communication can be a successful means to reach women and men and to achieve improvements in hygiene and health related to water supply and sanitation.

During meetings, women will be reached when their involvement in discussions is facilitated. There are special training techniques to raise women's self-confidence to participate in meetings.

A gender strategy in communication not only reflects the different needs, interests and opportunities of men and women. It also challenges existing gender attitudes and stereotypes. Despite the tendency to stereotype men and women roles in communication messages and illustrations, there are also examples of breakthrough. This has been reported to happen in radio, participatory video, and special literature for youngsters

GENDER IN SECTOR POLICIES ON EDUCATION AND TRAINING

Agencies' water and sanitation policy documents support gender training and gender in training. For communities to be involved, and to increase the participation of women, both men and women should be sensitised to gender issues through advocacy, training and recruitment

policies. Some policy documents advocate that women should be equipped to fulfil management roles, to hold decision-making positions and that capacity building should ensure the active participation of women in all aspects of sector development.

CONCLUSIONS AND RECOMMENDATIONS

More investments in water supply and sanitation will reduce the work of women and girls and give them more time for schooling and education.

Adequate and gender-sensitive sanitation facilities in schools will increase the attendance and continuation of girls in education.

Increasing the number of female staff and their training for a non-gender biased school environment, where also girls are stimulated to go on to higher grades and to choose subjects related to water and sanitation, will lead also women to a better and more influential position in the sector labour market.

Water, sanitation and hygiene projects are recommended to train women for paid work in fields where they have natural cultural advantages, such as handpump mechanics (regular visits to handpumps, greater interest and peer pressure to keep systems working), treasurers (high commitment to keep systems operative, lower mix of financial interests, visits for fee paying by women to women more culturally acceptable) and latrine masons (traditionally involved in plastering and environmental cleanliness; presence of female masons in other persons' yard or house more culturally acceptable).

For better health, both boys and girls need to practice hygiene in schools and take part in keeping the facilities and environment clean.

Health and hygiene education should be part of school curricula and be relevant and realistic for local conditions. Women and men should be trained for new roles, jobs and functions in water supply, sanitation and hygiene.

The role of men in hygiene and sanitation education needs further attention.

In educational materials more attention is needed to avoid gender stereotypes in illustrations and contents.

Projects, staff, and education and training institutes in the sector should be encouraged and their capacity should be strengthened in the use of rapid gender analysis, to assess which model they use for the division of work, functions and benefits between men and women

1. Introduction

1.1 Importance of water supply and sanitation for human health, well-being and development

The importance of water supply for public health has been reported since the mid 19th century when the first studies registered the impact on public health of the provision of water in the city of London. Also the economic impacts of water supply have been described: water supplies in rural Mississippi encouraged commercial farming and raised land values; in small towns business activity and employment increased, as did overall productivity; new industries were started and the existing ones prospered. This had social benefits: youth stayed in the countryside, social organisation and local leadership were stimulated and consumption patterns altered; roads, homes and standards of living improved and a new community pride was born (Warner, 1981).

Carruthers (1973, quoted in Warner, 1981) suggests a hierarchical order of impacts. Immediate benefits (reductions in time and energy used in water collection, increased water consumption and improved water quality and supply reliability) may, when associated with certain conditions, generate other benefits, which ultimately can result in more cash income, more diversified subsistence, more employment, improved health and more leisure.

Children and women are special beneficiaries. British researchers (Warner, 1981) found that a benefit of the provision of water was that water collection journeys of women were shortened. The time and energy saved was mostly spent in household and leisure activities.

The time freed for women allows them to take better care of their children and engage in productive activities. This is confirmed by research in the Philippines, where gravity flow water supplies provided to 53 communities in rural and urban fringe areas reduced greatly women's water collection time and effort and stimulated latrine construction, vegetable gardening, village beautification and family hygiene improvements (van Wijk, 1985). In rural Guatemala, a study carried out to evaluate the social and biological impacts of piped water supplies shows how activities are redistributed when women save time and energy in collecting water, and the improvements in health and nutrition. Almost 100 women were interviewed and the results show that the time and energy saved were spent in food preparation and feeding of children, and in more time devoted to productive activities, with increases in women's income (Diaz et al., 1995).

International organisations' policies stress the importance of the water supply and sanitation sector for child survival, protection and development. An example is given by UNICEF's 'Strategies in Water and Environmental Sanitation' where safe water, environmental sanitation and care and hygiene practices are linked to better girls' education, better nutrition, better health, women's time and energy savings, income generation and less disease (UNICEF, 1995).

Because girls and women are the main carriers of water, improved access to water frees time and energy for girls to attend school. A study of four villages of Botswana (Copperman, 1978) shows that women and girls were the ones primarily responsible for fetching water; when water supply was installed in one village, school attendance improved. School children are some of the biggest beneficiaries of water supplies because they are also being given an awareness of how to make better use of water.

Poor water supply and sanitation, on the other hand, have social and economic costs: agricultural, construction and services workers lacking water supply and sanitation facilities face losses in time, nutrition and health, with negative impacts on human and economic development. Some examples illustrate this assertion: in ten days the cholera in Peru cost US\$1 billion of losses in agricultural export and tourism revenue; the time spent in water collection in Africa is worth US\$2 billion a year in time of labour; an environment polluted by lack of water and waste management will represent enormous costs for future generations (Ling and Reader-Wilstein, 1993).

Health organisations consider water and environmental sanitation as one of eight essential elements of community development in the area of health. The many international fora and their statements (such as the 1990 World Summit for Children, the Mid-Decade Goals, Agenda 21/The Rio Summit and the Dublin Statement) recognise water and sanitation as among the crucial components for human development. Donors see water and sanitation in relation to poverty and environment, and development agencies are attempting to find ways of lightening the heavy burden which carrying water represents for women and girls. Water offers an important entry point for primary health care, child survival, women's role in development, environmental issues and economic initiatives (Ling and Reader-Wilstein, 1993).

Fresh water is also an increasingly scarce good requiring much better management (Falkenmark and Lundqvist, 1994) and yet,

one billion people still lack access to safe drinking-water, 1.7 billion have to survive without proper sanitation, and the health of 3 billion people on our planet is affected by water pollution and/or poor sanitation (Alaerts et al, 1997:2).

As a result, governments, donors, external support agencies, non-governmental organisations (NGOs) and community based organisations (CBOs) are taking steps to support the sector through different programmes. Investing in education and training has proved to be essential in this effort.

1.2 Need for well-educated people in the sector at all levels

Education and training are not only crucial by themselves, but are essential to achieve further development in all sectors. An adult educator in Botswana once observed that

“the educated people in the villages are the ones who derive the most benefit from water improvements, not the rich people. The educated people are aware of how to use the water to the best advantage. Educated people are the ones who benefit most from the water, have changed attitudes and know what to use it for” (Copperman, 1978:56).

Water supply and sanitation interventions bring improvements which will only be incorporated by informed, educated and trained men and women and by school children. Those will be able to take best advantage of water as a basis for their activities.

Men, women and children thus need information, education and training to support the improvements brought by water supply and sanitation interventions. Training based on people's own concepts and conditions helps them to better understand the interrelationships between health, water, sanitation and housing in order to improve their personal hygiene practices and properly maintain the services (Saad, 1996).

It is particularly important to educate and train women. Field research in Sudan, for example, showed that all women in Kadugli were illiterate. Water was transported mainly on the head, taking from 10 minutes to 2 hours. In the home, the women stored the collected water in covered containers but rarely treated it, although they might filter it through a cloth. The majority of these women realised the existence of a relationship between water and disease. However, they did not fully understand it due to a lack of information and education which recognised their own insights and practices (INSTRAW, 1988).

An educated and well informed woman is more likely to take steps to improve the health and nutrition of herself and her family (Fernando, c. 1985; Hubley, 1993; Kurup et al 1996; Falkenmark and Surapto, 1992). Educated women tend to have smaller, healthier and better educated families (Bhadra, 1992, Wei-wen, 1996).

“... the greatest social benefits accrue from the extension of basic education to girls and women. As they become more literate, women tend to marry later, ... bear fewer children..., and the mortality rate of young children declines. ... women with even a few years of schooling are better agricultural workers, generate more income, and take better care of their families. Educated women are more likely to serve nutritious meals and seek medical care; consequently, their children are more likely to avoid illness and do well in school” (UNESCO, 1997a:36).

In Malaysia, research results show how maternal literacy modifies the effects of toilets and piped water on infant survival. Among illiterate mothers an infant was four times more likely to die when there was no toilet present than when there was a toilet. Among literate mothers, this difference was only a slight one. The presence of a toilet was especially likely to reduce infant mortality if the mother was illiterate, while the literate mothers would know better how to dispose of child faeces in a sanitary way even in the absence of a toilet. For water supply the conclusion was also that literate mothers can protect their children better in non hygienic circumstances and that they use water more effectively for better hygiene than illiterate mothers (Esrey and Habicht, 1988).

Other examples show how important it is that mothers of young children have basic education. In Nicaragua, a study involving 1229 children under 5 years of age revealed that the higher the level of their mothers' schooling, the lower the incidence of diarrhoeal diseases (Gorter et al., 1991).

Information and education are also needed outside the household. Nutritionists, health workers, social workers and community members of both sexes who are engaged in home-visits, observation, material production and communication, need to be included in training programmes (INSTRAW, 1988). The same applies to school teachers. When schools have well-trained personnel, they create a population who are able to make better use of the health education they receive later in their life from sources such as newspapers, radio and leaflets (Hubley, 1993).

At community level, responsibilities for many public services are in the process of decentralisation or have recently been decentralised, being now the responsibility of local governments. Following this development, it is expected that many health, housing and sanitation questions of specific interest to women and other members of the household will receive higher priority. However, women's (and men's) chances to influence municipal policies will very much depend upon their capacity to mobilise and organise, as well as on

government's response to their demands (Souto-Maior, 1993). The same reasoning applies to the privatisation of sector works and management. Awareness and information on sector issues, sector education and training will influence the capacity of community members and extension workers to mobilise and organise the users to negotiate with the private sector, to formulate their demands. This is an essential element for a demand driven approach.

Operators and managers of water supplies need special information and knowledge on the technological and mechanical aspects of facilities, and also on hygiene education, health and nutrition. Training of water council committees in organisational tasks, the mobilisation of resources, book-keeping and accountability will enhance the efficiency of services.

Special education for agency staff, project staff and decision-makers is needed both for sector progress and for work with communities. The effects of such training are not restricted to the water supply and environmental sanitation sector. It also benefits other sectors, such as health and hygiene, agriculture, and community development.

At agency level, only well trained in-house and field staff are able to put policies into operation. Not only training for technical or managerial skills, or training on sector issues, is being carried out at agency level; many agencies interested in promoting gender policies and a gender approach are using the training of staff as a tool both to impart knowledge on gender and to change attitudes and 'sensitise' staff. Staff will then be able to advocate for more gender equity (Bruyn, 1995, Wakeman et al., 1996).

1.3 Gender aspects in water supply and sanitation

Recognising the important role played by women both inside and outside their homes - in reproductive, productive and social activities - governments, funding agencies and NGOs stepped up their efforts to integrate women in development projects in the 1970s.

The 'women in development' or WID approach was widely considered, and one result is an increased effectiveness in projects where women participate (Bruyn, 1995). A study by Deepa Narayan on factors influencing the effectiveness of 121 rural water supply projects showed that the participation of *women* contributed more to project effectiveness and good water systems than overall participation (Narayan, 1995).

However, although women's involvement in project activities has benefited the effectiveness and efficiency of the projects, the work has often made the women's burden heavier and has not contributed to the amelioration of their status and position in the household and the community.

If the needs of both **men and women** are not taken into consideration in drinking water supply and sanitation programmes, there might be a relative worsening of the position of women through the limitation of social contacts, especially for culturally-isolated women's groups; heavier and unpaid labour for women, while paid and better jobs are allocated to men only; and time gains for water collection being dedicated to increased physical labour for other purposes, with no benefits for the women (van Wijk, 1989).

In Sudan, for example, one project did not carry out pre-studies on women's situation and activity. As a result, when new standposts had been installed, women had to carry water from much farther away than when they were buying from water vendors at their doors (Damen, 1993).

In many cases, the new supply made women lose assistance from children in water collection; or, once liberated from the heavy burden of transporting water, women have been expected to work in their husbands' crop fields without any control over benefits. Examples where water projects have increased women's workload and excluded them from benefits have been reported also in Burkina Faso, Zaire, nomadic areas of West Africa, Nigeria, Bolivia and Peru.

With no access to training and no involvement in planning, decision-making and design of technologies, women have been relegated to physical tasks and when 'work' becomes 'paid work' it also becomes 'male work' (van Wijk, 1985:110).

In some cultures where both men and women participate in voluntary labour, it is expected that women take on the physically heavy work of digging. An example is a project for the amelioration of the squatter settlement of Kanyama, Lusaka, Zambia, where 90 percent of the workers in latrine construction, digging drainage ditches and improving roads were women and mothers (Kinley, 1991). Also in Nepal, where

women are the central figures in the management of household water and sanitation activities, they are ignored in all the projects implemented by agencies. Men usually attend the meetings and take the decisions.In some Water Users Committees, women may be appointed as members, but this is only done to fulfil the donor's requirements. Most of the hard work during the construction period is done by the women. They dig trenches, transfer materials from the roadside to the construction site and bring water for mixing concrete. They are the labourers, the community's contribution to the project. In some NGO projects, health and sanitation components are incorporated into water projects. In this type of project women are trained as health volunteers (IRC, 1997a:89).

When the participation of men and of women in projects is considered without further distinction and it is not known how much each party is contributing and will benefit from the project, an imbalanced workload, which overburdens women, may happen. Projects which exclude men and only involve women increase the burdens on women. An example is hygiene education projects overburdening women because they overlook that men also take decisions, for example on financial investments, and have to perform certain tasks, for example on the construction of latrines (van Wijk, 1993).

Gender approach

A *gender* approach avoids such effects because it identifies the social or cultural relationships between women and men and takes the into account when planning interventions. Gender, therefore, refers not to women or men alone, but to the relationship between them, and how that relationship affects the division of work and resources and the benefits they receive. Gender refers to the socio-culturally defined roles of men and women in their particular society, to the ways they interact in these roles and to the changes occurring in these roles and interactions. Gender also recognises that not all men or all women are the same. Age, religion and socio-economic class also influence men's and women's place, work and potentials. Since gender is socially determined, it is acquired and can be changed. Gender is a dynamic concept: it changes as a result of modernisation, education, and political and economic development. (Kurup et al., 1996; Botswana Ministry of Education, 1994a; World Bank 1995; Moser, 1989; Moser, 1993; Bruyn, 1995).

Gender relationships are shaped mainly in the homes, the schools, by the media and in the labour market (Botswana Ministry of Education, 1994a; Bruyn, 1995), creating gender stereotypes which often determines a disadvantageous position for the women. Education and training are present at all these levels, in one way or another.

Gender differences and attitudes begin in the home where girls are naturally guided to perform domestic roles, like their mothers. Here boys and girls acquire their first ideas of men's and women's roles, tasks and responsibilities. In rural areas girls are more inclined to fetch water and firewood, cook, wash, clean while boys work in the fields or take care of the cattle. Boys will only perform 'girls'-tasks' when they do not have other productive tasks (van Wijk, 1985). In some societies, it is not appropriate for girls to leave their homes to attend school (Bakhteari and Wegelin-Schuringa, 1992). However, this traditional structure begins to change with the increasing number of women dedicated to paid work outside their homes and of female headed household (Botswana Ministry of Education, 1994a).

Schools also play a major role in shaping or changing gender attitudes. Boys are encouraged by their teachers to undertake more scientific subjects and girls to dedicate themselves to the more 'feminine' social issues. Due to teachers' encouragement, roles played in schools, gender-biased school books and material and the expectations of boys and girls themselves, boys generally perform better in science issues than girls, who will not try harder (Botswana Ministry of Education, 1994a). Gender stereotyping contributes to the lower performance of both boys and girls in subjects which are considered appropriate for the other sex (Duncan, 1989). It also accounts for their lack of stimulation to go on to secondary and higher levels of education (Mazingira Institute, 1995). Teachers in schools can have an important role in influencing, strengthening or changing the attitudes held by students and their parents towards gender issues (Botswana Ministry of Education, 1994a; Duncan, 1989; Skonick et al., 1982).

In the labour market, gender refers to the relationship of inequality between women and men in their different opportunities and performance.

These inequalities are reinforced by traditional stereotyped attitudes, expected roles of women and men in society, discriminatory legislation and development policies. A prominent example is the gender imbalance between women and men in scientific and technical fields or sectors, such as the water sector (Botswana Ministry of Education, 1994a:4).

Women generally combine productive activities inside the house with community activities and income-generating activities in the labour market. But because the income earning activities outside the house are the ones most valued in a male dominant society, the reproductive and the community roles of women are not recognised as *work* and therefore the value of women's contribution is ignored (Moser, 1989). The unpaid work by women does not count as part of the GNP of a country and its value is underestimated (Blades, quoted in van Wijk, 1985:17). If water collection and waste recycling, tasks generally carried out by women, were to be replaced by paid work, they would be considered activities of high labour cost (MacPherson and Jackson, quoted in van Wijk, 1985:17). Often, micro-economic studies find that women work longer hours than men, especially when they combine reproductive with labour market activities (World Bank, 1995).

Due to their different roles, tasks and responsibilities, men and women have different needs, and because of their different positions in the household and in society in general, men and women have different access to and control over resources. A 'gender approach' takes into account these differences. It reveals where the position of women is lower than that of men, in

the sense that, although women are doing most of the work inside the household and also participate in productive work in the field, they hold a disadvantageous position vis-à-vis the men in decision-making, workload and participation in benefits. This reflects a lack of gender equity (Moser, 1993).

A gender approach implies that projects help ameliorate the position of those who are subjugated to the other sex, and that the needs and opinions of both men and women are taken into account. The aim is to contribute to the efficiency of the projects as well as to broader development, where both men and women have a more equal place.

Although in the current literature the 'word' gender is used many times, quite often the 'concept' of gender is being neglected. In fact, many programmes focus on 'women', their contribution, their work, their training, their participation at the various levels, their access to services, to resources, and not on *women in relationship to men*. A true 'gender approach' takes men *and* women in consideration to ensure that both can take part equally in project work and decisions and share equally in project benefits.

A gender approach in water supply and sanitation

In the water supply and sanitation sector, the differences in needs, tasks and responsibilities of men and women appear quite clearly. Regarding hygiene and sanitation, women value privacy and security, they take care of cleaning, teach youngsters how to use the facilities and use the facilities themselves. Men value status, privacy and security for their wives and daughters, the rise in property value; they take financing decisions and carry out certain construction tasks and maintenance. This is confirmed by recent research in Kerala, India, where the demand for improvement of latrines was found to be highest among women, for several gender-specific reasons: men can 'go out' at any time whereas women have to wait for darkness and therefore have to control their diet; when women are ill, they cannot go far away; men are more worried about the privacy of their wives; men are basically concerned with the technological aspect of the facilities; women worry about diseases in the homes (Kurup et al., 1996)

Several other studies also report differences in demand for improved sanitary facilities among women and men. A gender approach in sanitation and hygiene recognises that men have different tasks and motivations and need different channels to reach them (van Wijk, 1993). The same applies to water supply: effective projects involve both women and men and do not exclude nor disadvantage either party (van Wijk, 1997a).

There is also some evidence that new roles played by men and women in the sector are breaking through gender stereotypes. With the increasing participation of women in income generating activities, men are called upon to play new domestic roles. From being the only provider of income, men start to be faced with a situation where taking care of children is becoming also part of their role as fathers and, although much less than women, they also become more involved in hygiene and caring activities, waste disposal and collection, and cleaning of the environment. This is happening mainly in urban areas and in societies which have attained a higher level of education (Moser, 1996).

At community level increasingly both women and men participate in water management committees, one of the reasons being the need to get support from and represent the interests of all users groups (Niger - Ministère de l'Hydraulique et de l'Environnement, 1991). Special participatory techniques and training programmes enhance that those selected can really influence service level and management set up. Women have been trained in leadership skills, financial matters, confidence building and communication with those they represent (Espejo, 1989; Kurup, et al., 1996; Narayan-Parker, 1989; Poluha, 1990; van Wijk, 1985:60; Yusuf,

1992). A gender approach can also be discerned in the setting-up of the committees: while men tend to be chairperson, women are the treasurers (Boucher, 1987; Mjenga et al., 1992;). Reasons appear to be women's greater reliability and cultural acceptance of home visits when husbands are away. In Niger, the government adopted a strategy of appointing female treasurers due to problems in the financial management by male water committees and the satisfactory way in which female treasurers managed funds (Niger - Ministère de l'Hydraulique et de l'Environnement, 1991).

In technical tasks also a breakthrough occurs, both at household and neighbourhood level. Traditionally, projects have made men responsible for the construction and maintenance of household water and sanitation facilities, receiving training accordingly, while women were involved in hygiene education and other social training. An increasing number of projects now also train women for construction of wells and latrines and as mechanics and caretakers for the maintenance of handpump wells (Datta and Friese, 1993; Dian Desa, c.1990; Haskoning, 1988; Hoque, et al., 1994; Kinley, 1991; Kumar, 1989; Morgan, 1992; Olsson et al., 1990; Paqui, 1989; Sharma, 1989; Srivastava, 1990; UNDP/World Bank, 1990; Werff and Visscher, 1995).

Handpump maintenance and latrine construction by women is highly appreciated. Repairs and construction work performed by women result in longer durability due to the interest they have in the reliable functioning of facilities (Rajeswary, 1992).

One example of women in peri-urban areas being trained as plumbers comes from EMOS, the public company which provides water and sanitation for 4.5 million people in the Santiago metropolitan area, Chile. EMOS trains women in water conservation, the payment of bills and basic household plumbing. They also provide education to all family members, including children (GEN NET, August-September 1996).

If women are not to be excluded from more technical and managerial roles in the public sphere, and if men are not to be left out from private decisions and tasks (van Wijk, 1993), it is becoming clear that education and training should have a gender approach.

1.4 Male-female education and training : trends in general and in the sector

Traditionally, boys and men have more access to education than girls and women. These differences are also present in the water supply and sanitation and related sectors. However, in the last ten years an evolution can be discerned in the different roles played by men and women in the water supply and sanitation sector. Education and training have had a particular influence in the shift in gender roles as part of the modernisation of the sector.

Gender and education

Until the 1950s, families, educators and schools, governmental policies and the private sector were mainly concerned with the education of boys and men. Girls and women were seen, and behaved, as fit to marry and having a role inside the households alone, for which 'no education was needed'. This started to change in the 1960s and throughout the 1980s when in many countries governments adopted democratic principles (Wigg, 1995).

From the 1960s to the 1990s there has been an increase in the rates of school enrolment in developing countries from 48 percent to 77 percent for primary schools and 35 percent to 47 percent for secondary schools.

Some of the biggest advances have been for women: primary and secondary enrolment rates (in the developing countries) increased from 38 percent in 1970 to 68 percent in 1992. And in some regions it is approaching that of the industrial countries, notably in East Asia (83 percent) and in Latin America (87 percent) (UNDP, 1996:23).

Although enrolment in all levels of education has increased fivefold since 1960, education and literacy for women still lag behind. Table 1 shows that in countries with a low 'human development' index, female literacy and enrolment rates are lower than that of men.

Table 1. Primary, secondary and tertiary enrolment rates for men and women, compared to the share in income - 1993

Human development level	Adult literacy %		Primary, Secondary and Tertiary School enrolment %		Income earning share %	
	Men	Women	Men	Women	Men	Women
High	96.8	97.6	79.6	77.9	34.8	65.2
Medium	72.7	87.1	58.4	63.9	34.2	65.8
Low	36.1	61.5	39.0	53.7	27.3	72.7

Based on: UNDP (1996). *Human Development Report 1996*, Oxford, UK. Oxford University Press.

In income earning, women have a much lower participation than men due to their lower education and on-job training and experience. Lower self-expectations and social expectations regarding the success of a female professional add to this situation. While the rates of female enrolment in secondary education is the same or even higher than that of men - as for Sri Lanka, Honduras, Lesotho, Nicaragua, the Netherlands and some other countries (UNDP, 1996; Fernando, c. 1997) - women's share in income generation is lower as they choose course-subjects which are low-valued in the labour market. Even those women who have the same level of education and experience as men tend to suffer from job discrimination (World Bank, 1995a).

However, benefits from well educated men and women are evident. They will contribute to a country's economy, as more education means individuals with a higher productivity (World Bank, 1995a). Higher education and training levels increase a household's earning and level of acquisition and contribute to a country's economy and its integration in the global economy. As much of the industrial competitiveness now depends on technology and skills, less on such factors as raw materials and capital, without basic literacy and numeracy people's ability to adapt to changing production methods and technologies is severely constraint (UNDP, 1996a). Also, raising literacy and educational levels is a benefit in itself as it permits people to lead a more fulfilled and participative life.

Boys and girls benefit from general and basic education. The tools and skills learned in primary schools and non-formal education give them the basic ability for future jobs, an attitude of curiosity for innovations and the tendency for the rapid acquisition of new technologies. Investment in basic education of boys and girls will have an impact on further education and training: the probability of receiving training increases when a person has already reached a certain level of education. For example, well-educated farmers assimilate agricultural techniques better than farmers who have not undergone basic and general education. Also, the possibility of receiving in-job training increases when workers have received education earlier (World Bank, 1995a). When training has to be task-oriented so that trainees are able to

accomplish a specific job, good results will often depend on a certain level of previous education (INSTRAW, 1987).

It is especially important to educate girls and women. The World Bank points out that education of women is among the investments with the highest social return.

Social returns (that is, total benefits to society) to investments in women's education and health are significantly greater than for similar investments in men, largely because of the strong correlation between women's education, health, nutritional status, and fertility levels and the education, health, and productivity of future generations. These correlations are even stronger when women have control over the way resources are allocated within the household (World Bank, 1995:3).

The UNDP also states that

the returns to educating girls are rarely matched by any other investment because of the measurable benefits for women themselves, for their families and the communities and society (UNDP, 1995:109).

The education of girls is sometimes more dependent on the efforts of mothers than of fathers. Interesting data from a survey conducted in five African countries revealed that girls **and** boys are likely to be better educated when the head of the household is female and that in rural areas the presence of a father may be a hindrance to the education of his daughters" (Goutier, 1995:56).

As the input with the greatest power for human and societal development is education (UNDP, 1996), water supply and sanitation interventions will also be more effective when combined with education. Also health and life expectancy, hygiene, nutrition and environmental protection will benefit from from the knowledge, behaviours and life styles of well-educated men and women (UNDP, 1996).

Education offers the next generations better understanding about hygiene, nutrition and healthy practices in the home, lower fertility and maternal mortality, further education for their children, and preservation of natural resources such as fresh water. Here, special efforts are required from the public sector, supported by community based organisations, to compensate for the gender inequality in education, especially among the poor (Fernando, c. 1985; Thomas, 1993).

Education of women and public education on environmental issues will contribute to the understanding of what is needed to safeguard the ecological balance (Falkenmark and Surapto, 1992). Without proper education, girls and women cannot assimilate information or appreciate the importance of safe water and a clean environment (Barot, 1994).

Recognising this reality, governments, the private sector and development agencies have increased their attention to primary and secondary education of girls. This ensures better educated women, with positive consequences for the level of fertility and children's healthy survival (UNDP, 1996; Barot, 1994; World Bank, 1995).

Emerging trends in education and training for water supply and sanitation

In the water supply and environmental sanitation sector, educational programmes and training aim at better performance of all those involved and at sector efficiency and progress. These programmes should accompany all phases of the interventions in the sector, and it is recommended that education and training of users continue after project completion, both for technical continuity and the impact on environmental health (van Wijk, 1989).

Traditionally, women have been excluded from such programmes. Although women have a crucial role in the provision of domestic water and the care of environment (Bhadra, 1992; Souto-Maior, 1993; van Wijk, 1985; van Wijk, 1989), when new installations for water supply and sanitation were provided, information on the new technologies was passed on to men only. Women were kept out of the information and training circuit, not for technical or educational criteria, but primarily for social reasons (Harkness, quoted in van Wijk, 1985:170). However, it gradually became evident that new arrangements for the transmission of information and knowledge should accompany the increasing sophistication of water and sanitation provision, and that these new arrangements should include training and education for both men and women (Abdullah and Boot, 1989; Jongepier and Appel, 1995; Tunyavanich et al., 1987; van Wijk, 1993; van Wijk, 1995).

In these new arrangements, women are not seen as mere users and beneficiaries of water supply and sanitation facilities. They are gradually being recognised as actors and agents of change. Although the number of women who have the possibility to participate in decision making, even in urban areas, is still lower than that of men (ENDA América Latina, 1990), at community level there is now also an increasing number of female planners, supervisors, managers, operators, technicians and decision-makers. This development has been accompanied by a gradual shift in the sector's formal and non-formal education and training activities and includes specific arrangements to accommodate and support the new roles played by women (Hesawa, 1991; Sumbung, 1990; van Wijk, 1993; van Wijk, 1995).

If women are gradually taking positions traditionally held by men, men are also acquiring new roles which call for a shift in their education and training. Sanitary engineers are being trained in social aspects (Helvetas, 1991); male field workers are being trained on how to involve women in projects (Water and Sanitation Cell, 1994); fathers are receiving training in hygiene and health practices (El Katsha and Watts, 1993; Douglass et al., 1994).

The line of evolution of the integration of education and training for men and women in the water supply and sanitation sector is clearly given by Carolyn Hannan-Andersson (1995). When women were merely users of water and no technology was available for making their task an easier one, some attention was given to them in programmes through health and hygiene education. When new technology was introduced and some payment was involved for operation and maintenance of the new technology, men became interested. All the information and the new knowledge was then transmitted to the men who also profited from knowledge and information from their broader circle of contacts outside the household. This affected negatively the position of women, who despite their crucial role in the sector were bypassed by the new technology trends and became more dependent on the knowledge of men in their role of water providers and water managers. It soon became clear that for a better provision in the household women also had to take up new roles in the operation and management of the new facilities and efforts were then made to train them as caretakers and pump mechanics. Opposition was raised by men when women could compete with men in a broader sphere. Even the women did not see themselves outside that community circle. Gradually women started to take part in planning (for example of siting of facilities) and decision-making in their

communities. This required special training for women and different strategies had to be developed which included gender sensitisation of both men and women. (Hannan-Andersson, 1995).

When low-cost technologies and decentralisation of responsibilities gained support and women's involvement was increasingly required, a condition for a gender approach was even more evident: if women's and men's needs and roles are not taken into consideration and if the consultation does not involve men and women at the local level, the projects may worsen the position of women (Hannan-Andersson, 1995).

Attention has to be given to primary education, as it gives the basis for better performance at a later stage in life. The next section highlights some sector elements of basic education and gender.

2. The Water and Sanitation Sector and Basic Education

In many countries efforts are being made to integrate elements from the water supply and environmental sanitation sector in primary school programmes and curricula. Children learn about water and efforts are being made to link in the curriculum the theory and the practice of safe water, environmental sanitation and care, hygiene practices, water and other natural resources.

Many times this is done through special programmes, through school sanitation programmes or simply changing the curriculum as an entry point for sector elements. The literature revised contains many examples of modifications in curricula and the introduction of programmes which contain sector elements.

These modifications will reach girls as well as boys depending on the degree to which girls also participate in and complete their education, and the actual attention given to this programmes and elements in class. Whether they affect gender depends on the presence or absence of gender angles in these programmes.

2.1. Gender balance in primary school attendance and completion

Of the 130 million children estimated to have no access to primary education in 1990, more than 81 million (62 percent) were girls (Doyle, 1995). Although there have been gains in the numbers of children enrolled in primary school in the past thirty years, boys continue to get preference for education, and the gender gaps persist (Doyle, 1995; United Nations Commission on the Status of Women, 1995; UNDP, 1996). In 1995 there were approximately 948 million illiterates while 60 percent of all over the age of 15 had no access to basic schooling. Two-thirds of these were women (Jongepier and Appel, 1995).

In sector discussion fora all agree that one area of concern is the current unequal access to or inadequate educational and training opportunities of good quality of boys and girls, men and women at all levels. The final statements of the United Nations Fourth World conference on Women, held in Beijing in 1995 (United Nations Commission on the Status of Women, 1995), indicates the existence of discrimination in girls' access to education in many regions and the lack of further education and training for women. The final report of this conference enumerates a series of recommendations to avoid this discrimination. During the 1994 UNICEF meeting on Education for All, key issues were raised on the importance of increasing opportunities for girls' education to improve their status, and increase the effectiveness of the water supply, sanitation and hygiene sector (Doyle, 1995).

Similar concerns are expressed by policy makers (Asian Cultural Centre for UNESCO, 1989; Botswana Ministry of Education, 1994a; Government of India, c. 1995; UNESCO, 1997; World Bank, 1995;) and project implementors (Mazingira Institute, various years; Kurup et al., 1996) to mention a few examples. These will be discussed later in this chapter.

In the literature reviewed, many cases were found of unequal school attendance, especially in Asia and Africa. However, they also reveal some improvement in the enrolment of girls.

In Kenya's primary schools, for example, although there has been a dramatic increase in girls' enrolment in recent years and a decline in disparities with the enrolment of boys, the increase in enrolment rates does not mean that girls have the same opportunities of finishing school as

boys. According to the 'National Development Plan 1989-93', of all the girls who enrolled in Kenya's primary schools in 1982, only approximately 34 percent completed Standard Eight, when students sit for the national examination leading to secondary school. Seventy percent of all boys who had enrolled in primary schools made the same milestone (Munyakho, 1994).

Countrywide, 60 percent of Kenyan women are still illiterate. Of all the girls in school age only 44 percent attend secondary school. Of those who join secondary schools, 22 percent drop out before completion. In 1993, women accounted for 20 percent of the population at the four national universities. In some areas girls represent 32 percent of the school-going population. The problem is not so much of girls not wanting to go to school but also of limited physical places for girls (Munyakho, 1994).

A survey of 320 primary pupils in schools in Cameroon revealed that at age 6-14 only slightly more boys than girls are enrolled; at age 15-19 twice as many boys are enrolled and at age 20-24 six times as many (Cammish and Brock, abstracted in Jongepier and Appel, 1995).

In Togo, the rate of female enrolment in primary schools is 67 girls for 100 boys, 38 in secondary and 18 in the third level. As a comparison, in 1994, the University of Benin had 4611 boys and 1987 (or 43 percent) girls (Togo - Ministère de la Santé de la Population et de la Solidarité Nationale, 1995).

In Morocco in 1981, among all first-year primary students (both male and female), only 2 percent ultimately reached the final year of secondary level, and only 30 percent of those who began the secondary level completed the final year. Most rural and lower-class students, especially women, were not involved in the very selective Arab educational system (Harfoush, 1981). In 1992, although the situation improved, only 57 percent of all age group girls were enrolled in primary education. This percentage dropped to 29 percent for secondary education (UNDP, 1996).

In Nepal, only 28 percent of students enrolled in primary school are girls. Women are under-represented throughout the educational system and lack of education and literacy is a constraint for women's participation in economic development. Around fourth grade, the percentage of girls falls to 21 percent. Due to the low level of female education, only 4 percent of teachers are women (Goodman and Wagley, n.d.).

In Balochistan, Pakistan, female literacy rate is about 4 percent, compared with 22 percent nation-wide. In rural areas the rate is lower than 2 percent. The enrolment ratio of boys to girls is 4:1. (O'Grady, 1994).

In Bangladesh, although about 77 percent of children enrol in school, only about half of them attend regularly and almost half of them drop out altogether, especially in the first two years. People who live in urban areas have a greater access than those in rural areas, boys have greater access than girls and the urban poor are the least likely of all to get any education. Girls enrol in school at a lower rate and drop out earlier than boys. However, their enrolment is steadily increasing and the boy-girl ratio in primary schools is currently 56-44. The government has legislated for compulsory primary education. However, there is a lack of schools and the quality of education is low due to insufficient training and supervision of teachers, high rates of teacher absenteeism, a curriculum that is not relevant to the needs of the students, and the small proportion of time that teachers actually spend on teaching and learning. Hence, only about 35 percent of the children who enter the system in first grade complete primary school, and a mere 5 percent are able to pass the Higher Secondary Certificate examination in twelfth grade. The situation for girls is even worse than for boys (Boot, 1995).

In Rohtas District of Bihar State, India, in 1993, of the total number of boys, 93 percent enrol in the primary school. This percentage falls to 72 percent in the case of girls. This situation aggravates in the rural areas of the district. Within the district, male literacy is twice as high as female literacy. (Pandey et al., 1995).

There are various reasons for low school attendance and completion by girls in the above cases. The lack of, or the inadequate, water supply and sanitation facilities play an important role.

2.2 Reasons for low female school attendance and sector implications

Both the quality and the availability of educational systems in many countries have been seriously affected by economic crises and political instability, ethnic conflicts and natural disasters. Governments are increasingly putting the responsibility for covering costs of primary education, such as school fees, transportation, uniform, books and other materials, on the shoulders of the concerned families. Families are also affected by the macro-economic crises; when only one child goes to school, preference falls on boys. This leaves girls with little or no chance of attending school and increases illiteracy ratios for women (Doyle, 1995; Jongepier and Appel, 1995; United Nations Commission on the Status of Women, 1995; UNDP, 1996; World Bank, 1995a).

One of the main reasons for low school attendance by girls is the fact that they are helping their mothers in domestic tasks. The collection of water can be one of the most time - and energy - consuming of these tasks and it has been noted as among the main reasons why girls do not attend school. Doyle indicates that

in parts of Africa, it can take as many as six hours for one trip to a water source and several trips may be required depending on family needs....parents are reluctant to have girls spend additional time away from time-consuming work at home, especially fetching water and firewood (Doyle, 1995).

Responsibility for water collection falls mainly on women and girls. For example, in four villages of Botswana as early as 1978, responsibility for water collection fell on adult women (55 percent), female children (25 percent), male children (16 percent) and adult males (3 percent) (Copperman, 1978).

**I am a daughter so beautiful
How should I fetch water?
If I fetch sitting,
I am smaller than the pitcher!
If I fetch standing,
My waist hurts**

(Song describing the dilemma of a little girls fetching water in Nepal (Bhadra, 1992))

Girls begin to help their mothers in fetching water from an early age, many times when they are around 6 years old (van Wijk, 1985). Especially when mothers are working in agriculture or other economic activity, or are kept occupied in the house, and in societies where women are

not supposed to leave the homes, young girls contribute quite substantially to water collection for the family (Kirimbai, 1981). This socialisation sets a pattern whereby daughters are expected to follow the example of their mothers, who are mostly engaged in activities which do not require formal schooling.

When girls go to school, the time spent in domestic chores can still be bigger than the time spent in school. This is recorded in various areas of rural Nepal, where school attendance time for girls is much lower than the time spent in domestic chores, including water collecting (Acharya and Bennett, c. 1983; Bhadra, 1992).

The task of collecting water is a female task and only single men will carry water for themselves. Adult men will collect water in general for productive agricultural activities, a business (bar, restaurant) or to sell (van Wijk, 1985). In Kituylawa, Sri Lanka, women and girls, or the older daughters when mothers are occupied in any productive activities, carry water for the household and the men carry water for the cattle (Fernando, c. 1985).

Men may help women in collecting water only when the sources are far away or very difficult to reach. When men collect water, they use some sort of vehicle: bicycles, carts, donkeys, wheelbarrows. In Kigwe and Segu Nala villages, Tanzania, single men draw water for themselves, carrying water in buckets or oil tins in a stick on their shoulder. Small boys and girls or women, both young and old, on the contrary usually have no transport and carry water containers on their heads, hips or by hand. (Kirimbai, 1981).

Some changes can be noted, however. For example, in Punchiwilathawa, Sri Lanka, as early as in beginning of the 1980s younger women would ride a bicycle as a means of transporting water (Fernando, 1986).

Boys may be involved in water collection if they have no other productive activity. In Kigwe and Segu Nala, for example, until the age of 15 years boys may contribute to the task of carrying water for domestic use (Kirimbai, 1981). But because boys' attendance in school is considered more important than girls' attendance, they usually spend less time on such activities than girls. Van Wijk presents the results of studies for Burkina Faso, Indonesia, Malaysia and Nepal which confirm that the amount of time girls dedicate to domestic work (such as collecting water and grinding grain) is almost twice as much as the time spent on the same work by boys. In some cases, boys and girls spent the same number of hours in the labour force and in others, girls dedicated more hours to economic activities than boys (van Wijk, 1985).

The contribution of boys to domestic activities may also vary according to socio-economic level. A study done in the Dodoma region, Tanzania, found that in middle and rich peasant households, boys seldom help in the housework but assist in cultivation and herding, while in poor peasant households, boys may take care of young siblings and a few assist in firewood collecting (Kirimbai, 1981).

In Nepal, girls who attend school may have to bring their siblings along. They are kept clustered at the back of the classroom, teachers cannot give them attention, and they do not participate fully in class activities. This is a very demotivating factor for girls' attendance, performance and continuity in the school system (Goodman and Wagley, n.d.).

In Kenya, the need to look after the siblings is also a strong reason for low school attendance among girls. When girls start school at a later age their performance will be much lower, demotivation occurs and drop-out follows (Munyakho, 1994).

The actual division of labour between boys and girls is reflected in the different levels of expectations for either sex with regard to school enrolment and school attendance.

In many countries of Africa, for example, while there is a high expectation that girls will dedicate themselves to domestic chores, there is very little expectation that they will attend school and benefit from such attendance. A study by UNESCO in Africa, supported by house visits and statistics, confirms that the demand for girls and women's education is much lower due to the domestic chores they are undertaking. This is pointed out as one of the reasons for the failure of educational projects. The communities do not perceive the economic return of educating girls, but only the costs (direct and indirect). An associated problem is that many schools do not provide a link with the real needs of communities. Content-wise, schools are preparing mostly for a promotion to the next grades or levels of formal education. As girls drop out of the system due to early marriage or pregnancies, this kind of longer-term education gives them little benefits for their lives, nor does it stimulate them to pursue further education later on (UNESCO, 1997).

Lack of expectation for benefits from girls education can also be noted in Asia. In Balochistan, Pakistan,

'some parents consider girl's education a waste or its benefits are not apparent enough to justify sending their daughters to school. They think the practice is a misuse of good physical labour and is unnecessary because girls do not have to work to support a family. Since most girls in the area are married at 13, formal education is less important than preparation for household and family work. Other parents do not send girls to school because school buildings are poorly constructed and maintained, lack appropriate facilities for girls (e.g. sanitation) and frequently are not within safe walking distance' (O'Grady, 1994).

On the other hand, society generally expects boys to be better educated than girls, as illustrated by a health and science education programme in Kampala, Uganda. In the chapter on 'Proper choice of a partner', the programme suggests that the choice of a partner is traditionally based on the following criteria:

family approval, common cultural background (same tribe, religion), good reputation (industrious, ambitious, desirable temperament, good social standing), good family background/character, boy is older than girl, **boy has better education**, equal economic status or, boy's family is richer, personal appeal (romantic love, good looks, similar interests) (Uganda - Ministry of Education / Ministry of Health, u.d.a).

One interesting example of gender equality in school attendance was found in Punchiwilathawa, the region in Sri Lanka already mentioned, where parents want all their children (girls and boys) to go on with schooling after primary school. They think that scientific subjects (for boys and girls) will bring them better positions in society. The main reason for absenteeism is not a negative attitude toward education, but malnutrition: due to the lack of proper food, children feel weak to attend lessons. Dropouts are generally from lower-income families and occur mainly in higher levels of education, but are at the same level for both men and women (Fernando, 1986).

Pandey (1995) found a positive trend in the Rohtas district of Bihar State, India. A trend analysis undertaken through Participatory Rural Appraisal (PRA) showed that twenty-five years ago, only 38 percent of the villages had a primary school while at present over 66 percent of villages have such a facility. The same study revealed that there has been a tremendous improvement in the attitudes of children towards schooling. While twenty-five years ago only 22 percent of children liked to go to school, today 88 percent of children reported that they liked school. The study also focused on the perception that adults and the elderly had about girls' education. While twenty-five years ago sending girls to school was considered bad and was not appreciated or acknowledged, today it is very much appreciated and all villagers are now sending their girls to school (Pandey et al., 1995a).

Besides factors related to girls' work and the perceived benefits of girls-education there are several other reasons for the low attendance and high drop-out rates of girls in schools.

The reluctance of parents to send their daughters to school also has to do with the physical conditions of the schools themselves. In Balochistan, Pakistan The lack of physical space to accommodate both boys and girls may be a reason for schools and parents to restrict the attendance of girls. Long distance walks to school from home make parents worry for their daughters' safety and are time consuming (O'Grady, 1994).

Cammish and Brock (1994) note that the indirect cost (no future perspectives) of sending girls to schools and the direct cost (school fees, uniform, books, school material) where the main reason for not sending girls to school in Cameroon. This is a situation which exists in Africa in general, where parents and villagers do not see the returns of girls education, only their direct costs (UNESCO, 1997)

Girls have a weaker constitution, which causes them to be more susceptible to diseases and consequently miss school. The latter has much to do with the fact that within the families boys are better fed than girls (Doyle, 1995).

Early marriage is reported by Muniyako (1994) as a very important factor determining low female school enrolment and attendance in Kenya, where families have also to pay a bride price.

A particular risk run by girls in school is pregnancy. The lack of sexual education in schools and the exposure of girls to contact with boys may lead to undesired pregnancy. Muniyako (1994) notes that, in Kenya, 10,000 school girls a year are affected by early pregnancy. In this context, parents are reluctant to send their daughters to school, fearing they will get a bad reputation. The absence of female teachers and the massive presence of male teachers contributes to this situation, as a girl would mostly look to a woman for advice on such matter. Also, since teachers are mostly men who do not stimulate a girl's educational career, girls do not mind so much having to stay at home to take care of babies.

The Beijing Fourth World Conference on Women stated in its item 73 that

“discrimination in girls' access to education persists in many areas, owing to customary attitudes, early marriages and pregnancies, inadequate and gender-biased teaching and educational materials, sexual harassment and lack of adequate and physically and otherwise accessible schooling facilities. Girls undertake heavy domestic work at a very early age. Girls and young women are expected to manage both educational and domestic responsibilities, often resulting in poor scholastic

performance and early drop-out from the educational system. This has long-lasting consequences for all aspects of women's lives." (United Nations Commission on the Status of Women, 1995: agenda item 9, para. 73, page 2)

Sector-related reasons for low female school enrolment and attendance

Reasons for low female school enrolment and attendance related specifically to the water supply and sanitation sector are: inappropriate school sanitation or total lack of toilets or latrines; lack of water; and lack of privacy. In Jakarta, Indonesia, in 1995, only 15 percent of elementary schools had tap water connected to the municipal water supply system (Skm, 1995). Several schools have installed drums or water reservoirs to increase the storage capacity, but water from these facilities cannot be used for drinking. This may represent a disincentive for girls to attend. In Bangladesh many schools do not have any latrines, although it is recognised that latrines are important, not only for health protection, but also for the school attendance of girls (Boot, 1995).

In Rohtas district of Bihar State in India, only 59 percent of schools have drinking water facilities and 11 percent have toilets. A study undertaken in this district suggests that, to enhance the enrolment of girls, improving the level of education alone not sufficient. It is necessary that the parents and the girls themselves are motivated; that midday meals and free teaching learning materials and aids are provided; and that drinking water and toilet facilities are constructed (Pandey et al., 1995a). A similar study undertaken in the Districts of Muzaffarpur and Bhojpur arrive at similar conclusions (Pandey et al., 1995b; Pandey et al., 1995c).

The provision of sanitary facilities in primary schools will reinforce sanitation and hygiene by helping children to apply the concepts they have learned in their concrete situation and will also encourage girls' enrolment. (UNICEF/DPHE/DGHS, MOHFP, u.d.). Teachers will also profit from better facilities.

The absence of a good water supply in school in Kibweri, Kenya, was one reason for the school's difficulties in attracting sufficient qualified staff (van Wijk, personal communication). Members of the larger community will also benefit as they will also have a model of hygiene practices. (UNICEF/DPHE/DGHS, MOHFP, ud).

Also, **better water supply and sanitation outside the schools** has a positive effect on children, and especially on girls' school attendance. A study of four villages of Botswana, where women and girls were the ones primarily responsible for fetching water, confirms that, when water supply was installed in one village, school attendance improved (Copperman, 1978).

In projects in Guatemala, Kenya and Mexico, women reported that they continued to spend the same amount of time in water collection when trips became shorter due to proximity of the new installations. However, men and children no longer assisted them in fetching water, which liberated children (especially girls) to go to school. Women perceived this as a positive effect of the new installations (van Wijk, 1985).

Time and energy saving from water collection has benefited not only girls education; it will also have an impact on their mother's non-formal education and further development. Time saved from water collection may be used for more participation in

women's groups, church groups, ceremonies, local councils, discussions centres, associations or simply for leisure.

However, sometimes husbands will use a woman's time saved from the collection of water for female productive work for their own benefit. Also, if women are paid for their labour, husbands stop paying for children's school fees and clothing, claiming that their wife's earnings should be spent on these matters (Muller, quoted in van Wijk, 1989:59). This may lead women to continue to spend more time to collect water out of fear of having to work harder in productive activities with no benefit for themselves. A gender-balanced approach is necessary in such cases.

2.3 Promotion of gender balance in school attendance and finishing

Recognising that educating girls can generate much larger social benefits and is a crucial component for the eradication of illiteracy (a development indicator on which governmental policies and strategies are increasingly focusing) many governments are making efforts to promote the enrolment and retention of girls in schools, which will lead to a more equitable gender-balance in education (King and Hill, 1993).

These efforts to educate girls are supported by NGOs, bilateral and multilateral donors and other agencies in innovative programmes.

An example is the national policy of Bangladesh, where the declaration 'Education for All by the Year 2000' was adopted in January 1992. In this country, compulsory primary education for all children and free education for rural girls until the eighth grade has started to be gradually enforced. The government recognises the important role of non-formal primary education (NFPE) in achieving universal primary education in Bangladesh (Boot, 1995). In India, the Government of the State of Gujarat has taken measures to promote girls' education. They are now benefiting from free education at all levels (Barot, 1994).

The September 13, 1997 issue of the Indian newspaper 'The Hindu' published the following:

"Govt. to grant Rs. 500 for girl child New Delhi, sept. 12.

The Government has decided to grant Rs. 500 each to families where a girl child is born and meet her educational expenses. Announcing this at the meeting of the Janata Dal national executive, the Prime Minister, Mr. I. K. Gujral, said the Government would take care of the educational expenses of the girl child.

The scheme, aimed at encouraging education among girls, would be implemented from October 2, this year, he said.

The meeting, attended by senior party leaders, discussed ways and means to tackle basic problems like shortage of power and water for drinking and irrigation purposes and social and economic disparities. - PTT"

In Guinea, the government has formed a partnership with local organisations and external donors to boost girls' enrolment (UNESCO, 1997).

Other countries are also taking measures to enhance girls' enrolment in education. In Pakistan, a project funded by USAID in Balochistan has promoted partnership between communities, and NGO and the government and shows how this can improve prospects for female education in the most rural, disadvantaged areas.

BOX 1. Community - Government Partnership for girls' education in Balochistan, Pakistan

In a survey, PED (USAID) and UNICEF found that more than half of the rural villages in Balochistan wanted a girls' school in their community. The survey also revealed that many girls were attending boys' schools under boys' names. PED and UNICEF designed an experimental teacher training programme for local women and girls in villages supportive of girls education. A Mobile Female Teacher Training Unit took the training into the village to reach the trainees in their own village rather than requiring the women and girls to leave their homes for lengthy periods. During this experiment, the government agreed to set aside teaching posts for rural women and girls to teach in rural communities. This commitment by the government was a further condition that favourably influenced community support. One circumstance which favoured the project was the fact that in Balochistan communities are used to survive on their own and under hard conditions. Communities are therefore strong and have strong links. The idea was to link community and government in a partnership that would result in new schools for girls staffed by female teachers. Parents can play a significant role by reducing the dropout rate, improving educational quality and efficiency, and maintaining school facilities. This requires that the educational programme involves them as partners in their children's education from the very beginning, keeps them informed and effectively assists them especially at the district and village levels. A strong female leader in the Educational Division and the commitment of the government were instrumental in achieving success for the activity. The programme defined specific responsibilities for the Education Department and the community. The Government provides training for the teachers, appoints them and pays them; provides instructional materials; establishes inspection teams, and provides annual maintenance funds for the school. The community provides the land and the initial school building free of cost and ensures that the school is secure and operates effectively. The community also monitors the attendance of the teacher and the children, checks the dropout rate, and monitors progress of the monthly syllabus. Eventually it transfers the ownership of the land on which the school stands to the Educational Department. Two years after its start, education has become an established procedure. A local NGO, the Society for Community Support for Primary Education in Balochistan, assumed the responsibility to continue the implementation and PED continues its advisory role for some time. The 13 steps which empower the communities to take responsibility for girls' education are: identify a woman with a middle grade eight pass; verify her residence in the village; verify her academic credentials and test her mathematics, urdu and reading/writing skills; assess each household in the village to determine the number of households and the number of girls of primary-school age whereby the teacher-candidate is part of the assessment team; form a village education committee consisting of only men -only fathers of daughters who are going to attend the school- as women do not go out for meetings; construct a simple school (this is done by the male committee); start the school on three months probation with the assistance of the community education promoters; request formal sanctioning of the school and appointment of the teacher (obtain these sanctions from the Educational Divisional Office); sign a contract; formally transfer ownership of the land for the school to the Education Department; recommend that the teacher be trained; prepare the temporary school -equipment, supplies- ; monitor the school. (O'Grady, 1994:5,7).

In Africa the promotion of girls' education has been a topic present in many international fora. As early as 1982, the Harare Declaration specifically called for policies which promote the education of African girls and foster educational equality, in order to involve women in the development process (UNESCO, 1982).

Recommendations from a workshop held in Ethiopia highlight the need for enhancing girls' education and the training of women and urge governments to explore more alternatives to

accomplish this purpose. The alarming problem of teenage pregnancies should be given attention and solutions should be thought out, as well as the promotion of girls' interest in technical subjects and mathematics from an early age in school. With this, the continuation of girls in school would also be promoted (INSTRAW, 1987).

Bringing young mothers back to school is a concern of the government of Kenya, where strategies are being developed for improving education opportunities for girls related to the admission of these young mothers. These regularly drop out of the system after the birth of the child, while the boys or men who got them pregnant continue their education or career. The idea is to create facilities in the schools which allow the young mothers to bring their children, such as crèches, a private room for nursing and safe water and sanitation. The implementors fear, however, that community members may oppose to this idea of letting girls who got pregnant to continue in schools, as they might feel that

“giving a second chance to a girl who got pregnant would be to support a mistake and might be a bad example to other innocent girls”
(Munyakho, 1994:42).

A gender approach may change such one-sided blame on the girls only. In Tanzania, for example, gender-conscious participatory theatre highlights the power-relations which exist in young girls' pregnancies. (Mlama, ?).

The literature reviewed contains many other suggestions and examples which improve girls' participation in education. The UNESCO proposal for the promotion of girls education in Africa mentioned earlier suggests that governments include in their policies the promotion of subsidies to enhance girls' enrolment in primary school. The subsidy would cover free uniforms, books and writing materials, school lunch programmes, health care and linkages with income generating skills around the school. To meet the demands of the communities, schools should offer an attractive curriculum which is practical and relevant to village life. Such a curriculum would include preventive health education; teaching of science and training in local crafts and technologies; teachers' training to strengthen the quality of their work; the forming of school committees and the development of non-formal education for community women. Community members should be aware of the need for better educated boys and girls. It is recommended that community members are involved through meetings to raise awareness on the importance of educating children, especially girls, for family wellbeing and community development. Also recommended are more literacy programmes and non-formal education for women; the re-admission in schools of young mothers, and linkage of education to income generating programmes, among others (UNESCO, 1997).

In Latin America, an innovative flexible and non-standardised curriculum, which permits adaptations to community needs is the *Escuela nueva* (New School) in Colombia (Colombia - Ministry of Education, u.d). The aim of the New School Programme is to respond to the rural primary education needs of boys and girls through a new curriculum, training for teachers and administrative personnel and incorporation of community processes. The programme encourages children to be creative and critical and to apply in their communities the knowledge that they have gained. Problem solving and games are used daily as a methodology for action learning by children. The government has selected the New School Programme as a strategy for universal primary school education for boys and girls and to improve the quality of primary education in 25,000 rural schools in Colombia.

When governments lack the financial and economical resources to provide education for all school-age children, radio programmes offer an alternative means of education. One example

is RADECO, the Radio-based Primary Education (Radio Educativo Comunitario) in the Dominican Republic. This programme explores, since the beginning of the 1980s, the use of radio as a means of teaching basic literacy and numeracy skills to children between seven and fourteen years of age who do not have access to formal schools. The programme was initiated with the support of the Agency for International Development (AID) supported Radio Mathematics in Nicaragua (RMN) (Hanssen et al., 1983).

Another example of education through radio comes from Nepal with the Radio Education Teacher Training Project (RETT), sponsored by the United States Agency for International Development (USAID), the Southern Illinois University (SIU) and the Institute of Education and Radio in Nepal's Ministry of Education and Culture. The aims are to upgrade teachers' skills and increase the participation of women at all levels of education. The RETT project has strong gender elements. Radio Training for Women Primary School Teachers gives final certificates and promotes salary increases to all those who finish the programme successfully, stimulates teachers to remain in their professions and opens job opportunities to other women. The 'Characterisation of Women in RETT Broadcast and Written Materials' provides the integration of women's issues in instructional material. Voices of women are used to break through the stereotype that teachers are generally men. Also special guidance is given for women on classroom management techniques. Techniques are featured on how to help girls to participate more actively; methods to teach children about the different government positions in their villages; and items on the role of great women in Nepal. RETT gives ample opportunity for the recruitment of female staff by allowing maternity leave and special time to stay with babies and offers short-term training for all eligible women staff members outside the country when the kind of training is not available in Nepal (Goodman and Wagley, u.d.).

There are also many examples of initiatives taken by members of communities to enhance children's, and especially girls', education. In Palestine, the struggle for gender equality in education became part of the political struggle:

“When the Israeli authorities closed the schools, women taught children in ad hoc classrooms. Discrimination figures prominently in the lives of many Palestinian women. As in other parts of the developing world, traditions of rigid gender roles and early marriage often prevent women from completing a formal education and developing skills to earn a livelihood. Rising economic hardships and religious conservatism reinforces these constraints. Despite the complexity of the current situation, women from all political and religious persuasions are working together to steer Palestinian society in the direction of gender equality. This movement, which began taking root before the intifada, seeks to broaden women's access to education and economic opportunities, secure their legal rights and improve their health and welfare. Since 1986 UNDP has supported these aims through financial and technical assistance to Palestinian women's organisations, research centre and universities” (Coleman, 1995:27).

Other attempts to provide education to girls outside the formal education system are the home-school programmes in Pakistan, Bangladesh and Sri Lanka. These are treated in more detail in chapter 2.6 below.

Reducing gender imbalance through adult education

Literacy programmes for women are also being recommended as a means of enhancing gender balance and will certainly have a positive effect on the promotion of education of girls.

One example of such programme is a result of the Seventh Regional Workshop on the Preparation of Literacy Follow-up Materials in Asia and the Pacific. The workshop focused on literacy materials development for, and expansion of, participation of women in literacy activities. Its main objective was to provide participants from UNESCO Member States in the region with training experience concerning the development of materials for neo-literates and the expansion of participation in literacy activities relevant to the needs of the rural people, mainly focusing on women. Many of the literacy materials the workshop developed for China, India and Indonesia address problems related to mother and child care, income-generation skills, legal literacy, overcoming socio-cultural problems typical for women, and making use of modern technology (Asian Cultural Centre for UNESCO et al., 1990).

In Namibia, a national literacy programme is focusing on the interests of new readers, in order to contribute to the promotion of reading material to maintain literacy. As the great majority of the programme's participants are women, their interests are strongly represented (Namibia Government, 1993).

Addressing sanitation constraints to girls education

The lack of sanitary facilities in schools at all levels has been pointed out as one of the causes of low rates of female school enrolment and attendance. Interventions in water supply and school sanitation could greatly contribute to increase girls attendance. This is already happening in many countries.

In Bangladesh, the Department of Public Health Engineering (DPHE) and the Department of Primary Education (DPE), together with UNICEF, are helping to provide safe water and sanitation in primary schools. They are convinced that the provision of safe water and proper sanitary latrines will enhance school enrolment, particularly of grown-up girl students (UNICEF et al., 1994) and also of the girl-child (Boot, 1995). With this in mind, a programme of latrine construction and water supply facilities was launched. Grown-up girls in the primary schools were interviewed for this purpose. They revealed that the increase of girls' attendance was mainly due to the provision of sanitary latrines and the siting of girls' latrines apart and far from those of boys' and in a location which offered privacy.

In Viet Nam, the construction of sanitary facilities has been recommended as a support to the introduction of Health Education in Primary Schools under the UNICEF WATSAN programme. New water and sanitary facilities have been constructed and evaluated. The evaluation of their design, use and maintenance focused on the hygienic behaviours and preferences of boys and girls of primary school age and many shortcomings were then found (Nguyen, 1996). Although in Viet Nam women represent an important proportion of the labour force, their level of education is lower than that of men. However, they are the big majority of school teachers in all regions of the country (Nguyen, 1993).

In India, at national level, the 10th Finance Commission recommended to the central government that all states with low female literacy rates should receive special grants to be allocated to specific districts to promote girls' education. The Commission also recommended that funds be allocated to achieve 80 percent of coverage in drinking water facilities in school and to have separate toilet facilities for girls in at least 75 percent of upper primary schools as a means of ensuring girls continuity in education. These targets are to be reached by the year 2000. Further, the Finance Commission allocated grants to upgrade drinking water supply in all primary schools of the country (India - Government, c. 1995).

However, even teachers might not understand the importance of school sanitation for the promotion of school attendance by girls. For example, in some villages where the primary school has the only community latrine (which can be a dry latrine and only used as an urinal) as an earlier example of Guruvarajapalayam, in the South of India (Chauhan and Gopalakrishnan, 1983) the school teachers want the children to look neat - with clean clothes and combed hair - and are not particularly concerned about sanitation practices. This shows that the education of school teachers should accompany the installation of facilities.

2.4 Sector awareness raising in schools

The previous sections suggested that better water supply and sanitation in schools are effective means to encourage a higher and more effective school attendance of girls. The focus of this section falls on the attention given by schools to water supply, hygiene and environmental sanitation as a means of children's awareness raising on sector issues.

In primary schools, sector awareness is being raised mostly through school sanitation, environmental sanitation and care and hygiene and health education programmes. These programmes are many times inserted in the context of 'school hygiene education' which is a specific form of the wider 'school health education'.

“School hygiene education is solely confined to water- and sanitation - related health problems in and around a school. ... it seeks to change or reinforce knowledge (what people know), attitudes (what people feel about something) and behaviour (what people actually do). The ultimate goal of school sanitation and hygiene education is to improve the quality of health and decrease the prevalence of disease” (IRC, 1993:1,13).

Hygiene education programmes help to reduce the risk of disease and to improve children's health and personal well-being. They help reduce curative health service costs for children and promote higher productivity among children; schools have less absences due to sickness and less attention and energy are lost due to poor health and illness. Hygiene education is sometimes linked to the improvement of the physical facilities in and around the school. School sanitation programmes deal with environmental issues such as the pollution of natural water sources and solid waste management. (IRC, 1993).

However, hygiene education programmes combined with the provision of school facilities are not sufficient if teachers are not committed to the subject and the curricula are not adapted to local circumstances. In some Latin American countries, efforts are being made to link health education and hygiene education with better environmental conditions around the school. Still there are problems: although many curricula cover hygiene education or offer an entry point for hygiene education, they are quite standardised and not adjusted to the local situation. Also, teachers tend to transmit knowledge but do not know how to use participation of children in hygiene practices. In schools, the maintenance tasks are sometimes considered an additional and less educational activity or on some occasions even as a punishment (OMS/OPS.IRC, 1993).

However, there are initiatives where teachers help students to produce their own material on environmental hygiene and sanitation with good results in raising pupils' learning capacity for these issues. Where teachers have been assisted in planning the sanitation facilities, a bigger feeling of ownership and responsibility for maintenance has occurred. Many times teachers think that the knowledge on how to use a latrine should be given by parents. Many times parents feel that cleaning/maintaining school sanitation facilities are not to be done by their

children, since that is a less educational activity and school should be busy with teaching other knowledge and skills (OMS/ OPS/ IRC, 1993).

Also in Africa and Asia steps are being taken to introduce the sector in school curricula. In four villages of Botswana, as early as 1978, schools were starting vegetable gardens, even in villages without water supplies in working order (Copperman, 1978:56) and in Ghana innovative approaches are being applied where children's daily experiences are taken into consideration in hygiene and sanitation programmes (Akorfa Nyaku, 1996). In Uganda, children's daily experiences are being considered as focal points (Mugisa, u.d.) and aspects of sanitation, health and hygiene are introduced in primary and secondary schools curricula (Uganda - Ministry of Education et al., u.d.: a,b,c). The same concerns appear in Viet Nam (Nguyen, 1993; Nguyen, 1996).

The literature review gives examples of school hygiene education through which girls and boys are put in contact with sector components and are encouraged to bring information, knowledge and examples of good hygiene practices to their families. In a programme in Ghana, children are given hygiene notions and introduced to sanitation facilities and hygiene practices at school. The children are also encouraged to bring messages containing new knowledge and practices home to younger brothers and sisters.

BOX 2. School children promote hygiene and sanitation in the community in Ghana

The Volta Rural Water Supply and sanitation Project in Ghana has been implementing School Hygiene Education as one of its community-based interventions. The programme has trained teachers in participatory and child-to-child methodologies and hygiene education. In addition, improved sanitation facilities have been promoted. The school child is a focal individual through which the programme launches changes in hygiene practices in the school and community. Since schools are located in communities it is logical to transmit proper sanitation and hygiene practices to pupils and encourage them as agents of behaviour change in the family, and so maximise the benefits of the provision of water and sanitation facilities in the project communities. The school child will normally take home to his parents and siblings new things learnt in school - especially things that can be done at home. The Ghana Education Service already has a school health policy which among other things states that School Health Committees should be formed in schools to ensure supervision of sanitation in schools and of school vendors. It also encourages the provision of good drinking water and sanitation facilities; proper refuse disposal sites and good handwashing facilities and the development and implementation of health education programmes in schools. A specific curriculum for schools has been developed including health and hygiene topics. Child-to-child methodologies are encouraged introducing peer group education by letting the older child teach younger ones and children of the same group teach one another (Akorfa Nyaku, 1996).

To enhance their effectiveness, the contents of health and hygiene education programmes and learning material should be practical and reflect children's daily needs and experiences, life and environment (van Wijk, 1989).

In Bangladesh, efforts are being made to improve the primary school curriculum and make what is taught in schools more linked to community life and experiences. This could also enhance the effectiveness of awareness raising on sector issues in the school system. The National Curriculum and Textbook Board (NCTB), responsible for curriculum development and changes, introduced a revised curriculum in 1992 which puts more emphasis on the practical application of what is taught (Boot, 1995). There is a new curriculum for the first and second grade and a massive training programme for all first and second grade teachers.

The curriculum for the pre-service training of primary education teachers is also being improved. New teacher guides with units on health and hygiene for the first and second grades were developed and revisions in the curriculum for the third, fourth and fifth grades are in progress. In those grades, health and hygiene will be part of the social studies and science curriculum. Water, sanitation, health and hygiene subjects are also covered in the Bengali- and English - language textbooks. However, water, sanitation, hygiene and health issues are not adequately covered in the secondary education curriculum, although water contamination caused by industry, agriculture and overpopulation is discussed in science classes (Boot, 1995).

In Nepal, the Primary Curriculum and Textbook Unit, Primary and Basic Education Project has prepared a curriculum and teaching material on use of safe drinking water, proper defecation habits in the school, ways of reducing waste in the classroom environment, personal hygiene for the prevention of the risks from waste, and some communicable diseases related to waste. This special curriculum is to be introduced as one of the optional subjects in primary schools.

Several programmes for school, community and decision-making levels which make an effort to bring the curricula and the contents of school programmes closer to the child's day-to-day life and experiences contain many elements which relate to the water supply and environmental sanitation sector. Examples are programmes in Bangladesh, Zambia, Indonesia and Uganda.

In Bangladesh, the Child-to-Child approach is being introduced for health and hygiene education in the third through fifth grades. This child-centred approach to health education in primary schools is based on three assumptions: primary education is more effective if it is linked to things that matter to children, their families and their communities; education in school should be linked as closely as possible with out-of-school activities, so that learning becomes part of life; and children have the will, the skill and the motivation to help educate each other, and they can be trusted to do so. Knowledge and practice are linked, not only in the classroom but also at home and in the community (Boot, 1995).

In Zambia, the Child-to-Child Programme involves schools, communities and the policy-making level. At the school level, pupils perform plays and mimes, read health education-focused poetry, write quizzes which carry health messages, and tell stories which are intended to convey or emphasise particular health themes. At the community level, Child-to-Child endeavours to promote school-community linkages, through community development focused projects: cleaning the environment, adopting a children's hospital ward, providing a grinding mill or borehole. At the policy level, the programme supports initiatives to revise and develop new health education materials for the primary school curriculum covering many subject areas. One of the positive results is that a more child centred approach is envisaged in the new curriculum (Ryan, 1993).

Little Doctors is another school programme which contributes to sector awareness raising. In Jakarta, the Little Doctors programme exists since 1980, and although in 1995 there were 150,000 Little Doctors, their training modules on hygiene education (behaviour and practice) were not sufficiently discussed. More attention is being given by the programme to the control of solid waste collection at the school area and to reduce its environmental risks, rather than to the behaviours and practices of elementary school students that could endanger their health conditions (Skm, 1995).

Alternative and innovative educational materials are also strong tools for sector awareness raising among school children. Taking this into consideration school health kits were created in Uganda. These include sheets on the water cycle, rainfall patterns, water sources, water uses, water collection places, water pollution by users, dirty habits, water contamination and

pollution, water borne diseases, keeping water clean, cleaning dirty water, taking care of latrines and toilets, among other topics. (Uganda - Ministry of Education et al., u.d.:c).

Besides children, teachers as well as other key adults are also disseminators of hygiene messages and practices to communities and serve as models of hygiene behaviour patterns to parents and other members of communities. Parent-teacher associations offer an important opportunity for disseminating hygiene ideas and practices. Drama representation in school using hygiene messages can be quite successful in getting the hygiene ideas and practices to community members (van Wijk, 1989). It is, however, very important that the teachers orienting this process are well trained. The training of teachers in hygiene methods for hygiene education, and on water, sanitation and primary health care issues may be done in a joint effort between the training institutions and agencies working in the sector. Also important is assisting teachers to prepare suitable local curricula, syllabi, and reference materials for use both in training institutions and in classroom (Burgers et al., 1988). It is essential that teachers are motivated to carry out hygiene education activities (IRC, 1993).

Does awareness raising include gender aspects?

Many efforts for the awareness raising of children on sector issues do not cover gender aspects. Much of the literature describing projects where children are the target group does not specify whether or not they are targeting boys or girls, or how they involve either group. It is more common to find 'children' mentioned and not their 'gender'. Pictures are generally gender-biased. Pictures in books and leaflets, posters and other material for awareness raising tend to show girls cleaning, girls taking care of younger children, girls conveying messages to their mothers, and boys playing, bathing, defecating in rivers. There are, however, some examples which try to break through the gender stereotype of girls helping to educate and clean, while boys play.

Among these, one comes from Uganda (Uganda - Ministry of Education et al., u.d (c)). There is a picture of a girl showing a clean toilet on the cover of a leaflet aiming at linking the use of a toilet with good health. A picture inside the flyer shows a boy teaching a younger boy how to use the toilet: 'Boys must be careful when urinating and not wet the seat' and also that hands should be washed. But the last part on 'How do we keep a toilet clean?' shows girl cleaning in two pictures: 'Wipe seat rim, wc-tank and handle' and 'Scrub bowl with brush', 'sweep floor' and 'burn rubbish'.

Another leaflet, also produced in Uganda (Uganda - Ministry of Education et al., u.d (b)) has a cover showing boys and girls dancing around a latrine. Text 1: 'How does our latrine help protect our health?' Text 2: 'What does a well-built latrine look like?'. The leaflet gives instruction for construction and figures showing women fetching water and men digging. Text 3: 'How do we use a latrine properly' shows a woman giving instruction to a boy on how to use and keep outside hole clean from faeces, and that he should wash hands. Text 4: 'How do we keep a latrine clean?' shows a woman cleaning with help of a boy. Cover figures show woman cleaning and boys repairing the roof.

An excellent example of break-through gender stereotypes which contributes to gender equity in materials meant for sector awareness raising in schools comes from Kenya. A series of illustrated learning packages - comic books, containing stories, articles, games and puzzles - has been mailed out to all the primary schools in Kenya. The packages were prepared by the Mazingira Institute in Nairobi. One of the most important components of the programme is an annual competition, which invites children to answer questions and to send in essays and drawings. Their responses have been used as data for the Mazingira children's journal and the best entries receive prizes for themselves and their schools. Major themes of the annual

competitions are tree planting, water management, wood fuel, tree seedlings, water and sanitation, health and nutrition, health and safety, immunisation, nutrition, and occupational and environmental hazards. Certain attitudes in the learning packages are reinforced, including respect for elders' traditional knowledge, support to parents in the home (especially appreciation of mothers' work load), bringing home useful knowledge to help the family, and gender equity.

For the reinforcement of gender equity, in the Mazingira Institute's Magazines both boys and girls are pictured taking care of siblings and transmitting messages. There are specific stories about boys occupied with domestic tasks such as taking care of babies and looking after the kitchen while the mother is away. In one story, a boy is depicted reading a book and explains to his sister that he is studying but also looking after the cooking, while their mother has gone to fetch water. Both children talk about the fact that their mother has too much work '...fetching water, fetching firewood, weeding crops, preparing food and looking after the babies'. The boy recognises this situation and says: 'that is why I am helping her. I am also looking after the baby!' (Mazingira Institute, 1989).

The Mazingira magazines also promote traditional technologies and knowledge, such as using clay soil to construct a well and protect it with local material, using *mswaki*, the traditional chew-stick, for teeth cleaning, etc. The magazines are distributed in schools. A teachers guide accompanies them (Mazingira Institute, 1991).

Although there are examples of efforts being made in schools for water and sanitation issues, little emphasis is given to gender aspects. The Mazingira Institute is a rare example of this effort.

2.5 Gender specific infrastructure and curricula

Schools may play an important role in the dissemination of information and knowledge on sanitation, health and hygiene, and in contributing to behavioural change in order to improve children's health.

Hygiene and health education have more effective results when combined with programmes for the improvement of the water and sanitation infrastructure. Since schools are meeting places where infections are easily passed from one child to another, a clean sanitation environment in school has a positive impact on the health of children. Clean and functional facilities combined with hygiene education, will make it easier for children to practice hygiene in school and spread positive hygiene messages in their families (OMS/OPS/IRC, 1993).

However, many schools do not have a clean environment or good sanitation facilities, which has a negative impact on school health. Also, the school population should be heard when decisions concerning school sanitation are being made as the needs of girls are different from those of boys regarding sanitation facilities (IRC, 1993).

The improvement of sanitation in primary schools and the combination of a healthy infrastructure with hygiene education was specifically mentioned as one of the objectives of a project in Bangladesh. Other objectives were to translate the teaching of hygiene practices at schools into practice and create a clean environment; and to provide a model and a channel to reach parents and community members for adopting improved hygiene practices. The teachers had pointed out that a critical factor was the need for boys and girls to have separate toilets. The fact that the girls' latrine was kept clean encouraged the boys to do the same with theirs. Parents needed to be taught that children's using and cleaning the latrines is part of their development and in their best interests (Bangladesh - Government et al., 1992).

Many schools face financial problems in the installation of water and sanitation facilities. An innovative approach would be to get the community involved in the mobilisation of resource for the construction of facilities and also to participate in the physical work. One example of community mobilisation for environmental sanitation comes from the Barrio Primavera, a neighbourhood of Tarapoto, Peru, where the community mobilised resources by organising '*parrilladas*' (barbecues) and collecting entrance fees, while the municipality offered as first prize the material needed for the construction of drainage in the main streets of the '*barrio*' (García and García, 1997). Also volley-ball competitions were organised by residents for the mobilisation of resources to be used for further environmental upgrading. Such examples could be taken up for the mobilisation of resources for improvement of sanitation condition in schools where there is a demand for improvement.

Low-cost solutions were used in a school sanitation programme in Madras, India: collect money among students and parents to buy plastic buckets for flushing of latrines; establish school health clubs and involve them in cleaning of the school compound and latrines; dig a garbage pit; contact the municipality and request them to improve the garbage disposal service; stimulate parents to participate in environmental sanitation activities, such as cleaning streets or making small financial contributions; collect tree samplings from the Ministry of Forestry (no cost involved) and plant them on the compound (Sorensson, 1994).

Some schools also develop environmental sanitation and hygiene activities outside the school. One example comes from India, where learning was integrated with development activities and learning packages were produced based on the children's daily experiences. Children then participated in improvements in their community (van Wijk, 1989). These community activities, when done in a joint effort by both boys and girls, raise a more gender-balanced approach to learning.

In general, schools are training boys and girls for a future where the existing male and female models predominate. Curricula and teaching materials help perpetuate the cycle, as confirmed during the Fourth World Conference on Women held in Beijing:

"In general, curricula and teaching materials remain gender-biased to a large degree and are rarely sensitive to the specific needs of girls and women. This reinforces traditional female and male roles that deny women opportunities for full and equal partnership in society." (United Nations, Fourth World Conference on Women, 1995: Agenda item 9, para. 76, p.3).

Not only curricula, teaching materials and the behaviour of teachers in the classroom are gender-biased. Other factors are the expectations of communities and cultural and social patterns of behaviour which gear girls to choose, while already in primary schools, subjects which will lead them (in the case where they stay in the system) to subjects less valued in the labour market. Boys, on the contrary, will be geared to subjects which are more valued in the labour market with a correspondingly higher salary. This is a common pattern, and is documented in studies made in Kenya (Munyakho, 1994) and Botswana (Duncan, 1989), where boys are being prepared to be men holding managerial, influential, better paid and prestigious positions.

Job preparation

It is comforting to see that to counteract this tendency, initiatives are being taken in primary schools for girls to take on subjects which open the higher grades in the educational system for

them and prepare them for more valued jobs in the labour market, with greater scope for decision-making.

The Mazingira Institute in Nairobi, Kenya, is producing material for distribution in schools where girls are called to take mathematics and science (Mazingira Institute, 1995). The objective is to get girls interested in subjects which will help them continue in secondary school and promote among them the idea of being able to get higher valued jobs later in their lives.

This has been a worry of many international fora in the field of water supply and sanitation, such as the INSTRAW Women, Water Supply and Sanitation a national training seminar held in 1987 in Addis Ababa, Ethiopia (INSTRAW, 1987). Recommendations from this workshop include the need to promote girls' interest in technical subjects and mathematics from an early age in school, linked to redefinition of the roles of women.

The 1988 INSTRAW seminar held in Sudan (INSTRAW, 1988) recommended that technical education related to water supply and sanitation (water resources, water treatment and sanitation, operation and management of water supply and sanitation systems, personal hygiene and environmental health, home economics, income generating activities related to water such as gardening, small stock animal raising, fishing) should be included theoretically and practically in the school syllabus. These subjects could be treated in the curriculum for geography and general science courses. Teachers should be trained in these subjects and new material such as posters and necessary audiovisuals aids should be made available. Schools should be provided with technical, simple tools. Students should be involved in area development, focusing on cleaning, drainage, garbage collection. The changes require the support and involvement of higher levels of decision-making, such as ministries of education (INSTRAW, 1988).

The same workshop recommended ways of motivating girls to take these subjects. Girls are able to select technical topics suitable to their age; they are exposed to successful experiences with women's participation in water supply and sanitation projects; awareness is increased through songs and cultural activities that stress women's participation in technical aspects; the benefits of women's participation in technical matters are to be highlighted; and creative girls and boys are encouraged and rewarded (INSTRAW, 1988).

Linking learning for future work with village and community needs can help stimulate both boys and girls for productive work.

A first suggestion for linking learning in primary schools to village water projects came from a study in Botswana on the impact of water supply in four villages (Copperman, 1978). The impact evaluators suggested to the Ministry of Education that in future children are shown how boreholes, standpipes and storage tanks work and that water is presented to them as a scarce resource which needs conserving. A practical learning project was advocated whereby children could decide what water is used for, which activities use a lot of water, etc. Perhaps a simple pump could be made with the children to show them the principle behind pumping water from the ground as well as constructing a sand filter (Copperman, 1978).

More recently in Botswana, the Guidance and Counselling Division of the Ministry of Education has taken serious steps to enhance boys' and girls' interest in the water sector through the training and guidance of teachers. The conclusions and recommendations of workshops with teachers form the basis for a 'Teachers' guide to work with water' (Botswana Ministry of Education, 1994b). The first section of the guide focuses on gender issues. It contains a number of activities designed to make students more aware of gender issues.

BOX 3: Guiding teachers to work with water from a gender perspective

As a teacher, particularly if you are a guidance teacher, it is important to **know your students well**. One of the ways in which you can obtain useful information about your students, their attitudes and their aspirations, is by asking them to complete questionnaires. Similar questionnaires can be used to find out more about your students' parents or about your own colleagues - those who have some kind of influence over your students.

It could be helpful to ask your students some **questions** about their attitudes toward certain school subjects, towards certain careers or types of work, toward gender issues, and so on. By asking questions about your students' backgrounds and home environments, you might get some clues as to what or who are influencing them or shaping their attitudes.

Aim: to examine students attitudes regarding girls or boys doing science, maths or technical subjects at school as well as choosing scientific or technical careers.

Objective: to examine how being a boy/girl affects a student's choice of school subjects; how being a boy/girl affects a student's choice of career; to what extent the attitudes of teachers or parents influence students' choices"

(Botswana Ministry of Education, 1994b:5).

At the same time, both students and teachers are encouraged to examine their own attitudes towards gender issues. The guide shows how a teacher can influence and change the attitudes held by students and their parents and influence girls to study science and mathematics so that they may consider taking up careers in scientific or technical fields. The guide offers examples of practical activities to assess the attitudes of students and teachers towards gender issues in the choice of subjects and careers. The guide also explains the needs and possibilities for work in the water supply and sanitation sector, outlines possible careers, explains how to prepare field visits and provides materials to refer to (Botswana Ministry of Education, 1994b).

2.6 The sector and non-formal education for children

While "formal education generally refers to education which is provided in primary and secondary schools, colleges and universities, with a structured hierarchy of classes, syllabuses or grades", (Eade and Williams, 1995:355), non-formal education is done outside the official school system.

For reasons indicated earlier, many children, especially girls, do not take part in the formal educational system. Efforts are then made to reach them through alternative forms of education, such as the 'home schools' programmes in Pakistan and Bangladesh and other alternatives implemented outside the conventional school system.

Baldia, a low-income urban neighbourhood in Karachi, Pakistan, began its own 'home-schools' project to enhance girls' education in 1981. The project started in the context of a sanitation programme in that area. During the discussions on sanitation and hygiene between the community organiser and the women of the community, it became clear that most women were illiterate and could not read the leaflets and handbooks on better child care, hygiene and sanitation. Financial and cultural constraints were identified as factors preventing children, and especially girls, from attending school. An existing system, in which religious classes for girls were conducted in private homes, was adapted to promote basic education. A small number of girls from the community with high school education were trained in teaching. Each then started her own school to see if there was sufficient interest for a larger programme. After the project was accepted, a local organisation was identified to support a larger programme, in which a total of 60 girls were trained as teachers. This resulted in the establishment of 64 home

schools in 1986 with an estimated total number of 1600-1800 pupils. Objectives of the home school programme were: to facilitate education for those children who are not able to attend government schools for reasons such as poverty, distance and timing; to provide an acceptable schooling system for female children who are not allowed to follow classes in a regular school due to the constraints on their mobility in an orthodox Islamic society; to offer young girls the possibility of participating in the development of their community; and to relieve their confinement to their homes. The project also trained a local woman to teach illiterate women. In one year she taught 100 women to read and write. Most of these women were also involved in the sanitation programme and worked alongside the community organiser in motivating people for sanitation. The same community-based model was used for the sanitation programme, in which UNICEF funded the training and the materials to start the home school. All other expenses were borne by the community. The teachers organised themselves and formed an NGO, which at a later stage initiated other activities for the development of women in the area (Bakhteari and Wegelin-Schuringa, 1992).

The Integrated Non-Formal Education Programme in Bangladesh (INFEP) is intended for children of disadvantaged families in rural areas. Matters related to health and hygiene are one of the components of the curriculum: washing hands before and after eating, washing hands after using the toilet, brushing teeth, cutting and cleaning nails, and combing and washing hair. Teachers manuals were also developed (Boot, 1995).

Also in Bangladesh, a non-formal education programme which has had much success is that of the Bangladesh Rural Advancement Committee (BRAC). The programme is meant to reach children of poorer households who have never been to primary school or who dropped out during first grade. More than 70 percent of the students are female and more than 80 percent of the teachers are women. Besides the normal programme for children between 8 and 10 years old, there is also a more functional curriculum focusing on health, nutrition and the social environment for children aged 11 to 16. Regular parent-teacher meetings ensure community involvement. Teachers attend training sessions. An important element of the programme is the spreading of hygiene and health measures by girls to their families (Boot, 1995).

Another programme in Bangladesh offering non-formal education to children who have never been to school or have dropped out is the Gonoshahajya Sangstha's (GSS) primary education programme (PEP). While the BRAC programme covers mainly rural areas, GSS covers approximately 100 schools in urban slums and rural areas. About 45 percent of the students are girls. Monthly meetings are held with parents, teachers and school supervisors to strengthen the links between the school and the community. Preference is given to female teachers. The original programme was meant for children up to age 12. More recently a programme was started for adolescents, which also covers hygiene and health subjects plus income generating activities (Boot, 1995).

In Sri Lanka, the Lasallian Community Education Service (LCES) trains 10-15 year-old boy and girl school dropouts in low-income urban areas in basic plumbing and masonry skills. LCES then helps them form part of teams that repair broken and leaking public standposts and washing slabs throughout their own neighbourhoods.

“For LCES, education means learning life skills, for example, how to contact government officials, how to repair leaky standposts; how to prepare nutritious meals; how to do simple arithmetic; how to sew; how to do simple carpentry; how to read. Perhaps the most important life-learning skill is also the most difficult to impart, that is the understanding that individuals and groups can make effective changes in

the community, but can also be responsible for doing so” (ILO/Turin Centre, et al, 1991:vol III, 32/79).

In Egypt the situation is different from that of Pakistan, Bangladesh and Sri Lanka. Education is free and compulsory until age 14 and 90 percent of eligible children attend primary school, 98 percent of boys and 83 percent of girls. However, the existing curricula leave little space for innovation. To remediate this deficiency and reinforce and complement regular school, the three month-summer vacation offers an opportunity for extra-curricular activities: the Summer clubs where life skills are learned and links between what is learned in school with out of school activities and behaviours are made clear (El-Katsha and Watts, 1994).

BOX 4. Summer clubs in Egypt transmit life skills and new education methods

The Summer clubs were started as part of a health education programme developed in association with water and sanitation interventions in two villages in the Nile delta about 70 km north of Cairo, Egypt. Schistosomiasis is one of the biggest health problems in rural Egypt. It can be transmitted through swimming (for young boys) and through utensils and cloth washing (by young girls). Two other environmental problems in the two schools of each of the two villages selected for the experimental summer clubs were identified by the teachers: an unsanitary disposal of solid waste and sullage in the streets and lack of a sewerage system. The summer clubs are also a training for the teachers. They can apply their theoretical knowledge on health and environment in a relaxed and informal situation. The primary school children attending the summer clubs were all fifth and sixth (10 and 12 years old). Because girls at this age are already helping their mothers in domestic tasks and looking after younger siblings, they can easily appreciate the relevance of play and learning activities on personal and home hygiene and put them into practice in their daily lives. They are also effective in communicating health messages to their mothers. Both children and their parents complain that children have little to do in the village during the summer - the boys swim in the canals and go on fishing expeditions, but the girls are expected to stay close to home and help their mothers. Two male and two female teachers were recruited from each school to the first Summer clubs. By the end of the third year, more than 1,000 children and 51 teachers in six villages were reached by the programme. The methodology was participatory learning, through activities related to children's daily lives, including cleaning latrines and the environment. Evaluation showed that the teachers had acquired new skills for communicating with children, and the children had brought home many skills and knowledge acquired in the summer clubs. A group of six girls maintained contact with the research team as they wanted to organise literacy education for school drop-outs, cleaning campaigns in some village streets and helping to clean the public standpipes (El-Katsha and Watts, In: *International Quarterly of Community Health Education*, vol. 13, no. 2, pp. 139-149).

Although these cases include examples of education that is still gender-biased, the programmes certainly contribute to raising the level of girls' education in general.

Another form of non-formal education is sector awareness raising through magazines especially made for youngsters. An example is the Magazine of the 'Health Learning Materials Center and Basic and Primary Education Project (1993). The magazine has had issues on such topics as drinking clean water, clean house surroundings, hygiene habits and health. It is very colourful and, to be appealing for youngsters, it comes as a comic book depicting both boys and girls. Its messages relate to local community habits, knowledge and culture.

For literate children, books on environmental issues play a role in raising sector awareness. In Nepal, with support from the Ministry of Education, an Environmental Book for children was developed, based on the cultural experience of the population. In this book, environment and

hygiene are presented as a positive experience of life. A guide for teachers and a set of games accompanies the book (IRC, 1993).

There are many more examples of projects for children's awareness raising on sector issues which are not embedded in the formal educational system. One example is the Children's Ecological Village, in Tatuí, São Paulo, Brazil. The Ecological Village was built up through co-operation between the Neo-Humanist Association of Brazil and the Globetree Foundation of Sweden. The Village is actually a park, where children are in contact with a dairy farm, natural woods, an organic garden, an orchard and other facilities as classrooms, dining room and kitchen, dormitories, amphitheatre, a playground and a windmill. Children receive education on environmental issues, working practice on organic agriculture, water conservation and other topics. One of the objectives is to raise awareness on environmental crisis and on sustainable development. Teachers and rural women are also trained on environmental practices (Neo-Humanist Association, c.1992).

In the USA, children are attracted to come to educational festivals and centres on water and the environment through leaflets, bulletins distributed in schools, posters, gadgets. The following texts are found in two brochures of the programme on groundwater education in Michigan:

Water Festival Makes Waves: Nearly 1,000 fourth and fifth graders from the Greater Lansing area will celebrate the national Drinking Water Week in a big way: by attending the first-ever Lansing area Children's Water Festival. Where Little Ripples Make Big Waves is the theme of the festival, which will be held May 9th 1995 on the MSU campus to teach children about water and help them to better understand how they can protect it. Learning water songs with folk singer including 'Excuse Me Sir, That's My Aquifer', Water testing along the Red Cedar River, debating a 'Kids' Court' case regarding an environmental injustice, taking part in Dripial Pursuit and Puddle Pictures, the 'watered versions' of Trivial Pursuit and Pictionary: these are some of the activities of the festival. Teachers are given generous take-home materials, classroom decorations, and fun give-aways. (Groundwater Education in Michigan (GEM) Program, 1995).

Also:

'Where to find an Aqua-Saurus': A new and innovative way to teach children about groundwater and its effect on their lives. The Marquette Country Groundwater Center is a local Groundwater Education in Michigan (GEM) - project financed in part by the W.K. Kellogg Foundation. Providing groundwater education is a major part of the Center's mission. The Center identified the need to educate area youth about groundwater protection, contamination and stewardship, and began to look for innovative ways to accomplish this goal. Designing a hands-on exhibit about groundwater to teach children in a fun and memorable way about this important resource is the ultimate goal for the project. Also workshops and experiences are activities of the programme (Groundwater Education in Michigan -GEM- Program, 1995).

A gender-biased basic education in water, hygiene and sanitation and related fields will mean the continuity of gender prejudices in higher levels of education. The next chapters will deal with training of community members, of field, project and agency staff and the higher levels of education and with training.

3. The Sector and gender in training community members

From the point of view of the sector as a whole, well educated and trained women and men are an important asset. Good human capacities will contribute to the empowerment of communities, which will have a positive impact on operation, maintenance and management of decentralised water supplies; on sanitation and hygiene practices; and on a gender-balanced participation in decision-making in work and benefits (UNICEF, 1995).

This section will focus on gender in training at community level.

3.1 Trends in training community women

Training is transferring knowledge and awareness raising (Grift, 1995). It is an organised event aiming at helping communities or individuals to enter into learning processes, to bring about changes in understanding, skills, and behaviours. As opposed to formal education, training is part of non-formal education. According to the the 'Oxfam Handbook of Development and Relief', there are different approaches to training and a

key distinction between training which primarily serves the needs of an organisation, and that which responds to the expressed needs of a particular set of people, the latter placing its emphasis on social change. (Eade and Williams, 1995:360).

Training for a specific task or work improves peoples' insights and skills and has a great impact on productivity (World Bank, 1995a) and on the efficiency of interventions.

For their effective participation in water supply and sanitation, community members - men and women - have to be trained. Almost all sector programmes include a training component, although the type of training, its objectives, and the target groups may vary. In the community managed sanitation programme in Kerala, India, for example, human resource development is approached in two ways: through upgrading skills or developing new ones through short-term training; and through providing new experiences - giving support for people to take on new roles and new responsibilities. Training is given to male and female water committee members, standpost attendants, school teachers, nursery teachers, health personnel and local government staff (Kurup et al., 1996).

In a sewerage programme in Gajabapura Bo-Sevana, a low income urban area in Sri Lanka, community members received training to enable their effective participation.

BOX 5: Training for urban sewerage

SEVANATHA, an NGO in Colombo, Sri Lanka, co-ordinates a project for a sewer disposal system in Gajabapura Bo-Sevana, a low-income urban neighbourhood in this city. SEVANATHA trains the community on self-managed community services and trains community leaders on maintenance. Training is considered as an essential element of the community mobilisation process for sustainable development. The key decision maker and the implementor of this project is the community. As a first step, SEVANATHA organised a workshop for Gajabapura selected community members, 50 percent of them women. During the workshop, participants identified the environmental problems in the settlement, formulated general strategies to deal with the problems and decided on a programme agreement and action plan to address the 15 problems identified. At every stage of the project the community is given the opportunity to learn from the project. The type of training given during the project implementation period varies from the simple problem identification exercise to comprehensive operational and maintenance issues. After completion of the sewer system, several community leaders within the settlement as well as from other areas were invited for a half-day workshop to discuss issues related to operation and maintenance aspects of a community managed sewer system. An experienced technical officer made an on-site demonstration for people on how people should organise and carry out day to day operational works and maintenance activities. Families individually as well as collectively are aware of their responsibilities in maintaining a community managed sewer system. After this training, SEVANATHA handed over the sewer system for community management (Sevanatha - Rajagirya, 1993)

The municipality of Recife, Pernambuco, Brazil, organises similar training for men and women to manage a local sewer system as well as solid waste disposal. (Arrais, 1993).

In Guatemala, sector institutions train water committees in support of community-managed water systems.

Training is given to committees, caretakers, treasurers and to the users with emphasis on women. It is part of the community's responsibility to participate in this kind of activity. Skills training begins during the preparation stage and is done through workshops and lectures in community meetings. Training of the treasurer and caretaker is sometimes done through workshops and lectures, but mainly discovery learning processes are used, which take place in the working context. The caretaker participates in the construction stage, while the treasurer does the bookkeeping. The training is directed at men, with the exception of hygiene education, which is directed mainly to women and children. Women are the target group for hygiene education due to their role as housekeepers (IRC, 1997a:55).

This gender-stereotyped training will not affect negatively the position of the women with they will have the collaboration of the male members of the household for a better hygiene behaviour.

It has been found that training women also for construction and technical work can be very efficient for the sector and raise women's position when a gender approach is taken into consideration.

Why train local women?

Training of local women in the water supply and sanitation sector has various justifications. One has to do with *the special relationship women have with water supply and sanitation*.

Reasons for training women in local maintenance include the direct concern and personal interest of women in their water supply; their regular visits to distribution points; the compatibility of preventive maintenance and user education with the traditional tasks of women; easier communication between women caretakers and women users; their greater sensitivity to social pressure from other women to do a good job; the importance of health aspects the lower career orientation and labour mobility of women; and recognition that training in modern technology is for their age-long contribution to household's water supply and sanitation (van Wijk, 1985, p: 33).

This special relationship women have with environment is due to the social context of gender relations (Joekes, et al. 1996): more women than men are collecting water and firewood and are depending on natural resources for their daily tasks. They are therefore the ones who suffer most from environmental degradation.. However, they often do not receive special information, training or education on issues related to water supply sector.

Another reason for training women in technical skills in water and sanitation is that in general *they are more accepted in the households* for carrying out repairs than men. The acceptability of their presence in private compounds and their commitment to work make them excellent water and sanitation workers (van Wijk, 1993). Women are also valued for their *ability to care*.

In a programme in inner-city Colombo where more control over construction was needed, women were considered to be the most suitable to check the quality of construction because *they are home during the day, and can make arrangements to supervise the work*. The local committees also recognised their ability to *check the technical quality* of the work being done (van Wijk, 1985, p:33).

A similar quality control role of women has been reported in Malawi. Women have taken the initiative to broaden their knowledge by attending technical training as observers, in order to be able to recognise satisfactory repairs by village caretakers and mechanics. (Mauluka, 1983, quoted in van Wijk, 1985:172).

In Sri Lanka ,

successful social mobilisation programmes on poverty alleviation and rural banking, have exposed in previous years especially rural women to new concepts. Their involvement in successful new ventures has made these programmes open to the fulfilment of strategic needs, the concepts of gender and the potential for women as leaders. Developing leadership roles among women can lead to the development of the community and of the NGO itself as evidenced by partner NGOs. INDECOS from Matara District reports, for instance, that its 50 percent representation of women in all village level activities, has led to women taking up increasingly more responsibilities in subsequent project phases, including procurement of materials, construction supervision and quality monitoring (Fernando, c. 1997).

Government departments are also interested in training local women. Women caretakers in Karnataka, India, are trained for two days to voluntarily maintain and ensure proper handling of handpumps by users. The pumps were installed in every village in the district by the Department of Public Health Engineering (INSTRAW, 1987).

Women have a potential for development which should be used and from which the sector would greatly benefit; they will also be more motivated in training other women. A pilot project in the Tharu tribal scheme in Uttar Pradesh, India, was the initiative of a woman superintending engineer of the state water organisation attending a regional training seminar on women, water and sanitation organised by INSTRAW and ESCAP (Sharma, 1989). She undertook the scheme because women can, with more ease, transmit knowledge and skills, and better influence and educate, other women on specific sector needs such as proper use of pumps and water use. Women are more sensitive to pressure from fellow-women to do a good job and to solve problems in a better way. The women engaged needed the job and could improve their position and that of their families, besides performing as well as or better than similarly engaged men, especially regarding preventive maintenance and upkeep of hygiene. (ILO/Turin Centre et al., 1991).

Male emigration has created new roles and responsibilities for women (International Labour Office, n.d). They should therefore have the knowledge they need to operate and manage their water supplies and facilities on their own. In some situations where extensive labour migration of men occurs, or where women groups have been the major force behind the village water supply, one should consider training women for technical tasks as well (van Wijk, 1989:54,128).

This is especially true in Latin America, where the number of female-headed households can reach 70 percent in some low-income urban neighbourhoods. In the Santiago metropolitan area in Chile, the course on plumbing given by the water company EMOS, has targeted especially women heads of households. After the course, women can repair water leaks and deal with other problems affecting their water and sanitation facilities (Raquel Alfaro, personal communication).

In the Central Visayas Water and Sanitation Project in the Philippines, the main objective of which is to improve the health of rural communities in 32 municipalities through the implementation of water and sanitation facilities, training on latrine construction, together with health education, is given to female household representatives. This is reported in a case study which gives specific information about one municipality, Santa Catalina. Training gave women the feeling that they are able to perform other tasks besides their traditional role as housewives (Ybañez, c. 1995).

Many times women have difficulties in assimilating basic information on the projects and interventions concerning their water supply, due to a lack of general education. Projects which recognise the importance of having women in certain positions such as treasurers in committees, often insist on previous education or adjust their programme. They will also offer training, as in Tanzania, where the DANIDA/MAJI Rural Water Supply Programme offered a training for village water committee treasurers, who could be men or women but should have completed primary education. (Mjenga et al., 1992).

When women have attained higher levels of education and training, they may still be in a subordinate position vis-à-vis men regarding managerial tasks and decision-making.

To counteract this situation, the Community Water Supply and Sanitation Programme of Sri-Lanka (CWSSP) and its partner organisations recommend that decision-making processes are institutionalised in order to involve women as well as men. Gender awareness training programmes have been launched by the NGO Water Decade Service, an umbrella organisation representing local NGOs, all CWSSP's partners, who will then integrate gender in the projects they are carrying out (Fernando, c. 1997).

Educating and training of local women is not only important for the efficiency of projects and to meet women's needs; it has also to do with the *need of having more women in decision-making and at policy level positions* in a sector where women play such an important role at local level. This is especially important due to the new requirements of a demand-driven approach.

The benefits to society of training women include that *society will get a more positive attitude towards educating girls* if these women perform well in their tasks. It also makes women gain confidence, seeing they can do traditional men's work. These are intangible benefits (Jonsson and Rudengren, 1991) and are of great relevance to society and the women themselves, provided they do not lead to the withdrawal by men for other responsibilities, such as contributing to the costs of maintenance and repairs.

For women mechanics themselves, work has given them extra income and improved their status. On the other hand, it has increased their workload, as they have the double load of a paid job outside the house and an unpaid one within the household. This happened in Rajasthan, India, where women were trained as pump caretakers in the Integrated Sanitation, Water and Guineaworm. Although there was an increase in the women's workload, their work was valued as there was a much lower rate of breakdowns in the pumps maintained by the women than in those maintained by the men. Also, the duration of the pump breakdown period was also smaller among female mechanics (Jonsson and Rudengren, 1991).

A study by Deepa Narayan (1995), based on the results of 121 World Bank projects, contains strong evidence on how the participation of women increases the effectiveness of projects in terms of better quality of project design, implementation, operation and maintenance; transition of operation and maintenance to local groups; maintenance after one year; and reliability of water systems. Not only projects benefit from the participation of women. The women themselves benefit in terms of empowerment measured in their increased self-help capacity, ability to organise, negotiate, undertake and initiate action (Narayan, 1995).

Recognising that the project will be more effective when there is participation by women, projects, in their pursuit of effectiveness, may use women in such a way that they become overburdened. A gender balanced approach to participation is necessary, to ensure not only that the greater involvement of women brings more effective and efficient projects, but that the burdens of the contributions are shared equitably between women and men.

Due to this contradictory situation - better results with increased workload - some questions have to be answered before getting women involved in training: Are women interested in upgrading the skills they already have? Or will they and the project benefit more from increased gender balance in the management of systems and the supervision of jobs done by trained men? If women are to be trained for maintenance, how to prevent such training representing more expense to the project if women are not able to travel far for cultural reasons? How to avoid that training women for new tasks brings a heavier burden to their lives which is not compensated by, e.g. more income or a greater say in decisions that are essential to them? Will training free them from the need of having an outsider to do the job and lead to

more reliable services? Are the most suitable candidates for training being trained? Is the training of women adapted to their real needs or only to the benefit of projects? Not only must these questions be answered but also an assessment of the roles and responsibilities of men and women is needed, before preparing specific training programmes. Some tasks in health and hygiene are the responsibility of men, and training women for these tasks makes no sense. For example, certain work in latrine construction and well upgrading is male work, and training women for that purpose may bring more problems than solutions (van Wijk, 1995).

Concrete experiences have shown that women and men will benefit from training once its adequacy has been established and its gender benefits are clear.

Training women in sanitation technology

One important reason for training women is that they may be more accepted in homes as technicians, especially where women live in seclusion and can only be visited by other women. There are other reasons for also training women in water and sanitation technology.

Apart from training for the maintenance of latrine hygiene, which is a universal task of women, there are regions where it is culturally more appropriate to train women in ***latrine construction***. This is especially the case where women are ***already involved in traditional building activities*** as in many parts of Africa, or are a member of the construction work force, as in Central Asia, (ILO/Turin Centre et al., 1996).

The interest and successful training of women in some areas in cement construction work, such as latrine slabs and rain-water collection tanks, may possibly be explained in terms of a connection with traditional skills in plastering, their responsibility for domestic water supply and sanitation (van Wijk, 1985:8).

Projects will benefit when community traditions are taken into consideration in their training programmes. When this fails, problems might occur as in Cuzco, Peru, during a training programme on technology. In this case, the course on latrine building was 'condescending, preachy and critical of the women's traditions' vis-à-vis the latrines, and the women rejected their production and installation. They did not recognise the need for latrines, but were willing to participate in the construction of water taps, they wanted sewerage, but not latrines (Doucet, 1987).

Many examples emerge from the literature regarding the training of women for sanitation technology. One comes from Lesotho (UNDP/World Bank, 1990), where in the training of Local Latrine Builders programme, one fourth of trainees are women. In this programme, it is interesting to note the contrasts between women and men in their attitudes and interests. Women are more active in creating a demand for their latrine building skills; are willing to work with partners; will work on a voluntary basis; and will make an effort to voluntarily train other women as latrine builders. Men are more interested in making a profit.

One example of a fruitful involvement of men and women, both in teaching for latrine construction and for hygiene practices, comes from Mahalapye, Botswana. In this extended village 170 kilometres north of Gaborone, latrines were collapsing. In 1990, the Ministry of Health started to teach villagers to build latrines. Since then, latrines have not collapsed. The initiative also involved health and hygiene education for men, women and children (Rajeswary, 1992).

In a project in Nepal, female sanitation volunteers were trained during a five-day programme on technical aspects of the construction of latrines and on how to incorporate hygiene practices and be able to share the new knowledge and motivate the community for the use of latrines (Morgan, 1992).

Training women in water technology

Over the last ten years women's training for the *installation, maintenance and repair of handpumps* has seen a universal growth. This was mainly done from a perspective of programme efficiency and effectiveness, because women, rather than men, visit pumps more regularly and so benefit directly from proper maintenance.

Training of women caretakers as part of ongoing government programmes commenced some years ago in several countries.

In Sri Lanka, Sarvodaya Sharamadan, a national NGO, trained women to *manufacture* and repair pumps (Iddamalgoda and Dharmasili, 1987). Criteria for the selection of participants for the training were: age between 18-25; intermediate education; ability and interest for the work; and physical fitness.

In Indonesia, the introduction of PVC handpumps was made easy after the community had been informed of their characteristics, cost, credit conditions, maintenance, spare parts supply among other information. The NGO Dian Desa informed both male and female heads of households about technological aspects and the characteristics of PVC pumps. This allowed the families to choose the technology they preferred. Preventive maintenance such as greasing, fencing and roofing was mostly done by women, while the men did simple repairs. An evaluation of the maintenance training showed that all felt that it was useful and half had passed on their skills to other pump owners, neighbours and family members (Sudjarwo, 1988).

In some cases, training women can be shown to have more positive results than the training of men. Because *women are more interested in having 'their' handpumps* functioning properly they are *careful in repairs*, and projects will therefore favour the training of women.

A field manual for male community organisers, produced in Balochistan, Pakistan, is meant to help community organisers to implement water and sanitation projects in poor communities. It is interesting to note that community men are the target group at all steps of the projects. Women are target groups only when it comes to construct latrines and wells and installing handpumps. However, *men listen to women's views on the design and siting of pumps before making final decisions*. But both men and women receive hygiene education about safe water sources, use and storage (Water and Sanitation Cell, 1994).

In Uttar Pradesh in 1994, a scheme for training on operation and maintenance was implemented when the pilot project had shown the *benefits of technical training for women*. This aimed at training caretakers for checking and monitoring the above-ground status of the handpump and its surroundings, and promptly reporting defects to those concerned. Initially, the project focused on the training and establishment of caretakers for every handpump. In a second phase, the handpumps installed were reviewed for rectification of defects and upgrading of drainage facilities and disposal of waste water. Finally, caretakers were selected on the basis of specific criteria from handpump based committees; up to 1996, more than 90 percent of the 4907 caretakers were women. All were trained, focusing on safe water, hygiene awareness, environmental sanitation, and the duties and responsibilities of the community, the committees and the caretakers as well as demonstration and hands on practice in preventive

maintenance. Training also included the motivation of the community to raise their own funds and manage them to meet the expenses of maintenance (PSU Foundation, 1996).

Women trained for managerial tasks

Although women are informally involved in the local management of traditional water sources, when an external project comes into the community and water or improved sanitation are provided, women are often excluded from management tasks. In such cases, it is important to obtain the support of local leaders to involve the women in local planning and train them for *managerial tasks*.

Topics for this training would include: *personel and basic accountability, functioning of service and tariff setting, water committee statuts and legal documents, preventive O&M, reporting on construction, drinking water regulations, contracts*. Women also need to be trained as *members of water and sanitation committees*. However, it is sometimes culturally more acceptable for female members of local committees to be responsible for women-specific tasks such as *health aspects, water/ facilities use aspects, communication, collection and financing*.

Experience has shown that there is little training on any of these issues. A workshop conducted by the ILO and INSTRAW identified the following gaps in training: management and suspension of service connections, financial management and control; employment and supervision of local operation and maintenance staff; linkage with sanitation and health education activities; and accounting for services to users or rate payers (ILO/Turin Centre et al, 1991).

One example comes from Honduras, where SANAA, the national water and sanitation service, trains women of water committees on financial aspects, and from Guatemala, where the NGO Agua del Pueblo organises training for local water committee members on record keeping, basic accounts, planning, communication and leadership (ILO/Turin Centre et al, 1991). In Niger, women members of village water committees receive financial training, both as treasurers of water committees and as kiosk holders. Women are preferred as treasurers than men and their training is essential (Niger -Ministère de l'Hydraulique et de l'Environnement, 1992).

In India, the Gujarat State Government and SEWA, a Gujarati NGO, are working together to strengthen gender in local water management. The authorities initiated a dialogue with NGOs so as to make this a more attractive field for them and to motivate and enable village women to demonstrate their high interest in water through practical achievements. In several cases, schemes committees were formed with two women and two men. Female members from various groups are given proper representation and take part in training (Barot, 1994).

Special management training for members of local management committees is being developed in water supply programmes. In Chile, the national rural water supply programme had compensated for the lack of training and expertise in local management by involving social workers to give on-the-job training to water committees. This had quite a successful result: after seven months, the local water boards were able to solve their problems, related among other areas to administration and finances (Luz Alvares, quoted in van Wijk, 1985).

In Dodoto region, in Ethiopia, the national women's association assisted women to become involved in more than just digging. One hundred women have been trained in management and technical skills, and gained practical experience in these tasks during the construction of a gravity supply scheme for 48 villages (van Wijk, 1985:64).

As for training in water and sanitation technology, high male migration may also mean that women should be trained as operators and managers.

Women's access to training

Practically and strategically, women face a number of constraints to taking part in training. Experience teaches that such constraints, when recognised, can be overcome.

Opposition from male relatives to the training of wives and daughters has generally been overcome by **obtaining support from male leaders** and by **involving husbands** in some of the activities. Van Wijk (1985) gives examples of activities to encourage support from husbands and male leaders for the training of women:

In Maswa District, Tanzania, women returned home after training with new ideas and methods only to meet opposition and resistance from their husbands. When such opposition exists, it is recommended that alternative approaches are used. In Maswa, husbands were encouraged to attend the course. Or at least come occasionally during the day to see what their wives are learning" (van Wijk, 1985: 92).

Other possible ways of overcoming opposition include the preparation of *flyers* showing benefits for fathers, encouraging of the elderly and more experienced men to be advisors of a mother's club, preparing a ceremonial dinner for husbands at which the purposes of the programmes are explained; or having proud husbands accompany their wives to a formal graduation ceremony at the end of their course (van Wijk, 1985: 92).

Campaigns could also help in sensitising both men and women to the importance of involving women in training, as well as in the implementation of projects and on operation and maintenance. One such campaign was organised by the Ministry of Social Affairs, Public Health and the Status of Women in Togo to sensitise both female and male leaders to the importance of having women as pump caretakers and as treasurers in village committees. Results were stimulating, as 60 percent of pump-caretakers are now women, half of the members of village committees are women elected for this function, and women participate in income-generating activities in the villages (Boucher, 1987).

When women have to **travel** in order to receive training in a distant location, problems related to their security and child care have been overcome by organising **group travel**, as in a project in Bangladesh; using teams of two women and one man in Pakistan; decentralising training courses to village level in Tanzania; and providing child care facilities at training centres in Nigeria, Guinea Bissau and Swaziland, so that women can take their children along when going to far away training courses (van Wijk, 1985: 77, 115). Alternatives to travel with children would be to contact male relatives or influential village leaders for permission for women to travel and make further arrangements for child care in their villages during their absence (van Wijk, 1995).

When it is important that training has women participants and there is resistance from parents to allowing **young women to participate**, a gender-sensitive approach will be most helpful. In a training for handpump manufacturing and repair by Sarvodaya Shramadan, a Sri-lankan NGO, an important constraint was the initial reluctance of parents to send daughters for training. To overcome it, a **public demonstration** of learned skills was made at the opening session of the training. Seeing that trainees learned new and useful skills which could be used

to solve problems, parents were more enthusiastic about sending their daughters for training. (Iddamalgoda and Dharmasili, 1987).

Is it easier for *younger or older women to be trained to work?*

Training young, unmarried girls as field-workers has the advantages that they have a higher level of education and are more mobile, but usually older women have more authority. In Saver, Bangladesh, young unmarried women are generally accepted and in the face of local taboos ride bicycles to bring primary health care services to distant villages. On the other hand, in Samoa and the Dominican Republic older, less educated but more experienced women staff were more successful than young women who had more formal training but lower credibility and greater social distance (van Wijk, 1985 p:76).

Locally trained women and men may have a more effective approach in communicating with communities. They are more sensitive to combining the knowledge they acquired with the ways and languages communities are used to. In Tanzania and Guinea Bissau, promoters who had received training in other locations were considered arrogant by the villagers and accused of using a too theoretical approach to health education. After such a negative experience in Guinea-Bissau,

alternative training for village women were implemented..... and health education was replaced by joint work of promoters and village women in vegetable gardens, in doing the laundry and in preparing meals with much better results (van Wijk, 1985:76).

Another problem which used to occur in Guine Bissau was that when joint male-female promotion team approached villagers, these were addressing more the man than the woman promoter.

As a result, the male promoters were taking up their tasks more easily and the female promoters made little progress. Once the female promoters became more secure in taking up their tasks after training and discussing the issue, the male and female promoters became equally effective" (Visscher, quoted in van Wijk, 1985:77).

It is now a criterion to be enforced for the recruitment of 'animadores' in Guinea Bissau that they come from the place where they are going to actually work.

If women, for one reason or another are not to be trained for managerial tasks, operation and maintenance, they can be asked to indicate who are the most suitable men to be trained. This happened in a project in the Philippines, where inequality in access to education has been reported by the Philippine Country Report on Women, 1986 - 1995, prepared by the National Commission on the Role of Filipino Women (Ybañez, c. 1995).

In a number of cases, neither the women nor their male relatives want women to be trained together with men. They prefer to receive training separately in an effort to ensure that they occupy decision-making roles within the project, and also retain control over project outputs. The International Labour Office gives this as one of the reasons for the existence of a women's component in a more general project. Also, due to the fact that generally women receive less

formal education than men, they need additional training in order to be able to participate as equal partners (International Labour Office, u.d.)

Gender in training and training methods

When community women will not participate in training as the men will, separate training for men and women may be one solution. More gender in training and training methods that give women more chances to take an equal part in learning sessions is another solution found in a growing number of programmes.

A participatory approach is of help as well. In Tanzania, the Traditional Irrigation Improvement Programme (TIP) uses different participatory training methods: discussion in small groups; role-plays; pictures; games; etc., where the more shy participants get a chance to speak. Men and women are equally represented in TIP training, and extra training for women is organised if they need help to catch up with the men. Women in training should realise they have already many skills, that their opinion is valid and should be given a more positive self image (Grift, 1995).

Gender awareness is raised not only by formal training. There are many other channels or possibilities for introducing gender awareness. For example, when women participate in ***monitoring or evaluation***, depending on what is being addressed and with which objective, they may realise their own situation, their position in relation to men, their possibilities. The activity can be an eye-opener.

One example comes from Bogotá, Colombia, where women living in low-income urban areas participated in research aimed at finding out how they overcome their problems regarding lack of public services and proper housing. Initially, women mentioned that lack of water, proper housing, health services, proper light or energy and their negative impact on the health of children were the main problems. During the evaluation process, women concluded that they also faced main problems. such as no right to the ownership of their houses, no opportunities to express their own opinion, no possibility to participate in decisions concerning the planning of their space, no egalitarian distribution of domestic roles, no leisure time and no training for women (ENDA América Latina, 1990).

Monitoring and evaluation can also be tools to provide the women's themselves with information on their situation, to better integrate them in water and sanitation and in mainstream development programmes and projects, aiming at equity, shared benefits, project efficiency and empowerment alongside men. For that, indicators for monitoring and evaluation should be gender-specific and go beyond an assessment of conventional benefits for women; they should include information on access to and control over resources, and decision-making and leadership; changes in status in the community; changes in work situation; possibilities to sustain achievement; and possibilities to apply awareness and skills developed through the water supply project in other areas of work and influence (Ploeg and Van Wijk-Sijbesma, 1980).

Participatory evaluation with a gender angle will assess whether and to what extent project resources and benefits reach both men and women. An example is evaluation through village maps, or photographs taken at various stages of the project, through which both men and women can analyse their roles and activities in the project. Participants see themselves and understand from which activities the one or the other was excluded, when they were overburdened, etc. In one workshop organised by 'Promotion of the Role of Women in Water and Environmental Sanitation Services' (PROWESS) (Narayan, 1993:108) such an exercise

led to a reconsideration of the exclusion of women in the agency training programme as technicians.

A thematic evaluation on the integration of women in nine rural projects financed by the European Development Fund revealed that, although women had prime responsibility for water collection, projects were having a negative impact on them. Due to their increased work load, participation in the projects was not beneficial for women. The evaluation also revealed that, to avoid this negative impact, women should be involved in the planning and siting of water facilities. One of the nine projects which took this into consideration, carried out in Swaziland, showed a clear improvement in functioning and reliability of water facilities. The collection of gender-specific data, using females as interviewers, contributed to planning for special activities to overcome existing barriers to women (Versteylen-Leyzer, 1991).

Surveys undertaken to supply evaluation processes with information may also contribute to change behaviour and improve understanding about health and hygiene. In Nepal, female sanitation volunteers undertook a survey of community habits of water usage and sanitation. Questions and systematic observations facilitated the process and the findings were shared with the community which resulted in improved behaviour (Morgan, 1992).

Development or popular theatre may be used as a gender-specific sector training tool. It has proved an effective means to raise gender issues and develop positive attitudes with both staff and villagers in a culturally acceptable manner.

“Drama and theatre practices are common in Africa as a means of education. ... Many women’s self-help groups use drama and theatre as a means of awareness raising on gender issues and to sensitise women for their basic rights. In these performances, women are invited to express their views through songs, story-telling, dancing, playing roles. Health and education appear as themes in such activities and theatre is seen as an important means of education and dissemination of information among the most deprived: it uses the language of the people to promote health care, hygiene, agriculture, birth control and even political lobbying for both rural development and urban programmes and it is widely used to reach women” (Levert and Mumma, 1995:).

In India, the *performing arts* play a role in a number of water supply, environmental sanitation and hygiene programmes. Since the 1950s, theatre has been used in India, first by government as a means to spread its own development information and concepts and to persuade people to adopt government-promoted policies and programmes. In the 1960s and 1970s, a new form of theatre emerged, when students began to tour the country and help people in villages to organise their own theatre groups. Extension workers also used theatre to transmit messages to villagers, but without the participation of the villagers themselves. A more effective theatre appeared when extension workers and adult educators helped villagers to put on their own performances. Traditional theatre performed by villagers is carried out in thousands of villages to promote better water and hygiene practices. However, much segregation of women is still noted in Indian popular theatre performances (van Wijk, 1995a).

Theatre and drama offer an entry point for the discussion of gender, of more equal decision making among men and women, and a change in gender roles in water, sanitation, health and hygiene. Gender aspects, which the prevailing cultures do not allow women to voice openly in public, they can voice through traditional forms of theatre. Thus, women in Tanzania, through theatre and dance, made public that women are doing the physical work but not getting the

access to a water project, and raised the issue of girl pregnancies in schools (Mlama,). For that, gender should be taken into account during the planning of scripts, which should come after a gender situation analysis (van Wijk, 1995a).

In Northern India, the PSU Foundation has stimulated theatre performance in villages as a means of effective participation of the community for the improvement of hygiene behaviour regarding water use and sanitation. Women can more easily attend art performances based on traditional culture than formal village meetings. The language used is easily understood and new gender concepts and roles are part of the performances (van Wijk, 1995b).

In Uttar Pradesh, the local theatre group in the water and sanitation programme performed a play on how lack of literacy enabled a father-in-law to exploit his daughter-in-law's position. Another addressed women as being mere figureheads for husbands for election purposes. Both plays were based on real life experiences (van Wijk, 1995a; van Wijk, 1995b)

Theatre has been used as a tool for health promotion in projects in Mali and Canada. In Mali, the main issues were worked out and sketches designed to enable rural women to receive information and discover ways to change their situation and improve living conditions. Also, due to their respect among both women and men, birth attendants were brought to courses where theatre was used and helped disseminate information. In urban Quebec, Canada, theatre was used as a means of treating taboo themes among women such as AIDS and safe-sex (Seguin and Rancourt, 1996).

Role-play is also being used in higher levels of education and training. The Department of Sanitary Engineering of the International Institute for Infrastructural Hydraulic and Environmental Engineering (IHE) in Delft, the Netherlands, convinced of the inefficiency of lectures as a method of teaching in general in universities, and due to the complexity of the water and related issues - economic, environmental, social, legal and institutional aspects needed for integrated planning and design - decided to search for new approaches (Blokland, 1997). These training tools provide excellent opportunities to bring up discussions on gender.

It can be difficult for women to overcome barriers imposed by a male-dominated society and be able to express themselves during conferences and other public events where decisions are taken. An interesting initiative to guide women in decision-making processes in development programmes and to break through gender stereotypes was taken by the United Nations Development Fund for Women (UNIFEM). Together with the United Nations Non-Governmental Liaison Service (UN-NGLS), UNIFEM prepared a handbook, 'Putting Gender on the Agenda: a Guide to Participating in UN World Conferences' for NGOs involved with women's issues and project development, who are interested in influencing UN international conferences through women's participation. It gives information on UN conferences and suggestions on how to improve NGO inputs on such conferences. It is a special document for training women in advocacy for women's issues and in influencing decision-making at international level (UNIFEM and UN/NGLS (1995).

Employment and work after training

Can women apply their training and will they continue to work? How can they use skills and knowledge acquired in training in their work?

There are training activities for women which provide them with tools for their future work. This stimulates them and helps them to initiate their work after the course. Other courses may provide loans, so that women can make the initial investment in tools or equipments they need for their work. One example comes from Swaziland, where loans from a revolving fund were

offered to participants so that they could acquire equipment and raw materials. Also, advice on marketing, design, equipment and production was made available (Caughman and N'diaye Thiam, quoted in van Wijk, 1985:115).

A very important result of training is to raise self confidence for better performance in the work or job. In Guinea-Bissau, extra training for female extension workers contributed to self-confidence in working with village authorities (van Wijk, 1985:77).

In the Tharu tribe, India, 15 women were trained in the tribal area of Lakhimpur Kheri for the installation and maintenance of the India Mark-II handpump. The female superintending engineer who began the training made sure that the women trained would be able to work by asking them to indicate themselves which handpumps in their direct environment they could manage to maintain and repair. Thus, while some mechanics looked after two pumps, others might maintain as many as nine or eleven. The women live in an area with a matriarchal system, get a fixed remuneration from the state water authority Jal Nigam for certain types of repairs and can further work as private mechanics in their village. The course has been expanded to other districts (Sharma, 1989).

In Lesotho, the National Sanitation Programme results from a successful pilot latrine-building project, organised by UNDP and reported by PROWESS. Men and women were trained as latrine builders in a two-week training session and received an official certificate after completing six demonstration latrines built to rigid specifications. Those who graduated can also use the skills acquired for other construction work and have started small businesses. It is important that, when skills are being taught and job opportunities provided, it is not just men who seize the opportunities. Female latrine builders and health workers have an important role in the Lesotho Village Water Supply Project (Kinley, 1991; WaterAid, 1995).

In a project for slum improvement in Kirillapone, Sri Lanka, participation was difficult due to the differences in background and work of the residents, and animosity existed. Training and the acquisition of skills for construction proved a tool against animosity and favoured collaboration among the various groups, especially among women. At first, women did not register for training for construction work. Only men did. But when a registration form especially designed for women was distributed, 58 women applied. The women trained used the skills acquired for jobs near their homes. Many more women were employed as unskilled labourers and learned the skills on the job. Women received the same wages as men and soon formed the majority of the labour force; some became team leaders. The social condition of women improved (Muller, 1991).

A woman mason's training programme in Kerala, India, trains women for block making and latrine building.

During training the women have been already able to make Rs. 45 per day, as compared to Rs. 25-30 when they were still a mason helper. Their earnings increase when they gain speed through practice. Other benefits reported by the women are: less hard work, no more scolding and blame; regular work (previously there was no ongoing programme and they were fired between jobs); treated as skilled crafts people by the householders; offered refreshments and food by the households; and increased respect from men, but also some jealousy" (Kurup et al., 1996).

Participants in the courses on plumbing given to women by EMOS, the public water company of Santiago, Chile, declared that the course has changed their lives, that they feel more independent and are able to generate income for their family through services they render to neighbours. The water company also sends leaflets and brochures containing technical information, for example how to economise water and make simple repairs, targeting all members of the families and ultimately involving also husbands and children (Raquel Alfaro, personal correspondence)

Trained women might also encounter resistance from their partners. Many times husbands do not like their wives to be trained but the women find their position has changed when they start to earn income after the training. Most unmarried women continue the work after their marriage with their husband's consent (ILO/Turin Centre et al., 1991).

A balance should be found in the training of women for paid work, as the training of women alone, excluding men, has been shown to be counter productive.

3.2 A gender balance in training

When training is exclusively offered to women, negative impacts may occur: men are left outside and feel jealous; men will challenge the authority of women, all work is left for women who are already overburdened; and men withdraw from their training responsibilities, indicating that water supply is a women's issue. In the Tanzania Rural Water Supply Project (Mjenga, et al., 1992) one factor which affected training of women as village committee treasurers was "male chauvinism". In a rural water project in Zambia, the staff decided to give special training courses for women in maintenance and management of the new wells. In this project:

women, as main users of the wells, would probably be better able and feel more responsible to look after them than the men. Also, the project required that at least half of the members of each village water committee should be women. However, it became apparent that many men were quite jealous of this special attention to women. They boycotted the election of able women in the water committees, and tried to prevent as much as possible women's participation in the training. It has been difficult for the project to break through this pattern. Discussions with men and women revealed that the men do not regard their jealousy as a problem but rather as something natural, whereas the women stated that they suffered very much from it (IRC, 1994:19).

In a project in Machakos, in rural Kenya, on the other hand, women felt that their participation in projects was not sufficient due to their lack of knowledge and skills. On their request, the Diocese Development Programme in 1979 started training women. Women were encouraged to plan and set up their own projects, do the monitoring and the evaluation. However, after some years, women felt that their husbands should also participate in training. The women thought that they needed to exchange ideas with their husbands for the benefit of the projects (IRC, 1994:20).

A pilot experience of the Community Water Supply and Sanitation Programme of Sri Lanka showed that training should be based on a gender approach, reaching men and women and that the mobilisation of women alone is counter productive. The conclusion was that a gender balance should be promoted through training at all levels and gender awareness training programmes were launched with some positive impacts (Fernando, c. 1997).

In the TIP programme mentioned in the section on 'Gender in training and training methods', five of the six modules of the training manual are meant for **both men and women**. The idea is that it would be of little use to address only women, as a more equitable division of labour benefits both men and women. Role-plays mobilise women to participate in and ensure their benefits from development activities. The plays focus on the equal participation of men and women and the value of the equality for women and men. Legal rights issues are raised and related to gender and the benefits both men and women derive from legal rights (Grift, 1995).

Men and women should be trained for what they can do best and for what will best suit their and their children's needs and situation. This requires a conscious, open-minded choice, as there is quite often much prejudice against women getting training for new functions they are called to undertake, and stereotyped ideas about the kind of tasks women and men should be trained for.

In the 1980s, although projects were training men and women based on the existing division of labour and responsibilities, as reported for example in projects in Guinea Bissau (Visscher, quoted in van Wijk, 1985:69,182) and in Togo (Hoffman, quoted in van Wijk, 1985:69), training for new roles was already needed:

Village teams consisting of one man and one or two women were trained as voluntary caretakers. The men were responsible for technical tasks, such as lubrication and fastening nuts and bolts, and the women for site hygiene and user education. In other cases, women have been trained to do all preventive maintenance and sometimes simple repairs. The latter was already due to high male migration and mobility and linkage with a women's project organisation (van Wijk, 1985:69)

For a gender-balanced training it is not sufficient to have the same number of male and female participants if women do not have a say. For example, training women in water committees will not necessarily contribute to balanced female and male benefit in projects, if women do not participate in meetings or decision-making. This happened in Iringa, Ruvuma and Mbeya regions, Tanzania, where the election of mixed committees did not lead to a better representation of women's interests, as they were excluded from committee meetings. The equitable siting of taps and equitable management was achieved only after having closer co-operation between trained community workers and the committees and technical field staff, and support to the women committee members by a women worker. Women were also trained, and became effective participants in the committees. The involvement of men and of formal leaders was found necessary particularly for men-specific environmental activities and tasks (United Republic of Tanzania et al, quoted in van Wijk, 1985).

When women and men are called to perform new roles, their training should accompany this shift in their situation. This may occur, for example, when women are needed for more technical or managerial tasks and men are called to work in non-technical tasks. A project on rural water supply and sanitation in Bangladesh recommended more co-operation between the water sector and health service and more training, including women's involvement, and a more structured programme for motivation and education to further increase the effectiveness of the male technicians in non-technical tasks (Abdullah and Boot, 1989).

3.3 Effectiveness of gender sensitive training

Does gender sensitiveness have an impact, and if so, on what? Theoretically, a gender balanced approach will have an impact on longer term sustainability; tasks, roles and responsibilities for maintenance, management and financing are more equally shared. It will

improve the position of women because it will focus on both their practical and strategic needs. As a result of a gender balanced training, men and women will develop their work in complementarity.

There is some evidence that gender awareness raising through training and education changes attitudes to women's participation on a more equal basis. In Sri Lanka, men participated in the same ratio as women in the training workshops led by the NGO Water Decade Service in Ratnapura District, after a first effort at awareness raising on gender issues. An elderly village ex-authority, who was a very active participant during the training sessions, later confided that he, as a man of higher position, had always considered that men and women were equal or that women could do things as well as the men but that so far he had never felt secure to publicly express this view (Fernando, c. 1997).

Education and training of both male and female household members has proved necessary for the better use and maintenance of facilities, contributing to the sustainability of the interventions. Recognising this reality, in Kerala, India, the Community Managed Sanitation Programme provides two types of education and communication activities for both male and female household members: a three to six month period of general mobilisation, organisation and demand creation, with a range of activities such as group meetings, exhibitions, health camps, films and street drama; and three sessions or 'classes' held with the families who install a latrine. Each session focuses on a specific topic: health, technical aspects maintenance and use (Kurup et al., 1996). EMOS, in Santiago, Chile, also makes an effort to reach all members of the household through the dissemination of messages through water bills.

The effectiveness of gender balanced training also depends on how participants use the skills and knowledge received. This is influenced by the attitudes of both men and women in the community. In Karnataka, India, one year after having received training, female caretakers did not undertake technical tasks, only cleaning and giving instructions to users. Technical tasks were done by the men, who found themselves more suited (Devi, 1988). The community was not involved in planning and was not informed about the tasks of the caretaker. The community agreed that women should also do technical tasks, but did nothing about it. In Uttar Pradesh, on the contrary, the scheme to train more female mechanics proved more successful and was expanded to several other districts. Not only was the community involved in planning the maintenance system, but the pilot project was carried out in area where the women lived in a matriarchal system and could themselves indicate the area within which they were free to move and maintain pumps. Moreover, they got a fixed remuneration from the state for the repairs and could further work as private mechanics (Sharma, 1989). The result is a maintenance system that is more effective at a lower cost to the government (Sharma, personal communication).

In Bangladesh, it was recommended that for each hand pump a woman and her husband or a group of women users (at least two) be trained as caretakers once the evaluation of the system had shown that a gender approach had equally good mechanical and better environmental results (Laubjerg, quoted in van Wijk, 1985:70).

4. Training of male and female field, project and agency staff

A gender impact study for the domestic water supply programme of Morogoro, Tanzania indicated that there is a wide variation in gender attitudes among project staff members, ranging from open hostility to keen interest and commitment to contribute to the improvement of the programme from a gender perspective. When commitment existed among officials and implementors to work under a gender perspective, skills for that purpose were lacking. Female officials and implementors were generally more personally committed and excited about producing transformative changes (Bolt, 1994).

As this is quite a common situation, several programmes have included a gender course or session in their training for the sensitisation of staff on gender. But a positive attitude towards gender among staff is not sufficient. It is also important to know how to apply a gender approach in a water supply and sanitation project. One way of doing this is through organised workshops. These could take the following basic steps:

make arrangements for a workshop for staff sensitisation, invite all participants and if necessary a workshop moderator; assess participants' knowledge and sensitivity concerning women's involvement and gender through exercises, brainstorming or open-ended questions; put up conclusions deriving from the discussions; analyse the job description and responsibilities of the staff members and jointly identify where women's involvement and a gender approach need particular attention; review the various tools and methods available for a gender approach with the staff members and identify abilities and skills needed for using these tools; identify areas for further training by comparing the necessary abilities and skills with the existing capacity (Bolt, 1994:20).

Besides awareness raising, gender training at agency level may be effective in supporting advocacy for gender issues by staff who receive such training (King and Hill abstracted in Jongepier and Appel, 1995; Bruyn, 1995). It is therefore important to involve staff in decision-making positions, intermediary levels and field workers, in such training. In Palopo, South Sulawesi, Indonesia, training was organised in the Pompengan Integrated Area Development Project for 22 male and female office heads and staff from the Directorate of Rural Development, Food Crop Service, Irrigation Department, Family Welfare Movement, National Land Agency and Agricultural Extension Service. The objective was to make participants aware that project results can have different repercussions for men and to women; how to use gender analysis and how to better involve women (Bogaarts, 1991).

In the Philippines, the Central Visayas Water and Sanitation Project (CVWSP) is emphasising the need for gender analysis training for staff as well as contractors. To implement its gender strategy, the CVWSP conducts workshops for gender analysis and awareness involving rural sanitary inspectors and project engineers, local government representatives, NGO staff and CBO members. Also users' groups are involved in gender training, and community leaders are involved in gender sensitisation activities. For the latter, one representative of each target village is trained and provided with a training kit for his or her own work (Ybañez, c. 1995).

A project in Indonesia has developed a training package on women's roles in water and sanitation. The package has been used to train village leaders, female workers of the national

women's programme and female water managers (Sumbung, 1990). The Helvetas-supported rural water projects in Northern Nepal hold classes on women's involvement with district engineers, chairmen of village development committees and technical field staff (Helvetas, 1991).

In order to make staff more gender conscious, the Morogoro/Shinyanga Rural Water and Sanitation Programme in Tanzania produced material for the participation of women in a rural water supply and sanitation programme. The material was produced on the basis of a field study as well as a literature review on women's participation. A workshop was held for the staff, who carry out a gender-specific needs assessment and baseline study in a village, using villagers as respondents as well as interviews (Morogoro /Shinyanga Rural Water and Sanitation Programme, c. 1990).

The HESAWA programme in Tanzania has a manual for the organisation of training on gender awareness of its staff. Issues focused on are: the concept of gender; factors which contribute to gender imbalances, such as division of labour and access to/control over resources; the significance of gender awareness in socio-economic development; the difference and relationship between women's involvement and gender; and possible solutions to problems arising from gender imbalances. Each chapter calls for a reflection of the programme and analyses it from a gender perspective (HESAWA, 1991).

Besides the positive attitude and skills needed to apply a gender approach, field staff should be appropriately trained in ways of communicating with community members. Role-play and field visits were the most effective methods used in training women promoters in the Buba Tombali water project in Guinea Bissau. Women promoters needed more time and effort to participate on an equal basis with men in the extension work (Visscher, 1982).

The presence of both male and female staff in teams helps to implement a gender approach. The current Improve Programming through Communication, Mobilisation and Training - project (IPC) in Guinea Bissau was launched with the training of a group of 20 sector professionals, from which the project's core team was chosen. Most of the course participants were men, but the core team was later formed by three men and two women (MEIRN et al., 1996) in an attempt to improve the gender balance.

4.1 Improving gender balance among staff

Staff trained on gender will link the agency's policy on gender to practice in the field. In other words, it will make agencies' gender policies operational (Wakeman et al., 1996). For that purpose, it is also important that staff are trained both on gender issues and on participatory techniques so as to involve men and women in a balanced way.

On the other hand, the absence of a gender approach in trained staff may well have negative consequences. In Nepal, a woman engineer supervising a water supply project suffered from lack of proper co-operation from administrative staff due, to their lack of awareness of the importance of the roles of women as well as those of men in the project. She also suffered from junior technical staff who disobeyed her and harassed her work. This behaviour meant a set-back to the project. An investigation by higher authorities and the villagers revealed that the woman engineer's work was being well done (Joshi, 1992). This specific case is further mentioned in the section on 'Higher level education and training curricula'.

The IRC International Water and Sanitation Centre in the Netherlands offers gender training for staff going to work in the water and sanitation or related fields. However, if only female

staff are sent for gender training, 'gender' turns out to be 'women's' business. Involving male staff in gender training contributes to improving the gender balance in projects and the future training of community members. In the last three years, approximately 60 percent of the participants who attended IRC's gender briefing programmes were men.

Agencies emphasise the need for technical skills in recruiting staff, instead of valuing social and managerial skills and the ability to communicate with community members (van Wijk, 1985). However, the increase in decentralised services and the need for users -- men and women -- to participate in the operation and management of community-based projects has led to a shift in the recruitment of staff by water supply and sanitation sector agencies. This, is occurring in Brasilia, Brazil, where the Condominial Sewerage Programme of the municipal water company is giving more attention to the recruitment and training of staff interested and motivated in working with communities, rather than to technical skills (Borba, 1996). As many of these staff are women, the balance between women and men in the water sector has undergone a shift.

At present, the Department of Animation and Sanitation of the Directorate General of Natural Resources in Guinea Bissau, has 43 extension workers, of which 60 percent are women. This is considered the minimum percentage of female extension workers, who do most contacts with women in communities. The extension workers are also active in low-income urban areas; in giving follow-up and in the improvement of the decentralised O&M system, which includes hygienic use of water and water points; and in giving follow-up to projects after the installation of pumps. The extension workers receive training in technical aspects, in hygiene education and social mobilisation through communication (Silva, 1996).

When gender imbalances are recognised, agencies may make an effort to achieve more equity. In Sri Lanka, (CWSSP, c. 1997), for example, the male:female ratio in the head office and regional offices of the Community Water Supply and Sanitation Programme (CWSSP) is 80:20. In the technical section the ratio is 77:23. At a managerial position the CWSSP has one female for each three male regional directors. The staff of CWSSP partner organisations, generally local NGOs, are 65 percent male and 35 percent female. In these organisations, 44 percent of community facilitators are women. However, in the whole of CWSSP, women engaged in social activities (as opposed to technical activities) represent only 19 percent of the staff. The CWSSP will further investigate what special constraints exist for female field staff to operate in CWSSP projects and how they perceive the advantages and disadvantages of female field staff vis-à-vis male field staff operating in the villages.

4.2 Less stereotyped staff roles

Besides a better balance in staff roles - men gradually taking up social roles and women taking up technical roles - one can also note a shift away from gender-stereotyped training. Technical training for water supply and sanitation is being given to both male and female community development workers or promoters as show the cases below.

In Guinea Bissau, in 1993, 177 pump mechanics had been trained, of which 98 (55 percent) were women. All village level pump mechanics are trained to maintain the pumps in their own villages. Villagers prefer to have female pump mechanics because they have a direct interest in the well functioning of pumps and, as opposed to men, do not emigrate. Although village pump mechanics are not paid for their work, they are performing in a satisfactory way. Pump mechanics who are supposed to work at regional level are chosen first in a meeting in their own villages and then in a regional meeting the final selection is made of regional level pump mechanics. Regional level mechanics are men, who are paid for their work, receive a bicycle, tools and an initial set of spare parts. The reasons for choosing male and not female regional

pump mechanics are that they have to travel by bicycle and carry heavy loads (Werff and Visscher, 1995).

In the Ramgoti Intensive Sanitation and Hygiene Promotion Programme in Bangladesh, much attention was given to the training of the village sanitation motivators, the VSMS, who form the backbone of the programme. The selection criteria included literacy, status in the community, communication skills and enthusiastic commitment to improved sanitation and hygiene practices. More female than male VSMS were recruited. They received pre-service training on the promotion of safe water, sanitation and hygiene, interpersonal communication and community mobilisation. The training was repeated after some months of field work. The field sanitation supervisors, FSSs, one woman and six men, received basic training, covering programme orientation, promotion and use of safe water, sanitation and hygiene practices, techniques of interpersonal communication, community mobilisation, planning supervision and monitoring (Boot, 1995).

Earlier experiences already showed the need for a less stereotyped role for field workers and staff. In Malawi, in the 1980s, male and female technical assistants were getting on-the-job training in community motivation and organisation. In Malaysia, rural health supervisors were trained for nine months in health education, minor water supplies and various types of waste disposal. They were then assigned to 10-12 villages, to organise water supply action committees and design simple systems.(van Wijk, 1989).

From the literature reviewed, it seems that these examples of a less stereotyped role in the water supply and sanitation sector occur at community and project level, and in agencies among staff at intermediate levels. The question is now how are men and women being prepared for level positions, for higher level decision making.

5. Gender in sector higher level sector education and training

The training and education of girls and women for new responsibilities, roles and decision making helps them meet their practical and strategic needs (Doyle, 1995). As agents of change, it is important that they have access to all levels of education and attain educational qualifications (United Nations Commission on the Status of Women, 1995). This will not benefit the girls and the women alone. It will also benefit boys and men, as it will ultimately contribute to a better living for families, with positive consequences for both sides.

In the sector labour market, wages are in general related to the type of training and education received, and it is reasonable that both women and men have the possibility of benefiting from a valued position. Besides,

gender inequality is not only a matter of justice but of good economics as gender inequalities hamper growth (World Bank, 1995:21).

Although a gender balance begins to occur at the lowest level in the water and sanitation sector, women are also needed at municipal, provincial and national levels of decision making and policy development, a sphere where they are little represented. A recent example comes from the Global Water Partnership Consultative Group meeting held in Marrakesh in March 1997. Of the 115 participants, only 15 were women. This is a common situation at international fora where representatives of leading water organizations are present, and reflects a lack of gender-balance in decision making at higher levels (Athukorala, 1997).

Equal representation of women at higher levels of planning and decision making on water resources distribution and management will not only ensure that the interests of women are represented also at the higher levels, but will also positively influence the reinforcement of gender equity, breaking down of gender stereotypes, the promotion of education and employment for women and the optimal use of female intelligence, skills and ability to work in more scientific, technical and managerial functions. Increasing female enrolment rates in higher level professional training and education will help to lead women to higher levels of influence in the sector.

In many countries women are better represented in universities than men. This happens in many cases in Latin America, West Asia, the Caribbean and many developed countries (Goutier, 1995). The question is: is this sufficient? This section gives some insights into the gender balance in higher level sector education and training.

5.1 Gender balance in higher level sector education

For a gender balance in participation and decision making at all levels of the sector, both men and women should benefit from education at all levels, and should be able to choose careers which lead them to decision-making positions. The situation of female employment and work in the water supply and sanitation sector reflects the areas and levels of education women choose.

An example from Africa is the distribution of jobs in the water supply and sanitation sector of Botswana. Here, very few women undertake technical training and they therefore lag behind in technical skills. Women mainly do clerical jobs which give virtually no entry to higher level positions with decision-making power (Simpson-Hebert, 1993). A study recent study

(Botswana Ministry of Education, 1994a) shows data on the male/female division of jobs in the water sector:

Table 3. Male/female job division in the water sector of Botswana, 1994

Number of workers	Water Utilities Corporation		Department of Water Affairs		Department of Geological surveys		Local Authorities	
	F	M	F	M	F	M	F	M
Administration	98	266	147	39	1	1	18	32
Workers	1	237	3	1960	2	26	198	1330
Artisans	0	65	1	83	2	8	4	57
Technicians	18	53	2	90	0	5	2	55
Professionals	8	27	5	40	1	15	0	8

* The figures for *Department of Geological Survey* include only those directly involved in the water sector.

Source: Botswana Ministry of Education, 1994 a.

These data also reflect the gender balance in engineering schools and other areas of training and education in Botswana. While women are concentrated in intermediate level administrative jobs, men are concentrated in the more senior positions. The study reveals that in Botswana women are under-represented in the water sector, especially in technical and managerial positions.

Recognising this omission, the Ministry of Education has taken an initiative to raise public awareness on the importance of men's and women's work in the sector as technicians and engineers and produced *Work with water : a guide to careers with water, waste water and environmental protection* (Botswana Ministry of Education, 1994 a). This document introduces the water, waste water and environmental protection sector to secondary level students who are about to choose a career. It shows them the importance of working in the water sector, the importance of the sector for development and how to start work in the sector. The guide states that the most important element for a successful career in the water sector is the commitment to the job and the job's responsibility, which both men and women can have. It also presents positive examples of women working in the sector so as to encourage female participation, and promotes the taking up of scientific subjects in school by girls. It challenges female students to pursue careers in the water sector by presenting profiles of two female professional women and a female technician in this field.

BOX 6: The need for both men and women in jobs available in the water supply and sanitation sector

Choosing a career is not easy when you do not have enough facts. Some people say that certain jobs are for men only, and other jobs are for women. The truth is that there are many different types of jobs, and if you are good at mathematics and science, you have an advantage because there is a very great need in Botswana for people with those skills. It does not matter if you are male or female - what is important is that you have the skills, the knowledge and a good attitude to your work.

Careers which deal with management of water (careers in the "water sector") can be very interesting. Clean water is important for both human beings and livestock. Proper disposal of waste water and solid waste is part of this process, because if it is not done properly it can make the water dirty.

If you are good in science and mathematics, this will help you understand how to equip a bore hole or decide what a village needs for its water supply.

Whether you are a man or a woman, you may find a career which suits you. All you need is enough determination to set your goal and go for it (Botswana Ministry of Education, 1994 a:4).

Other attempts are being made through government policies to enhance the participation of women in higher education and in the disciplines previously meant only for men, such as engineering and informatics. An example comes from Oman, where women's presence in all male jobs, from police agents to engineers, is increasing. Schools and universities are free in Oman, which stimulates the participation of girls and women in the educational system. (Nobis, 1996). As for women from other regions, also Arab women value non-gender stereotyped training, which will lead them to better careers. This has already happened in the late 1970s in Morocco, where a non-formal education programme targeted at young urban women was started with the support of the Ministry of Labour. The aim was to integrate young women in industrial and commercial activities. Training was given in the Commercial and Industrial Training Centres of Casablanca and Fez on construction and industrial design, business education, electricity and electronics. When vacancies for female trainees were announced, the training centres received more applications than they could handle and many were refused. The women trainees were very enthusiastic about the training, especially in electricity and electronics, and received the support of their families (Harfoush, 1981).

5.2 Higher level education and gender biased curricula and choices

Although much is being done to increase the participation of women in all types of high level courses, gender bias still persists.

Curricula in higher levels of education and training still tend to be gender-biased, especially science curricula: science textbooks do not related to women's and girls' daily experience and fail to give recognition to women scientists (United Nations Commission on the Status of Women, 1995). Moreover, young women who enter college in fields such as mathematics and engineering usually lack a strong basic education and technical training and are competing in a male-dominated circle of students, with few role models among women scientists and engineers. Their opportunities for success and employment are very limited and they have to struggle harder to achieve equal performance.

Advanced study in science and technology prepares women to take an active role in the technological and industrial development of their countries, thus necessitating a diverse

approach to vocational and technical training. Technology is rapidly changing the world and has also affected the developing countries. It is essential that women not only benefit from technology, but also participate in the process from the design to the application, monitoring and evaluation stages (United Nations Commission on the Status of Women, 1995)

Even in countries where women attend university in the same level as men, fewer women study science and engineering. The lack of women in more technical professions can have negative consequences particularly in the field of water supply and sanitation (Rodda, 1994).

In a country like Brazil, where more than 70 percent of the population is concentrated in the urban areas and there is a great stimulus for the participation of both sexes in all levels and types of education, the rate of enrolment of women in some universities is higher than that of men. In 1992, 53 percent of all university and college students were women (Souto-Maior, 1993). However, it is very common for women to choose studies and careers which are not valued in terms of position, salary and decision-making, either by society or by the women themselves. Women may stay on in Universities for a higher degree because there are fewer job opportunities for them after they graduate. In the School of Public Health of the University of São Paulo, 738 women and 455 men participated in the Master's Degree and the PhD Programmes between 1973 and 1995. However, there were fewer women in Environmental Health, which includes Sanitary Engineering, a career with much higher salaries and status than for example 'Nutrition', 'Mother-and-child health' or 'Epidemiology', where women are much more represented than men. Figures 1, 2, 3 and 4 (Lavieri, 1997) show the number of men and women in these four programmes.

Figure 1: University of São Paulo - School of Public Health - Post-graduate students in Nutrition - 1973-1995

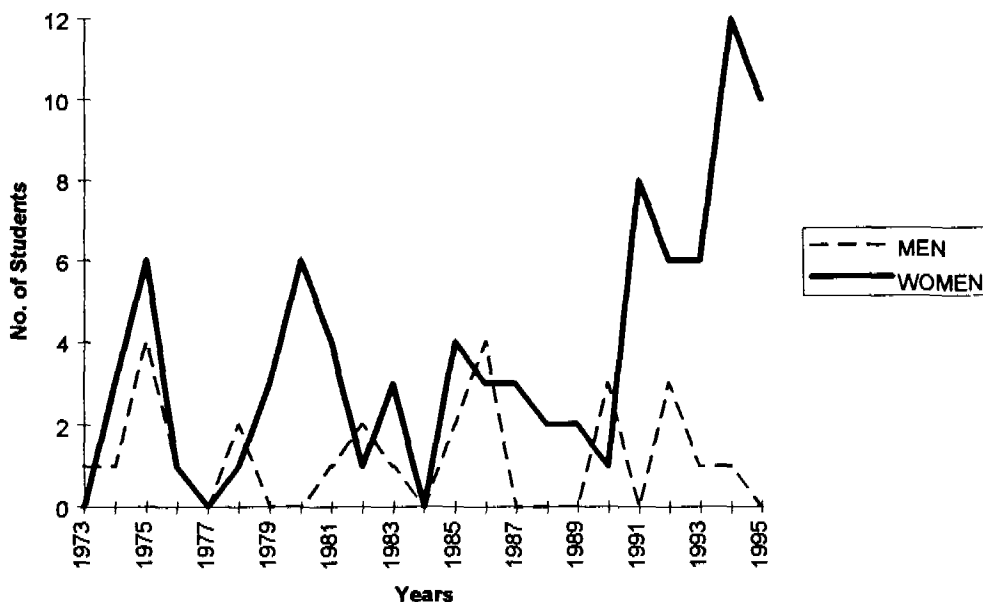


Figure 2: University of São Paulo - School of Public Health - Post-graduate students in Mother-and-child Health - 1973-1995

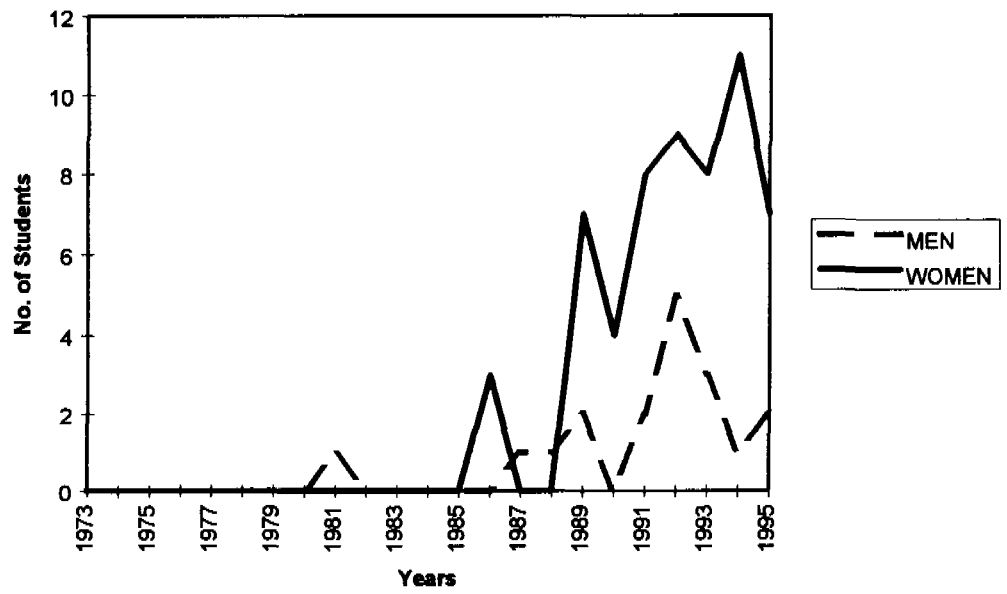


Figure 3: University of São Paulo - School of Public Health - Post-graduate students in Epidemiology - 1973-1995

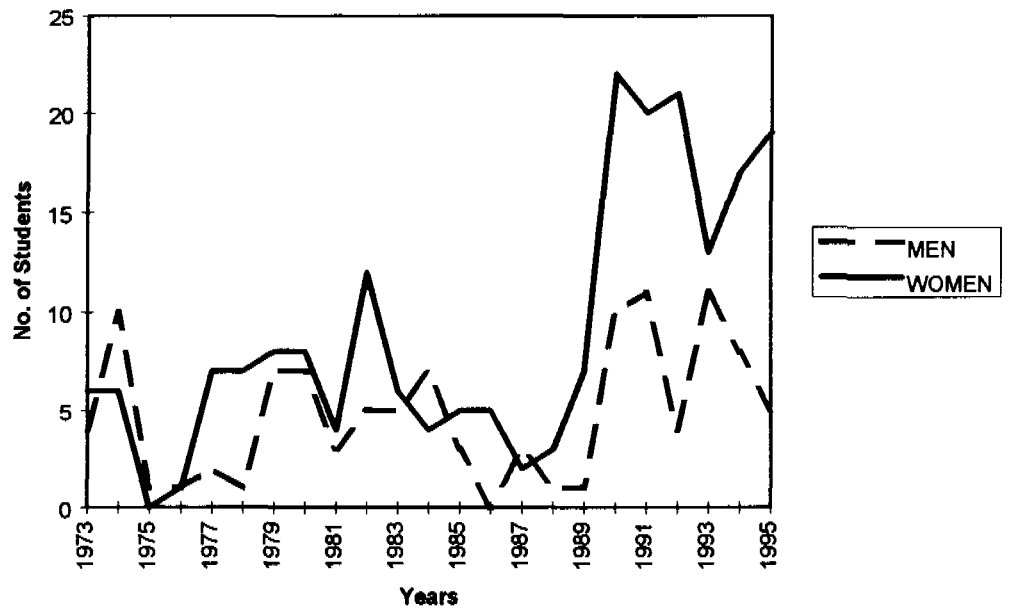
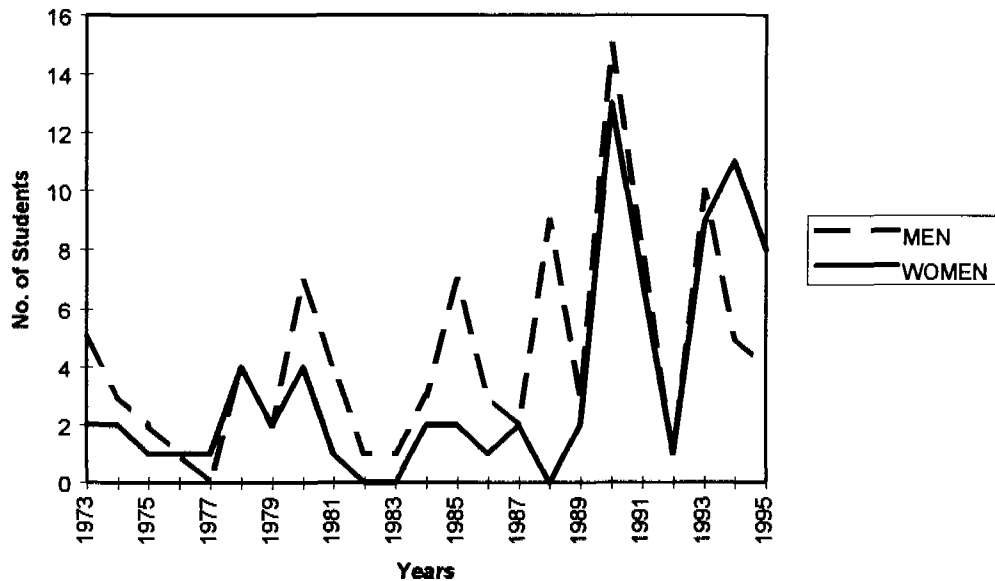


Figure 4: University of São Paulo - School of Public Health - Post-graduate students in Environmental Health - 1973-1995



In Asia, where an increasing number of women enter the technological labour force due to the increasing demand for skilled personnel, few women hold senior management positions. To help ameliorate this situation, the Asian Institute of Technology (AIT), in the Philippines, attempts to promote a greater role for women in technological development, by giving them the opportunity to pursue an advanced education in technical subjects. In January 1997, approximately 25 percent of the student body at AIT were women and this percentage was rising. Research on issues that contribute to gender discrimination is being conducted in AIT's Gender and Development Studies Centre. To raise awareness of gender issues among male students, the AIT is sensitising them on the importance of respecting female intellectual contribution (AIT REVIEW, vol. 36, 1997).

In Nepal, there are only three or four number female engineers working in the water subsectors such as rural water supply, irrigation, and hydropower. The cultural belief in Nepal is that a woman cannot do an engineering job, physically or socially, so families are reluctant to send their female members for study and work in engineering (Joshi, 1992).

5.3 Men and women in sector international courses abroad

Throughout the 1980s, the percentage of women in courses offered by the Water, Engineering and Development Centre (WEDC) at Loughborough University in the United Kingdom remained around 7 to 8 percent. Exceptions were the higher percentage of women (35 percent) taking the Water Analysis and Quality Diploma and the lower percentage (less than 3 percent) in the Upgrading and Management of Urban Water Supplies course. The authors concluded that these variations may be attributed to the fact that for women it is socially acceptable to work in a laboratory, while managerial tasks are considered to be more suitable for men (Bell and Ince, 1991). Asian women in particular participate in the Water Analysis and Quality Diploma course. This course requires higher education, including specialised training in laboratory techniques, and participants are exposed to more sophisticated technologies. On the other hand, the Community Water Supply and Sanitation Diploma entry requirements place greater emphasis on practical experience at grassroots level. Female participants in this course come mainly from Africa. Aware of the importance of managerial skills for both men and

women and in order to improve the gender balance at managerial level, WEDC organised a new course for women managers of technology. However, this course had a low response perhaps due to the competition from other such courses in Europe, and the trend towards establishing similar courses in the countries themselves. Other factors influencing the low level of female participation may be the lack of support from their families for the participation of women in courses abroad and the lack of positive attitudes in their working environment, which prevent more women to take courses, as well as the birth and caring for children which may interrupt a women's career (Bell and Ince, 1991).

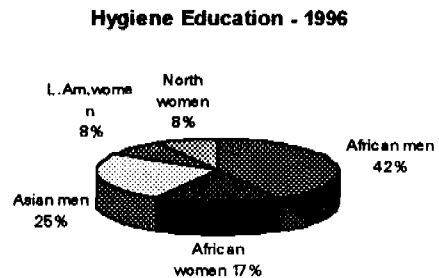
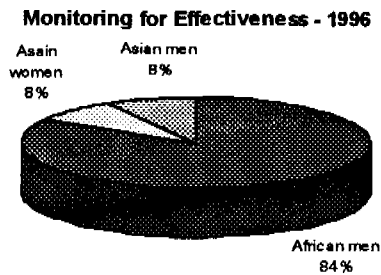
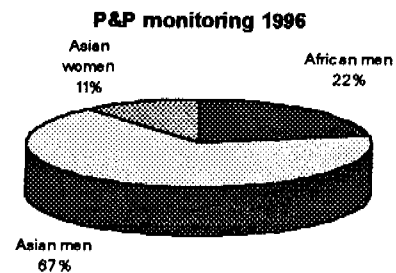
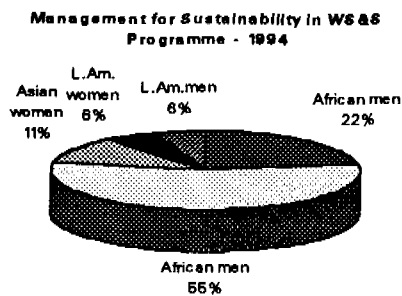
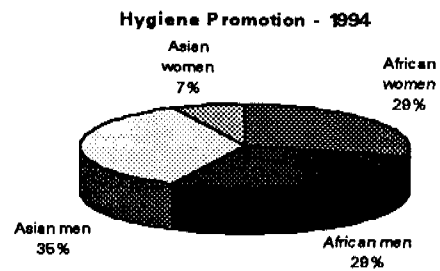
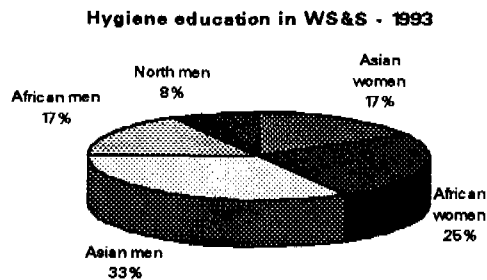
Women are under-represented (approximately 12 percent) in all the Engineering Departments of the Loughborough University, which supports the idea that engineering is seen as a male domain.

As engineers, women usually confront the beliefs of male colleagues that the profession is inappropriate for them since it entails arduous work in the field. However, since participatory approaches involve discussion at community level, women engineers may also be valued as communicators with women beneficiaries in particular (Bell and Ince, 1993:).

Technical and managerial positions are not done better by either women or men; both can perform adequately in such positions. As women are much less represented in these categories, their number should be increased so as to combat discrimination against women within organisations and to ensure a more gender-aware perspective in environmental health programmes (Vance, 1993).

WEDC is undertaking research to identify the training needs of engineers and will develop field tools and training materials to encourage engineers to consider gender in their work in development and relief, especially when related to water and sanitation (Sarah Harse, personal communication).

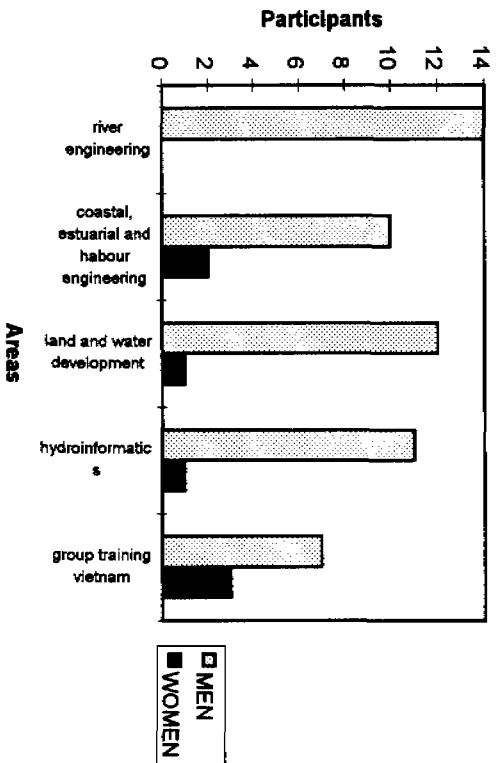
The short courses held at the IRC International Water Supply and Sanitation Centre in The Hague, Holland, and those carried out with partner institutions abroad, all tend to have much higher participation by men than by women.



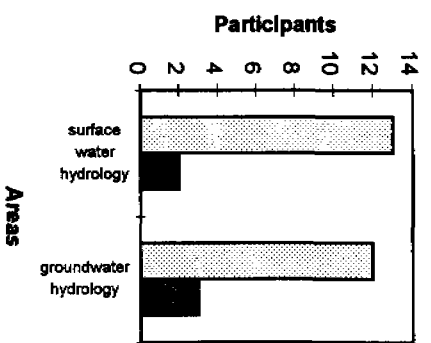
However, the proportion of male participants is much higher in the courses where management is the main topic - e.g. in the 'Management for the sustainability of water supply and sanitation programmes' and 'Monitoring for effectiveness' courses - than in the 'Hygiene Education' and 'Hygiene Promotion' courses. IRC is planning to offer a course 'Management for Sustainability' for women in the future.

Also in Holland, the International Institute for Infrastructural, Hydraulic and Environmental Engineering (IHE) courses were attended by a much higher proportion of men than of women during the Academic Year 1996/97. In the IHE courses, the 'engineering' component predominates. Attendance by men and women in IHE courses is illustrated below.

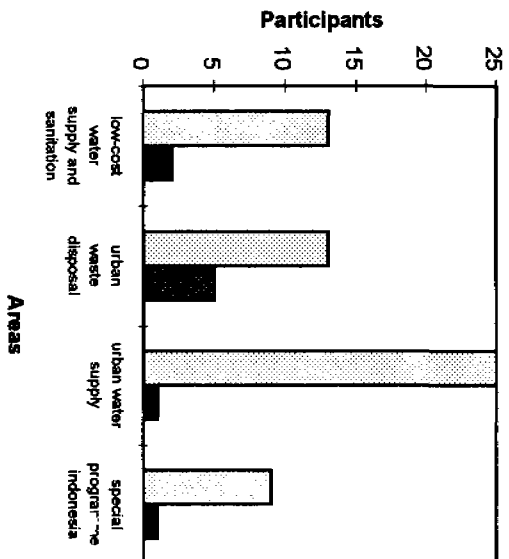
IHE Hydraulic Engineering 1996/97



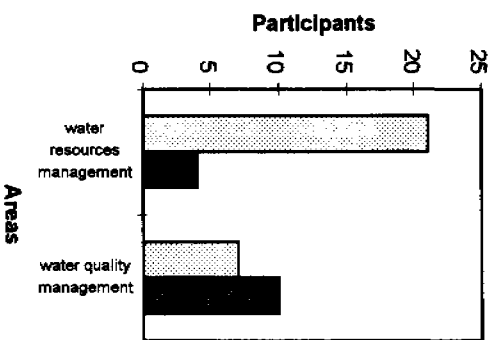
IHE Hydrology 1996/97



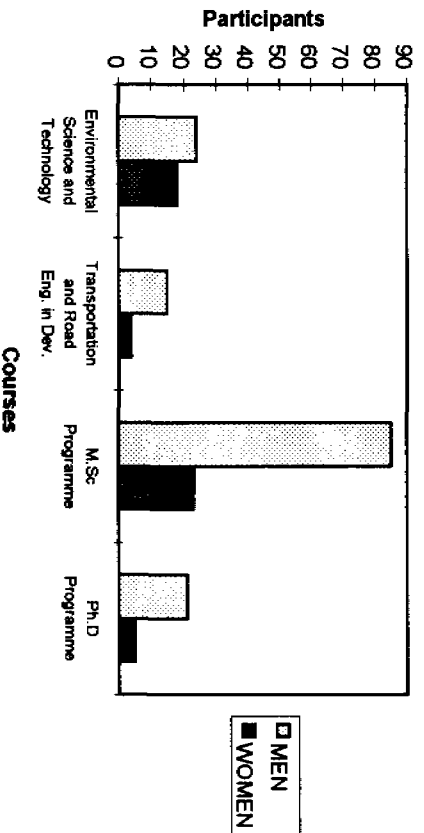
IHE Sanitary Engineering 1996/97



IHE Water and Environmental Resources Management 1996/97



IHE Other Courses 1996/97



The introduction of a non-biased gender curriculum would reinforce the role of women in higher level education and training for water supply and sanitation. Some recommendations for that include: strengthening the gender expertise of staff in existing education and training institutes for water supply and sanitation; preparing and adding new course material which is not gender biased; encouraging the presence of female trainees in these institutes by paying them or giving them subsidies; giving priority to trainees coming from deprived areas in terms of water supply and sanitation; establishing a quota system for in-service training of women; and providing facilities for the accommodation of women trainees; increase training in technical, managerial, agricultural extension and marketing areas for women to increase income-generating opportunities, support and develop gender studies and research at all levels of education, especially at the postgraduate level of academic institutions, and apply them in the development of curricula, including university curricula, textbooks and teaching aids, and in teacher training (INSTRAW, 1988; United Nations Commission on the Status of Women, 1995).

6. Gender in Health and Hygiene Education

The existence of a water supply system with appropriate treatment, and its operation, maintenance and management by community members who are willing to pay for the water they get, are essential components for the efficient provision of good water. However, this alone is not enough for sustainable service. In Felicidad, a village close to Cali, Colombia, for example, the good management of the water supply system is threatened by factors of a different nature: a lack of improved hygiene and sanitation and the pollution of the water supply by the existing sanitation and the use of water and land. Ignoring these factors may jeopardise the community effort as health is threatened (van Wijk, 1997).

Considerable evidence exists that, for an impact on health, improved sanitation and hygiene are essential (Boot, 1991; Boot and Cairncross, 1993; Burgers et al., 1988; Esrey, 1994; Esrey et al., 1990; Esrey and Feachem, 1989; Murre and van Wijk, 1995; Van Wijk, 1997; WHO, 1993; WHO, 1993a).

According to the World Health Organization (WHO), 80 percent of all infectious diseases in developing countries are a direct consequence of non-hygienic water and sanitation conditions and practices (WHO, 1993a). While water has been the centre of attention for the last two decades, hygiene and sanitation have lagged behind. Yet, for the reduction of diarrhoea, one of the main causes of child death, better sanitation and hygiene are the most important factors, followed at a distance by the augmentation of water quantity (above the basic amounts needed for health) and an improved water quality (Esrey, 1994).

Disposing of young children's excreta, preparing food, preserving drinking water, hand and face washing, personal hygiene are part of the traditional roles of women in the home. However, hygiene practices cannot be improved without also raising the awareness and changing the practices of fathers and children. This section examines the roles of female and male household members regarding hygiene practices, and how a gender balance in hygiene education and training can stimulate better hygiene behaviour.

6.1 Women and girls as principal target groups

Since safe disposal of children's excreta, clean food preparation and clean water drawing and storage are so essential to health, the recognition that women, and in many cultures also girls, have major roles to play in effective promotion and adoption of better hygiene practices is not surprising. Hence women tend to play a growing role in the planning of hygiene education programmes and in their implementation.

Women in planning of hygiene education programmes

Components of environmental education and health education are often integrated in environmental development projects. However, it is essential to assess the real needs of the community concerned before deciding on the nature of such a programme and the respective roles of men and women and of boys and girls. Inventories of risky conditions and practices and their underlying reasons from the perspective of the concerned groups - not from the perspective of the external health educator or researcher - are a pre-condition for the design and the effective planning of health education programmes (Gadkari and Shah, 1993). To be successful, a hygiene education programme has to focus on human behaviours, and understand them in their social, cultural and economic settings (Boot and Cairncross, 1993). When women take an active part in assessing such behaviour, this also serves as a learning tool for water management and sanitation.

In Nepal, for example, in a programme aimed at improving sanitation and hygiene behaviour, female volunteers undertook their own survey of the community's habits of water usage and sanitation. Through questions and systematic observations, they then shared their findings with other women with good results in improved behaviour (Morgan, 1992).

Although in assessing hygiene conditions and practices and the underlying reasons open discussions with women are essential, husbands often do not permit their wives to express their own knowledge and views in their presence. It may therefore be important to have separate sessions with men and women, whether this concerns participatory field assessment, focus group discussions or more conventional surveys.

In general, a gender approach is needed to enhance the participation of both men and women in needs assessment, on the choice of acceptable and affordable solutions, on the design and location of facilities, the choice of the technology to be used, and on their construction and financing, as levels of authority and expertise of men and women in these areas differ (van Wijk, 1993:9).

Programmes of hygiene and health education using only an academic approach or consisting of lectures on what people must or must not do are usually not effective (van Wijk, 1985). On the contrary, more participatory techniques to reach target groups of women, men and children in a more efficient and effective way. There is an increasing number of innovative and participatory techniques, which are geared towards getting a picture of local life styles and behaviours by gender, socio-economic class and age, agricultural seasons and tasks of men and women, flows of resources, and needs and interests.

The Participatory Hygiene and Sanitation Transformation (PHAST) technique aims to promote hygiene behaviours, improved sanitation and community managed systems in a participatory way. Its first requirement is that the community is aware and understands the importance of having improved hygiene and sanitation for better health. Through this methodology, community members are guided to realise by themselves the contamination routes of oral-faecal diseases, to analyse the hygiene behaviours associated with this contamination and to plan ways of avoiding it (Organización Mundial de la Salud, 1996). This is an adaptation of the SARAR methodology for participatory learning, which builds upon the capacity of men, women and children of the communities to approach and solve their own problems. It is based on the training of field staff and the production of appropriate visual aids.

Participatory Rural Appraisal (PRA) is another set of techniques effectively used in auto-analysis, or planning and monitoring of hygiene improvements. The video Integrated rural water supply/sanitation project Karnataka : visual report shows how, through mapping their resources, villagers in India learn about their communities, and how through school sanitation and street theatre, they learn about the use of latrines (BKH Consulting Engineers et al., 1993).

In Bangladesh, PRA proved a useful tool for female village health workers to visualise and monitor their achievement (Vigoda, 1994). The use of PRA methodologies in gender analysis helps men and women understand the different needs, tasks and responsibilities in hygiene and health education. However, the use of PRA methodology does not necessarily imply that gender differences will be incorporated. This will only be achieved with a gender-sensitive trainer, gender-sensitive trainees and gender-sensitive field staff. Integrating gender in PRA has been used in training, to sensitise field-workers on gender; in research, to conduct gender-

differentiated analysis and in community development, to strive for gender-balanced development and/or support the empowerment of women (Guijt, 1994:50)

Many ideas on how to involve men and women in hygiene and health education programmes can come up also during gender analysis training, when both males and females participate, for example, by starting a discussion among the men and women on how to improve their surroundings and emphasising that the projects support the proposed activities (IRC, 1994).

Other methods have been designed to involve men and women in the identification of their needs, problems and solutions, aiming at incorporating them in development programmes and the development process. They could be used as tools for the identification of demands related to a better hygiene and a safer environment. One of these methodologies, incorporating poverty reduction, improvement of gender relations and environmental sustainability and their interrelationship is participatory demands analysis (Gianotten and Rijssenbeek, 1995). Because the demands of men and women, young and elderly, rich and poor, can be different and even contradictory, the methodology involves all these population sections in the assessment.

Women in implementation

Many families may be misinformed about the real returns from investment on health and nutrition (World Bank, 1995a). Within families, women are an obvious target group for hygiene education because they play a crucial role as users and drawers of water, as housewives, and influence the behaviour of the youngest age groups to a large extent, as mothers (United Nations Commission on the Status of Women, 1995). Women are also important actors in pressure groups for health and hygiene, because bad management of water resources, with pollution and degradation of sources, have bad consequences for them. Hence there is a need to constantly campaign for mechanisms that empower people, especially women, in terms of both knowledge and of the legal right to demand better health and education services and ecological conditions (Agarwal, 1995).

Strategies have to be developed for the effective participation of women in water resources management for domestic use and for the definition of the role of NGOs and other institutions in motivating and channelling women's potentials for their effective participation (Gadkari and Shah, 1993).

It is also recommended that, to help achieve the participation of women, it is important to have the acceptance and involvement of other community key persons like the local educated women such as midwives, school teachers, nurses and also of the male leadership and family members (El Katsha and Watts, 1993; Sørensen, 1992).

A further reason for empowering local women to implement hygiene education is that all communities have their own local learning systems which new knowledge will build upon.

Often women are the purveyors of the learning systems related to water, hygiene, primary health care and sanitation (van Wijk, 1985:16).

In many cultures and societies these are fields of female and not male expertise. Dissemination of information and knowledge and decisions concerning health, nutrition and hygiene practices take place in informal women's groups, informal individual contacts, in various practices by women (ceremonies, birth attendance, caring for the sick, caring for children and the elderly) and during collective work and chores (van Wijk, 1985:16, 17, 21, 25).

This is one of the main reasons why many projects involve women as local health educators on a voluntary basis. In Rajasthan, India health messages were more effectively spread in the women-based system than in the men-based system. The conclusion was that in raising health awareness among villagers it was more beneficial to train women than to train men (Jonsson, and Rudengren, 1991).

Recognising the importance of having women as health educators, the Ministry of Health in Ethiopia has given priority to women in health training, using the mechanism of positive discrimination (INSTRAW, 1987).

This is the case of the Women's Development Project (WDP) of CARE-Bangladesh, another rural health education project working with women education. The project trains village women who have been nominated by their neighbours as local health educators. They are given two three-day training sessions in the first year, sessions where they are introduced to the WDP interventions using participatory training techniques. Residential training is followed up and reinforced by fortnightly meetings held between WDP field staff and the neighbourhood committee members. In the first year, the health education sessions in each neighbourhood are facilitated by CARE staff, but as of the second year the committee members begin to conduct these sessions. Health messages are also transmitted to the nearby households. After four years, the committee members have a basic knowledge of health, nutrition and hygiene and are well known by the communities. Although the WDP training is intended for committee members to become health educators, the committee members acquire different abilities through the various training exercises: how to deal with villagers, the use of information for planning of activities and evaluation of their achievements (Vigoda, 1994).

Radio broadcasting and, in some cases, television have been used to reach women with health and hygiene messages and concepts, especially in areas of difficult access or where women live in seclusion. However, experiences show that hygiene and health behaviour improvement and change are better achieved through personal contacts and discussion groups (van Wijk, 1985).

Training women hygiene educators was taken up by a project in Zambia when hygiene education in the non-formal sector did not function properly. While there are a number of opportunities to deliver a hygiene education message in the non-formal education sector, such as adult literacy classes, skills training programmes in community development centres, etc., these may be neither well attended nor well supported. This is why CARE International's Peri-Urban Community Health (PURCH) project launched in Kamanga, Zambia, squatter compound, trained volunteer community health workers to conduct health and hygiene education classes as well as provide one-on-one educational interventions and support throughout the compound (Ryan, 1993).

Education alone cannot achieve all necessary changes as health, hygiene, water and sanitation are closely related to the need for appropriate infrastructure. Women trained as health promoters will thus be more effective when they are linked to technical projects working in the area. Therefore, for work with the communities, a combined field team is preferable (IRC, 1994).

Another positive link results from the combination of the work done by health and hygiene workers with income generating activities, as in the Urban Basic Services Programme in Guatemala.

BOX 7: Combination of health and hygiene volunteers work with income generating activities: a success story in Guatemala city

The UNICEF UBSP - Urban Basic Services Programme in illegal settlements in Guatemala City, Guatemala, aiming at improved health and hygiene, together with the NGO Médecins sans Frontières, and the national government, developed a Health Programme, a Water Supply and Sanitation Programme, the urbanisation programme of El-Mezquital and the Education and Mobilisation Programme. For the implementation, the technical teams worked with the communities. Each neighbourhood or zone elected a representative, all women, who, together with the residents, identified the main problems, analysed them and prepared a work plan. These women representatives were trained in medical care and designed materials for health education. A pharmacy was set up where medicine was sold and where residents received notions of hygiene and health. This raised the funding necessary to pay the women volunteers representatives and stimulate them to continue with their work. Other ventures started as a means to make revenue and at the same time to improve health conditions: laboratories, central warehouse for drugs and medicine, grocery stores and mini-markets for low-cost nutritious foodstuffs and raising of pigs and chickens (Espinosa and López Rivera, 1994).

Differentiation between women

Different groups of women need different approaches. Other important categories in health education programmes are *older girls* and *mothers-in-law*. Within families, older girls are often responsible for the transmission of hygiene practices to younger brothers and sisters. Girls can be teachers and health workers. They look after children and keep them safe. They help other children when they are sick, take care of babies with diarrhoea, take the sick to medical post. They teach how to clean teeth and body. Boys also help, although to a lesser extent. Both are therefore important target groups for certain improvements in hygiene.

When older children are regular water carriers or contributors to human pollution by their excreta disposal habits, they may become a special target group. Small children are always a target group since they are poor latrine users and will drink any water available (van Wijk, 1989).

In some cultures additional attention may need to be paid to the female head of the extended family, e.g. the mother in law (Grady et al., 1991). Although it is the younger women who do the work in these families, the mother-in-law is the gatekeeper for all changes in health and hygiene knowledge and practices and expects to be treated with courtesy. In Tanzania, mothers were not willing to spend more time in washing children's faces to avoid trachoma. They feared that husbands and mothers-in-law would criticise them for the time they would use in face-washing and not in productive activities like growing food. They also feared being criticised by their neighbours (McCauley et al., 1992).

Poor women are those who in general have less time to take part in hygiene education activities, as they spend much more time on water and fuel collection than wealthier women who may have more containers to store water and more help for domestic chores. Also, poor women often work as seasonal peasants or in the informal sector. Also these women have less resources to improve hygiene. Hygiene education projects have adjusted to this, combining hygiene education work with income generating activities, such as making and selling soap as, for example, in the village water supply programme in Niger (Nibakure and van Wijk, 1996)

or the programme for collecting, selecting and selling solid waste in Recife, Pernambuco, Brazil (Arrais, 1993).

Motivated and trained health staff

To train local women in health and hygiene education interventions, health staff need to be competent, motivated and have a positive attitude to empowering and working with women, rather than addressing them as a teacher in relation to pupils. This will increase the interest of women, men, mothers, children and residents in general for new concepts and messages. In Bangladesh, when the Health Assistants were uninterested and treated mothers with disdain, the mothers were not interested. The motivated village sanitation motivators (VSMs), on the contrary, were much more effective in reaching mothers (Boot, 1995).

Female, more than male, health staff have power to influence hygiene behaviour in other women. The 'Coalition for Women's Health', in Palestine, is a task force of female physicians and health professionals brought together by UNDP which aims to offer Palestinian women a more comprehensive health care programme. The underlying premise is that, in order to lead a full and healthy life, a woman must have access to education and to legal rights, which are considered 'links in a chain'. The coalition is now developing training manuals on treating women at various life stages, including the menopause. It will also work with school officials to provide health education for girls (Coleman, 1995).

In Egypt, a programme using a mix of health staff (nurses), public service trainees and volunteer trained female village hygiene promoters was successful in reaching different segments of the community (El Katsha and Watts, 1993). This was a motivating factor.

The payment of health and hygiene staff or extension workers has proved to be another motivating factor. In the UNICEF/UBSP Guatemala programme, women who were initially working as volunteers had to be paid at a later stage to keep their motivation (Espinosa and López Rivera, 1994).

One example of the importance of training and payment for the motivation of extension workers comes from Western Samoa. Organised traditional women's groups were very effective in addressing women in preventive health areas: refuse collection, housing and latrine inspection, supervision of the use of traditional water sources and other activities. They were guided by older public health nurses. When the formal primary health project was introduced, the responsibility for water and sanitation was taken over by paid male health inspectors, village mayors and young nurses. As a result, the women's volunteers lost their motivation and health costs and other problems increased. It was recommended that the involvement of women's organisations be revived and recognised through training and appropriate reward from the authorities (Schoeffel, quoted in van Wijk, 1985).

6.2 *Limitations to a women's approach and need for a gender angle*

Despite the fact that women and girls are the principal target groups in health and hygiene education programmes, attention should be also given to the incorporation of boys and men because of their involvement in related activities, not only in the home, but also in schools and in the professional life.

If hygiene patterns of the whole community and family are to improve, women and men, boys and girls need to be addressed and involved (IRC, 1994:77).

Failure to do so may jeopardise project results. For example, all household members should understand and accept that handwashing with soap and in running water would avoid contamination. Handwashing in a bowl by all members of the household was a social practice in Rada, Yemen, and a hygiene education programme could not ignore men and boys (Crawford, 1990).

Another reason for the incorporation of a gender perspective in hygiene and health education is the fact that women and girls already have a heavy workload. A hygiene education programme which will focus only on them adds to that burden, while it does not question the division of labour within the household. One cause of the failure to adopt better hygiene practices is the heavier workload it causes (Espinosa and López Rivera, 1994).

Exceptions to targeting only women would be the programmes which facilitate women's hygiene tasks by introducing tools that make their work easier, or which address women's financial position as well, so they have more money to practice hygiene. Nevertheless, bypassing men in situations where women are generating income may have a negative impact on women's work, for example when they have no say over the spending of this income and thus cannot use it, for example, for better hygiene.

Another reason for separately addressing older boys and men in hygiene education programmes is that in many cultures young women need the permission and support of family members higher in the family hierarchy for, for example, the introduction of different practices. Among the Gogo people in Tanzania, women would only accept to spend more water and time on washing their children's faces when fathers and mothers-in-law (and even neighbours) also supported this practice (McCauley et al., 1992).

Women and girls in general do not have power to critically address and change the health and hygiene behaviour of men and older boys in their families. Usually they can only influence the behaviour of other women and younger children. For maximum effect on health, most of the population, not just part of it, should change their critical health conditions and practices (van Wijk, 1997b).

In many cultures, men have more income than women. Consequently, men also have the control over major investments within the family. It is therefore not useful to address only women on hygiene improvements. Men have male responsibilities which should be addressed.

As fathers, men are role models for their older sons, also in health and hygiene. In several hygiene education programmes, men have stressed this themselves, and have asked for hygiene education for fathers.

As mothers, women are usually involved in hygiene education programmes as volunteers, which may represent too much work. If only male workers are paid there will be no equitable benefits.

6.3 Effectiveness of a gender approach in health and hygiene promotion

A gender strategy in health and hygiene promotion addresses the limitations and constraints that have been already described. Although programmes which one sidedly involve and burden women still abound, there are several examples of programmes in which these constraints of women are recognised and addressed, or in which the work and responsibilities are taken up in a more equitable manner.

A project in Egypt carried out by Save the Children found that the traditional division of labour in the household may have negative consequences for overall hygiene improvements. For example, the effectiveness of water filters' was neutralized by the household members who did not keep the filters covered. Therefore, project staff suggested that the men also receive health education, the traditional area of women (Douglass et al, 1994).

Gender assessment analysis reveals women's overburdening so that measures can be taken. In the Boucle du Mouhoun hygiene education project in Niger, a gender specialist has done a task and need analysis of women and men and in the next hygiene education cycle men will be addressed on male tasks in latrine construction and well protection. The programme also uses peer education by one male and one female voluntary hygiene promoter in each neighbourhood. They visit compounds of neighbours to promote specific hygiene changes on which they have received training. They also monitor hygiene practices before and after the intervention, to know how well they have done. When the hygiene behaviour of men needs to be changed, they should be addressed separately by men. Another reason to address men is that responsibilities for changes in household hygiene behaviour does not fall on women alone, but is culturally divided between men and women. A strategy for a gender approach and the equal participation of men and women in the hygiene education programme has therefore been designed. It consists of the following steps:

1. At the training or supervision level, the hygiene education team members are trained on gender aiming at sensitising them for gender aspects.
2. The Health and Social Promotion field workers and the Information, Education and Communication Service are trained on the concept of gender and how to use it in problem solving. After the training, participants are, in principle, able to use a gender approach in their work at village level. Participatory methods are included in the training.
3. The field workers train village teams (one male and one female volunteer per neighbourhood) on the need to consider social constraints in undertaking project activities and the need to raise the awareness of men to work with women.

At village level, the field staff also sensitise the leaders, both male and female, to further sensitise other community members on hygiene behaviour change (men talk to men, women to women). Women are sensitised for self-esteem and to be aware of their role in household hygiene. Men are also sensitised because they are responsible for families and are decision-makers on particular issues, including finance. Awareness-raising includes the need of delegate some responsibilities to women which enables them to implement behaviour changes. Where needed, staff will work with men and women in separate groups, taking into account the responsibilities of each group and its particular hygiene behaviours. Women are assisted in generating income for the acquisition of cleaning material; men are sensitised to the need and benefits of allowing their wives to undertake income generating activities. Staff also use women's and men's gatherings to bring forward hygiene messages and concepts. Men are asked to engage themselves directly or indirectly in activities such as repair of pumps or well improvement, and to commit themselves at this level, as a model for hygiene behaviour for boys and girls (Francis and van Wijk, 1997).

An example of a health education programme with parents and pre-school children using a gender approach is the Father's Club in Lagos, Nigeria. The Institute of Child Health of the University of Lagos set up a Fathers' Club at a clinic in a low-income area of Lagos. The aim of the club was to enlist the support of the fathers in improving and maintaining the health of

the family, with particular reference to mothers and pre-school children. Between 30 and 50 fathers met monthly in the evenings. The fathers ran the club themselves. At each meeting there was a talk by the clinic staff and time for the fathers to discuss clinic activities, raise issues and make suggestions (Hubley, 1993).

Where women need special arrangements to participate in programmes, the same may apply to men. The 1992/1993 Ramgoti Intensive Sanitation and Hygiene Promotion Programme in Bangladesh aimed at reaching every family through house-to-house visits by the village sanitation motivators (VSMs). Since men usually work outside the home during the day, special seminars were held for male members of the households in the evenings. In these meetings the VSMs took up the same issues they had dealt with during the household visits. Female VSMs often found leading these seminars difficult and appreciated support from their field sanitation supervisors (FSSs). The involvement of men in sanitation and hygiene improvements in the houses turned out to be very important, since women were constructing home-made latrines and if men did not participate from the beginning they would not agree nor be co-operative in using them (Boot, 1995).

An earlier example of a successful gender approach in a community development sanitation and hygiene project comes from Tonga in the Pacific. The project, which had a hygiene education component, started in two villages and was boycotted by women when the men's committee excluded them from discussion of the community survey results and the planning of a village action programme. Although men were heads of households and financially responsible for the family, women had a very high status and decision-making power. Learning from this experience, the agency staff involved both the women's health committee and the men's water and agricultural committees in another village. This led to a successful piped water supply and sanitation project, with total latrine coverage and satisfactory maintenance. This approach turned out to be highly successful and has been replicated in another 18 villages (Fanamu and Vaipulu, quoted in van Wijk, 1985:61).

6.4 Socialisation of boys and girls in health and hygiene

The *World Health Report 1996* designated diarrhoea as the second cause of mortality among the ten biggest killer infectious diseases in 1995. Diarrhoeal diseases (including cholera, typhoid and dysentery), which are spread mainly by contaminated water, hands and food, killed 3.1 million, most of them children (World health, 1997). Non-contamination of water and food will depend on clean hands, clean storage, washing of food and plates, safe disposal of faeces. Children are the first concern in a hygiene and health education programme, especially young children.

The family and the socialisation of boys and girls for hygiene

Socialisation of children for hygiene and health starts at a young age, in the home. Part of gender-sensitive education for mothers and fathers involves discussing also the responsibilities of boys, not just girls, to use latrines hygienically, not to mess around with traditional wells and other public health facilities, and to take their share in cleaning facilities and looking after the hygiene of younger brothers and sisters. This is not only a mother's business; men may also educate their children about hygiene (Bolt, 1994).

In this process of socialising boys and girls for improved hygiene and health behaviour, mothers, fathers and older siblings play an important role. An example of a gender sensitive

approach is the one undertaken in a public health communication project in Guatemala, where the means to reduce diarrhoea morbidity in children was to increase handwashing before touching food (WHO, 1993). Results from research undertaken during the preparation of the education programme revealed that the father's approval was critical to adopting any hygiene behaviour changes in the home. Thereafter, an education intervention was conducted with, 150 families in the intervention group and 150 in the control group. The target audiences were primarily the mothers and mothers-in-law --those who perform the target behaviours-- and the secondary audiences were the older siblings and the fathers --those who most influence the primary audience in these specific behaviours.

BOX 8: Gender specific promotion of handwashing in Guatemala : an experiment on hygiene behaviour

In the education intervention for improved hygiene fathers and older siblings were assigned specific responsibilities: the fathers were responsible to make and install the tippy-tap (the device for washing hands under running water) and supervise the older siblings in their role, to check cleanness of infant's hands before dinner and to reinforce the mothers and older siblings behaviour by telling them that they are making the infant pretty when they wash his hands. The older siblings role was to maintain the tippy-tap clean and functioning, to motivate the father to buy soap when necessary, help wash younger siblings hands and to reinforce mother's behaviour by telling her she was making her child pretty when she washes his/her hands. The complete set of messages (on tasks, roles, responsibilities, the tippy-tap technology and its place in the household, the correct way to wash hands, the results expected) was promoted through recorded seven-minutes dramas and interpersonal communication.

Each target group was reached in the way most appropriate to ensure understanding and acceptance of concepts and messages. The mothers listened to the recorded dramas during a weekly visit to their homes by the health promoter. The mothers would participate in a contest and a first prize -a towel for drying hands- would go to those who better understood the messages. Fathers would be called for three group meetings, but individual home visits were also possible for those who would not come for the meetings. Also for them recorded dramas were used and a slide tape show, a flyer and demonstrations on how to make and install the tippy-tap. Older siblings came to group meetings where also the recorded dramas were used, the slide tape show, songs; print materials which the children coloured as support materials. The material made by the children was brought home to decorate the place where the tippy-tap was installed. The results of this education intervention programme showed that diarrhoea was significantly lower in the intervention group than in the control group (WHO, 1993).

In the Ramgoti Intensive Sanitation and Hygiene Promotion Programme in Bangladesh, fathers were criticised for leaving the hygiene training of children to mothers and older daughters, thereby failing to provide good models for hygiene practices, and for failing to take an active role in hygiene training for their children (Boot, 1995).

Schools and socialisation of boys and girls for hygiene

Schools are the next step in the socialisation of boys and girls for hygiene and health education. It is important that hygiene education in schools is not gender biased, that the work of cleaning school facilities and environment is seen as an activity to be done by both girls and boys and that parents and teachers are committed to a non-gender biased approach.. Posters, drawings and materials should recognise a gender approach and feature boys and girls working in hygiene and sanitation activities,

In Kerala, India, a school sanitation programme was initiated with age group 10-14 and was later expanded to all classes (Kurup et al., 1996). The primary objective was to inculcate good hygiene practices in young children through information sharing, knowledge and skill

developments and peer influence. Each school set up its own school health club for awareness raising and better hygiene practices, influencing the children's household members on better hygiene and the use of sanitary latrine to reduce gastro-enteritis, and understanding that the health of one person influences the health of society. From each class, five boys and five girls volunteer to participate in the health clubs. The activities include water hygiene, personal hygiene, environmental hygiene, food hygiene and home hygiene as well as technical improvement of school latrines and their use. Each member may take up different activities.

BOX 9: Experiences in the school health clubs in Kerala.

Asha, a young girl of seven years in Kannur district came happily to the headmistress. She started babbling. She chatted about her friends, about her mother and house. "Teacher now we are also having a nice toilet. And we wash our hand with soap and water after going to the toilet. You showed the films to us, that was really interesting. I enacted it at home. Everybody patted me. I am so happy"..... and on goes the chat.

Aysha, a Muslim friend of Asha has another story. She is the 'teacher' at home. After becoming a school health club volunteer, she makes sure that no one at home eats without washing their hands first. She also insists on clean clothes, clean nails and clean hair for her sisters and brothers. Even her grandmother is not spared! The schools in the Panchayats where school health clubs are functioning have a very high regard of the activities of Aysha and her friends and a lot to tell about the positive changes brought in the homes of children through the clubs.

For Razad and Arjun it is a question of recognition. During the sanitation week held in the first week of October, they had led a team of boys to clean a big heap of garbage from the nearby market. This was part of the action plan they had prepared for the year. They also visited the nearby commune where poor families live and dug a garbage pit for them. They dug a similar one for their school also. They felt proud of themselves, proud of their capacities and felt recognised - a basic psychological need was satisfied. They felt more responsible for the affairs of the school, home and the neighbourhood. (Kurup et al., 1996)

Health and hygiene education topics may be successfully introduced in the school curricula under social studies. This happened in Bangladesh, where further to that, schools were teaching girls to teach their mothers what they learned at school. Whether the girls were actually able to influence their mothers behaviour has not been investigated (Boot, 1995).

It may happen that parents and other members of the household will listen to messages transmitted by school children only when there is another source to confirm their messages. This happened in a study on hygiene behaviour in Thailand where school children were not the best agents of change if parents did not recognise their effort through other sources (Pinfold, 1993).

To overcome gender and age limitations, in the Guatemalan town of Santa Maria, fathers, mothers and children were involved in a handwashing training programme: mothers in home-visits, fathers during the fabrication of the new device for handwashing and children in schools, during school education activities (Hurtado and Booth, 1995).

The implementation of new technologies alone does not improve domestic hygiene. Improved hygiene is the result of a combination of water and sanitation facilities which make domestic hygienic behaviour easier, and a hygiene education programme which builds on the social concepts and influential persons among the users themselves (Murre and van Wijk, 1995).

When hygiene education is part of the school syllabus, as in the example of Bangladesh given above, it can happen that it gets very little attention because priority is given to examination subjects. Hygiene education is left without appropriate materials and teachers training. This happens in Cambodia and the problem is aggravated by the fact that the majority of schools lack functioning latrines and safe water sources. To help solve this problem, SAWA, an NGO active in the field of water and sanitation, in collaboration with the Education Department, started in 1992 to work on the provision of pour-flush latrines and drinking water sources (rainwater jars, ferrous cement tanks or piped water) to schools in eight towns where these facilities were lacking. The programme also included: training of teachers on basic hygiene, participatory methods of hygiene education, operation and maintenance; the setting up of school hygiene committees; the creation of a structured hygiene education curriculum and visual aids. Monitoring and evaluation revealed that although some teachers did not understand the participatory techniques and some children could not remember all the hand-washing messages, hygiene had improved, use of latrines had increased, parents were being reached through students, and the Education Department was willing to replicate the experience in other schools. An important conclusion was that when a teaching technique is introduced, much training and follow-up is needed (Peabody and Mavuth, 1996).

Sometimes awareness for hygiene and the use of improved facilities occur outside any formal programme. Examples of behaviour given by influential persons may affect hygiene patterns. An interesting example comes from Chan Kom, Mexico. No sanitary facilities existed in this village and the only method was open defecation in the bush. As early as 1970, talking about such a subject was a taboo among villagers, even among women. When, 8 years later, the villagers became aware of the existence of 5-gallon flush latrines in the bus station, the boarding school and the tourist hotel, the simple observation of this new technology, combined with the knowledge that influential persons were among its users, made defecation in the bush become a problem. Together with an engineer and social scientist, men and women chose from a range of options the facilities that would better suit their condition and aspirations (Elmendorf, 1984).

Other key elements in hygiene and health education

Whatever the behaviour to be changed, in the home or in the school, a hygiene and health education programme will have a more effective result when messages are few and simple; the hygiene behaviours should already be practised by some of the members of the community, showing their acceptability; and the behaviour change should require little extra effort or cost (Hurtado and Booth, 1995).

Such programmes should be built on existing cultural practices and practical understanding of disease transmission and of the need for improvement. Outside the school, such programmes should be supported by key-persons in the community members, project staff and authorities, and users' groups need to be involved in the choice of the technologies (Burger et al., 1988, Boot and Cairncross, 1993).

Participants in a workshop on hygiene education in Ghana concluded that

hygiene awareness and action should be integrated into all phases of the project cycle as part of the process of building community management of water supply, sanitation, and health.....Behaviour change will be encouraged by ensuring that: the community are involved in identifying and prioritising the hygiene problems to be solved and defining solutions to these problems; both men and women are actively involved in the decision-making; solutions address problems that are genuinely felt and

provide benefits that are clearly recognised; solutions built on existing cultural practices and people's own ideas on how to overcome constraints top change; solutions are realistic - practical, affordable, and do-able; solutions make life easier - do not require a lot more work or money; respected opinion leaders promote and adopt these behaviours; solutions are encouraged through incentives and disincentives (Ghana - Community Water and Sanitation Division, 1996:7).

In this process, spreading health and hygiene messages and influencing hygiene practices through communication is a central element. The next chapter focus on the gender angle of communication as a support for education and training in water supply and environmental sanitation and related issues.

7. The Sector and Gender in Communication

Communication has been understood as a social process, which helps to bring about the behavioural changes needed for improved water use, hygiene, sanitation and health education programmes (UNICEF and IRC, 1995). Communication is needed, for example, to help users make choices regarding type of technology and level of service they are willing to have, and also to maintain and finance; the location of facilities to meet social and behavioural needs; priorities in hygiene and sanitation that need solving; and to assess experiences with services and facilities and where these can be improved.

Regardless what sort of strategy is used - mass media communication through radio, TV, newspapers, bulletins, interpersonal communication, communication through training programmes or participatory learning, communication in schools or in non-formal education settings' communication through informal networks - communication has become an important component in the success of water supply and sanitation programmes. In different situations and among different target groups, different strategies or a combination of approaches will be needed.

In communication for changes in hygiene behaviour, for example, a first step to be taken is to understand whose behaviour needs to change, in what direction, and what target groups already know, believe and do in terms of water use and hygiene (Mukherjee, 1990).

This chapter examines how communication takes gender into consideration in the water supply and environmental sanitation sector.

7.1 *Gender and communication strategies*

Women, the principal users and beneficiaries of water supply services, may be excluded from giving their opinions or their participation in decisions regarding water supply and sanitation interventions may be weak. An assessment done in India at the request of UNICEF in 1988/1989 revealed that in all Indian states, except West Bengal, women's opinions were not considered in selecting the sites for handpump locations. The staff did not attribute this to a lack of communication with women. Instead they said that 'women did not come forward' or 'village representatives already represented women also', or because 'what determined the siting of drills were geo-hydrological conditions or land availability' (Mukherjee, 1990:16). As this is now changing and women are gradually being heard, communication strategies need to be appropriate to reach both men and women.

Men and women have different opportunities for communication. In many situations men are approached and know about the project before it starts, while women have no knowledge about it. This happens many times despite women's close relation to the environment. Their opinions should be heard (for awareness raising through communication) before or at the same time as other community members. Interpersonal communication and surveys of customs, traditions, etc., could bring much information and help lead women to management tasks (Gadkari and Shah, 1993). Ignoring this may exclude those who have the greatest interest in the good functioning of facilities and the operation and management of systems.

When information is passed on only to men, projects may assume that it will reach also women. This is not necessarily so (van Wijk, 1995) as many times men are not accustomed to discuss public matters with women.

While men are much more exposed to public gatherings and meetings, and to learning or hearing from project staff, women are exposed to the informal network of information they create among themselves (Braide, 1988). A study undertaken in India at the request of UNICEF on knowledge, belief and practices regarding water in rural areas showed that radio was the main mass communication vehicle in all states, followed by films and then TV. The same study also showed that 'literacy and being born male seem to guarantee higher exposure to all media' (Mukherjee, 1990:36). At the professional level, men are more exposed to networks of information (Vance, 1993).

Women are in general less exposed to public information, especially in rural areas, and have a lower level of literacy and experience with written material than men. The situation of those living in a secluded society limits them to rely on information received from other women and the radio. Other means like posters, which are hung in public places will not reach women (van Wijk, 1995).

The areas of interest of men and women may be different, yet, both need to be informed to make a decision and be able to comment on what is most suitable for them to adopt. Men and women have different areas of interest in information and communication on water and sanitation, hygiene and health, domestic and productive issues.

So, to reach men and women, a gender strategy in communication is needed. This strategy has to ensure that men and women are reached by the chosen channels and materials, that the communication covers the interests of women and men and that women and men can enter into dialogue.

Two-way interpersonal communication is essential to achieve improvements in hygiene and health related to water supply and sanitation and is most suitable for stimulating changes in the behaviour of target groups. The study in rural India already mentioned showed that school teachers are the interpersonal communicators who reach more people in all states, followed by health workers, folk media, the nursery school teachers, government officers and, finally, hand-pump caretakers, in this order (Mukherjee, 1990). Handpump caretakers were also pointed out, in a hygiene education study in Bangladesh, as the least reliable means of communicating hygiene messages (Boot, 1995).

The Indian study showed that the recall of water and sanitation messages transmitted by radio was far higher than for those sent by other means. (Mukherjee, 1990).

Because interpersonal communication limits the number of those who are reached, an alternative means of reaching larger numbers of villagers or residents in peri-urban areas are meetings, radio broadcasts and popular theatre.

Women should be informed and encouraged to participate in meetings. This can be done through village authorities, neighbourhood delegations and women's organisations. Interpersonal communication may play an important role in encouraging women to participate in meetings (van Wijk, 1985).

Even when women attend meetings, they may sit without hearing or talking due to their lack of earlier education or training, the distance at which they are placed, and the language used. To facilitate communication with women in meetings, the time and place should meet women's needs and participatory techniques should be used to involve women in the discussions. A separate follow-up meeting only for women, or separate meetings for women and men from the beginning, also facilitates women's involvement (van Wijk, 1995).

The Traditional Irrigation Improvement Programme (TIP), in Tanzania, uses special training techniques to raise the self-confidence of women to talk in public, in meetings and to participate in decision-making. The opportunity is given to women to practise expressing themselves in different situations. This is done in one of the modules of their training programme, specifically focusing on gender and communication. Other objectives of this module are to raise awareness of existing traditions and customs that hinder women's assertiveness and participation in formal debates, and to create a more positive self image of women. The module is meant for training women separately, as in general men have less problem in talking in public. Also, the programme finds that when the group is a mixed group, the danger exists that men will dominate and women will not get enough possibility to practise (Grift, 1995). Similarly, PRA activities to assess hygiene conditions and demands in Niger and Burkina Faso were best carried out in separate men's and women's gatherings. Thereafter the men invited the women to their circle, to explain their results and the women did the same for the men. This helped achieve a consensus in areas of risks and action in which both parties' views and know-how were included. (Francis and van Wijk, 1997; Nibakure and van Wijk, 1996).

Radio can be a powerful means to reach women who stay at home, as long as husbands do not take the only radio available to their work, as happened in India (van Wijk, 1989). Programmes must be applicable to the local situation, interesting and broadcast at suitable times for women. They should also use appropriate language and an accessible vocabulary. The limitation of radio is the lack of feed-back. Efforts to overcome this limitation may include community gatherings for discussions and demonstrations by trained community motivators (van Wijk, 1985).

In Kerala, India, 85 percent of the population own a radio set and a programme on water and sanitation 'Fountain of Life' was broadcast every week during 1988 and 1989. The scripts are prepared by NGOs and government departments and institutions. Listeners' questions are answered by the Kerala Water Authority. A survey of the background of listeners and their interests was done by the programme staff. Although most respondents were male (70 percent), this was not taken as an indication that women listeners were fewer. Rather, it was an indication that the questionnaires were filled out by the men. Although the project failed in evaluating the results of the programme with considerable loss of information on its achievement, important ideas emerged from the pre-studies: female listeners, farmers and the less educated and older persons found the time chosen for the broadcasting (early in the morning) very convenient. Although few women responded to questionnaires, more women than men knew, for example, about water-borne disease (Kurup et al., 1996).

Another public communication medium which reaches women and children well is folk theatre. Street theatre is used extensively to communicate health and hygiene improvements. Almost all reports on folk theatre performance omit to mention if plays are performed by men or women or both, if the contents relate to female or male stories or both, and if the spectators are men, women, or both. There are, however, several programmes where local men and women both prepare scripts and put on performances in which gender aspects are included, e.g. in Tanzania (Mlale, date unknown) and Uttar Pradesh, India, initiated by the Programme Support Unit Foundation (PSU) (IRC, 1994; Van Wijk, 1995b, PSU Foundation, c. 1996).

The aim of the PSU Foundation is to achieve effective community participation. For that, a communication strategy is used in all programme efforts. Different approaches to communication are used: posters, folders, flip charts, puppetry, street plays, songs and slogans. When it is necessary to have immediate changes in hygiene and sanitation attitudes, habits and

practices, the programme targets children as one of the primary agents of change and uses simple but striking plays. On other special occasions, a group of women from the project areas would form groups to mobilise force from within the community. They were trained in interpersonal and group communication and soon began to perform arts as a communication medium. When community members themselves performed plays on local issues they had a more lasting impact. All performances, or any other form of local art, are preceded by a detailed inventory and analysis of the existing forms and resources. The community is the main source of information (PSU Foundation, c. 1996).

The advantage of popular theatre or traditional folk performance vis-à-vis other visual aids such as videos and movies, is that it is closer to the environment and life of the people in the more rural areas.

The following are examples taken from performance in Uttar Pradesh where gender plays a visible role:

- As part of a drama about a local marriage, the men and women in the play all join hands to improve the village environment (waste disposal, drainage), so that bad conditions no longer form the reason why a girl from another village cannot marry a local boy.
- In a modern version of the Mahabharata saga, the five brothers almost die from thirst and complain that their common wife, Panchali, is not providing them with water. Panchali appears and explains she has gone for handpump repair training. She effectively repairs the pump. Meanwhile she gives technical explanations on her work and enfeebles male criticism about why repairs are not a women's job. The end of the play shows Panchali as effective water manager given water to the five satisfied brothers and the other villagers.
- Male and female actors play trees and animals in the catchment area of a water supply. Some male villagers come and cut down the trees. The animals find their water gone and cry out their thirst. The village women come and find their well dried up. The play is used to start off discussions on the relationship between water resources and environmental management and to plan corrective and preventive actions (van Wijk, 1995b:4)

In peri-urban Maputo, Mozambique, UNICEF and the Low-Cost Sanitation Programme are using street theatre to mobilise residents for the construction and use of improved latrines. Plays enhance the role of mothers as caring for the children who are sick due to unsafe excreta disposal and contamination of drinking water, and of fathers who are not conscious of the problem. Women take the decision of taking the sick child to the health centre and convince men of the importance of having a latrine.

Videos are strong tools of participatory communication for change. Taping the women's stories and work and showing it back in their villages or neighbourhoods may have a special effect on building up awareness, and is widely used by Banchte Shekhas, a women's organisation in western Bangladesh. This organisation (and, for example, the Self Employed Women's Association (SEWA) in India) has been using participatory video as a process which allows awareness raising and confidence building. People speak for themselves and are seen by themselves and by different groups inside and outside their own environment. A constant feedback is received from viewers. Proshika, the third largest NGO in Bangladesh, also uses

participatory video. Women comprise a slight majority of Proshika's membership (Stuart and Bery, 1996)

All these NGOs focus on poverty alleviation issues. As in many other countries, rural women in Bangladesh and India have very little access to information and education and participatory video is an alternative for sharing information and communication inside and outside their villages. Local women operate the video and receive training for that. They are keen to visualise their main problems and play the video back to their peers. However, in this experience, men were jealous of the women who were not only operating a sophisticated technology but were also able to show to others shameful behaviours which would not have been seen otherwise. The video could also be used by whole villages for advocacy purposes at local government level and to solve local problems. The response of viewers was that 'when people visualise the real problem they understand it'. During a cholera outbreak, one video team produced a health tape about the causes of diarrhoea. The video devoted attention to insects as a vector for spreading bacteria and showed flies on the food available from street vendors and restaurants. Community screenings of this tape educated the population about the causes and remedies for diarrhoea, but they also influenced the owners of restaurants and street shops to improve sanitary conditions because they lost their clientele (Stuart and Bery, 1996)

Television especially has been considered as having a great impact on

young people and as such has the ability to shape values, attitudes and perceptions of women and girls in both positive and negative ways. It is therefore essential that educators teach critical judgement and analytical skills) so that the youth will be encouraged to watch programmes with a critical eye" (United Nations Commission on the Status of Women, 1995:3)

7.2 Breaking through stereotypes

A gender strategy in communication not only reflects the different needs, interests and opportunities of men and women; it also challenges existing gender attitudes and stereotypes. Communication materials and messages that confirm such stereotypes will depict women and men, boys and girls, in conventional roles and confirm the establishment of male and female positions, tasks and relations. One example of the perception of male and female roles in developing countries inspired by magazine reports or television documentary on the reality around water from the mid 1990s is given below:

Today, Kamene, a ten-year old girl from southern Kenya ...is staying home from school, in order to help her mother out by carrying water from the river several kilometres away from the village. This is where the villagers have to get their water since the local well, at the once-forested hillside now planted with maize, dried out. But for Kamene, this is normal. She is a girl; it is her duty to help her mother support the family. Her brothers will finish school eventually, she will most probably drop out in another year, in order to work in the fields alongside her mother. The extra work involved in getting the water from far away is just another of a number of small changes to which the life of her family is subjected (Ohlsson, 1995:1,2)

Most of the material examined in this literature review shows that stereotyping is still the rule rather than the exception: many times girls are pictured taking care of the younger ones, of

babies, 'teaching' family members what they have learned in the school, helping their mothers. Boys are usually shown reading and playing.

Despite the tendency to stereotype men and women roles in communication messages and illustrations, there are also examples of breakthroughs (also for men!).

Whether materials used in communication break through gender stereotypes also depends on how they are used. Pictures and drawings are a good awareness raising tool. They can be used for many messages about the unequal division of work between men and women. In a meeting where women are absent, for instance, pictures of busy women could inform participants why women do not show up and that they are having many other things to do (Grift, 1995).

A series of images used in hygiene education in Zambia's Northern Provinces is entitled 'Why is mother tired?'. It shows tasks normally done by women and raises discussion on whether women can actually be asked to take on more hygiene work when their load is already so heavy. If not, what can then be done to solve or reduce this problem?

Another regular means of communication is development theatre, mentioned above. Cases of introducing women's problems and breaking through gender stereotypes are also found in some theatre programmes.

Breaking through gender stereotypes occurred in Bangladesh with participatory video when playbacks and the discussions that follow offer rich opportunities for organising and mobilising. For example, when women of one village saw in a video that their female neighbours of another village were working and making money on occupations that they thought were only meant for men, they got new ideas for themselves. In addition to introducing new ideas and raising awareness about the issues portrayed, grass-roots videos also make a strong impression. People are impressed by the technology, by the fact that their own peers can operate it and by the fact of seeing themselves portrayed in the films (Stuart and Bery, 1996).

Any vehicle of communication could transmit a breakthrough in gender stereotypes. One case is the programme 'Radio Improving the Status of Women'. It is an innovative project in Nepal using a wide variety of instructional radio programmes for upgrading the skills of primary school teachers. Radio broadcasts are also used to encourage girls to attend school more regularly, and to stay in school beyond the third grade. They present strong and positive female role models to women throughout Nepal to break gender biased roles (Goodman and Wagley,).

The Radio Education Teacher Training Project (RETT), which aims to upgrade teachers' skills and to increase the participation of women at all levels of education, uses voices of women, and women actors are portrayed in a strong, positive way not to perpetuate the stereotype that educators are generally men (Goodman and Wagley,).

A programme to confront discrimination against girls and to show their potential role for development is the Meena Communication Initiative, started with support from the governments of Bangladesh, India, Nepal and Pakistan. A range of research studies undertaken by UNICEF and other agencies in South Asia documented the aspects and degrees of discrimination against girls in the region. In response, the Meena Communication Initiative was developed as a radical and creative mass communication effort to transform the status of female children.

The final communication package includes a wide range of educational materials, such as comic books, posters, facilitator's guidelines for groups and child-to-child activities, films, and a radio series co-produced with the BBC World Service. The films can be used in any setting to promote awareness of the girl child's needs. In addition, a range of commercial products are being developed to popularise the image of Meena, including song cassettes, cups and plates, T-shirts, stickers, stationery sets, Meena dolls and games, etc. The film series and support materials are being widely distributed through: national TV networks, cinema chains, mobile film units, commercial video networks, NGO networks, formal and non-formal education channels (UNICEF, u.d.).

Maintaining the Rights of the Child as a specific focus, the Meena Communication Initiative advocates changes for the girl child in South Asia and highlights the duties and obligations of families and society to realise those rights. The project directly addresses the goal of mainstreaming women in development, particularly addressing the girl child. Eight Meena stories have been developed. One of them focuses on the use of latrine, safe water and washing hands (UNICEF, u.d.:a). Another is 'Will Meena Leave School?'. This story looks at the benefits of girls' education, for themselves and their families, and explores the issue of their dropping out of school due to economic pressure and child care needs at home. In another story, Meena, her brother and Boy Scouts promote oral rehydration therapy (ORT). The objective of Meena is to show how girls and their families can transform their own lives and develop problem-solving and communication skills. The goal is to ameliorate the status of girls since in these countries female children face discrimination in all aspects of their lives: from nutrition to schooling. Meena represents a dynamic role model for female children and is a powerful advocate for their cause. (Carnegie and Aghi, 1996; Laroche, 1996; UNICEF, u.d.).

Sara is another girl star portraying a positive model for girls, and evoking their potential for development, this time in Africa. Created by UNICEF in Mozambique, she appears as a role-model for African female teenagers in cartoons, radio programmes and films, which spread the same messages. Sara likes to go to school and wants to go on to higher education in order to construct a better future for herself. Although showing respect for her country's cultural traditions, Sara shows also her individual strength and independence to fight for a better status, in a society where parents give more attention to the health and education of boys, where girls get less opportunities and where it is expected that girls are involved in heavier domestic work (Ausah Ayisi, 1996).

Because water supply, hygiene and sanitation programmes affect primarily women, projects may consider that communication about project issues should be targeted at women alone. However, precisely because such programmes will ultimately have an impact on the whole village or neighbourhood, communication strategies should target both men and women. This will help prevent that men from seeing the project as a 'woman's affair' only and withdrawn from any responsibilities, leaving a bigger burden to women and children (van Wijk, 1995). Communication should make clear that all groups benefit from improved systems.

8. Gender in Sector Policies on Education and Training

Water supply and sanitation sector policies at government or agency level define the goals to be achieved and the strategies that should be implemented to achieve these goals. They lay the basis for planning, for budgetary allocations and for the definition of all resources needed. Education and training is a topic which is many times defined in sector policies. How often do these policies relate to education and training from a gender perspective? This chapter gives an overview of some sector policies which highlight the importance of gender-balanced education and training.

Many decisions concerning topics formulated in policy documents are taken during international sector fora. One Conference which set up principles later taken by many agencies in their policies was the 'International Conference on Water and the Environment : development issues for the 21st century', held in Dublin in January 1992. All the External Support Agencies (ESAs) present at the conference supported the principles laid down for water resources management. The guiding principles on water and sustainable development include

women and the central part they play in the provision, management and safeguarding of water. This pivotal role of women as providers and users of water and guardians of the living environment has seldom been reflected in institutional arrangements for the development and management of water resources. Acceptance and implementation of this principle requires positive policies to address women's specific needs and to equip and empower women to participate at all levels in water resources programmes, including decision-making and implementation, in ways defined by them. (International Conference on Water and the Environment, 1992:4).

Of 26 bilateral and multilateral agencies or ESAs, whose policies and strategies on water resource management were studied on behalf of the Development Assistance Committee (DAC) of the Organisation for Economic Co-operation (OECD) by Visscher and Sörensson (1994), only two, the Swedish International Development Agency, Sida, and the Norwegian Agency for Development Co-operation, NORAD, explicitly include gender considerations in their training programmes.

BOX 10: Nordic support for gender-specific training in water supply and sanitation and related areas

SIDA supports human resource development at different levels. This includes training of village health workers, local craftsmen and women, management training for staff at village and district level, as well as training for national agency staff. Sida integrates aspects of gender and the environment in the development projects through providing its own staff with environmental education and gender issues training, to stimulate them to integrate these aspects in practice in the projects and programmes.

NORAD has also set up a Training Centre for its own staff to strengthen the skills of the agency. Some of the basic courses are compulsory for all staff, while others are only for staff in specific positions. The intention is that the centre will offer these courses to anyone working in development co-operation. The major issues dealt with are institution building and human resource development. Environment and gender issues are well integrated aspects of all the courses. There are also two methodological courses, one on the impact of gender and one on the impact on the environment of NORAD-supported projects. (Visscher and Sörensson, 1994:99,111).

A revision of policy documents for water and sanitation produced by other organisations gives information on how ESAs and international fora are referring to gender in education and training.

UNICEF considers capacity building an essential pillar for sustainability of water supply and sanitation services.

Training will include topics such as policy development and planning; institutional-strengthening for service delivery, including training of drillers, artisans and sanitation and hygiene education personnel; community mobilisation; and management at all levels from Government to village committees. For the empowerment of communities, one of the points is to promote gender-balanced community participation and decision-making in the planning, implementation, management, operation and maintenance....

UNICEF will advocate community management of the 'water environment' using a strategy that will depend on cultural, social and economic factors of communities but which could include, inter alia, targeted education efforts aimed, for example at schools, women's groups, farmers' clubs and community associations, with clearly defined messages (UNICEF, 1995:).

The Swiss Development Co-operation (SDC), in its sector policy for water supply and sanitation, also puts much emphasis on the need for a gender balanced development for social equity and economic efficiency, for democratic participation and sustainable development, and for complementary between men and women in a process in which they are both in charge of their own development. This also requires equal of access to education. At SDC headquarters, awareness raising of staff about gender-balanced development will be done through training courses and ad hoc documentation to promote a better understanding of their own attitudes and those of their partner organisations. In the field, SDC policy is to provide training for women in local communities in order to reinforce their planning, management, organisation and advisory skills and their work on management committees (SDC/CSD, 1994).

HESAWA, the Health Through Sanitation and Water Programme, being implemented in the Lake Victoria regions of Kagera, Mara and Mwanze in Northwest Tanzania, targets women and children as its main beneficiaries. To empower women to take up planning and managerial positions, the programme implements a gender policy which focus as an awareness for gender at all levels (staff, leaders, beneficiaries) and aims at the participation of men and women in all aspects and stages of the programme. All training and promotion activities organised by the programme include a topic on gender awareness (Binamungu, 1993).

During the Ministerial Conference on Drinking Water and Environmental Sanitation held in 1994 in Noordwijk, the Netherlands, It was stressed that women's involvement in water and sanitation projects makes a difference to their success and that health services and education for women are the keys to social change and sustainable development. For communities to be involved, and to increase the participation of women, both men and women should be sensitised to gender issues through advocacy, training and recruitment policies. Women should be equipped to fulfil management roles and to hold decision-making positions. Capacity building should ensure the active participation of women in all aspects of sector development (IRC, 1995).

Participation of both men and women in urban upgrading interventions is considered one of the six most important strategic elements for success. This point was made by 61 participants of the Working Group on Urbanisation of the Water Supply and Sanitation Collaborative Council in their report which further points out that for that participation, capacity building is essential (Imparato, 1993).

WHO is also keen to include a gender approach in training public health specialists in order to help women negotiate a better environmental health situation. (*WHO Environmental Health Newsletter*, no. 25, December 1995)

The World Bank Participation Sourcebook has a section on facilitating women's participation which maintains that, unless specific steps are taken to ensure that women participate and benefit, they usually do not. Customs, beliefs and attitudes; women's economic and domestic workloads, law and customs impeding women's access to credit, productive inputs, employment, education, information and medical care are barriers for their participation to be considered. The document recommends to apply gender analysis tools to help identify gender based differences in access to resources, permit planners to reform policies and supportive programme strategies, and develop training packages to sensitise development staff on gender issues (World Bank, 1995a)

The World Bank document 'Toward Gender Equality: the role of public policy' calls on governments to define policies on issues which contribute directly or indirectly to reduce gender inequalities. Legal reform, for example, can provide equal opportunities for women and men. However, this is not sufficient and further public action is required. One point is to reorient public spending toward basic services with high social returns : education, health care and water supply (World Bank, 1995).

These are only a few examples of positive policies on the importance of a gender balanced education and training. However, the formulation of policies is not sufficient. The institutional environmental (political, social and legal ground rules that form the context in which organisations operate) and the institutional arrangements (arrangements between the organisational units and the mechanisms through which these units interact) are needed to understand the formulation and implementation a gender policy. (Wakeman et al., 1996).

Also rules and procedures can play an important part in the operationalisation of a policy, facilitating or impeding its implementation. One can see whether pre-existing rules support policies goals or undermine them. If, for example, an agency has come out with a gender policy, the question can be asked: Has the agency also developed rules and procedures to help ensure that the policy will be effective? Does it have other rules that work against policy goals? Even if an organisation does not have a formal policy on gender, its rules may have an impact on gender and development issues (Wakeman et al., 1996:11)

9. Conclusions and Recommendations

The focus of this literature review is on education and training in the water supply, hygiene and environmental sanitation sector from a gender perspective. It discusses the school system, non-formal education alternatives, hygiene education in schools and education, training and communication in the context of projects in the light of their approaches to gender. It has further been discussed how approaches chosen in education and training shape the relation between men and women and their social roles, and what the consequences are for work and status of women in the water supply and sanitation sector.

This review of the literature has tried to answer several questions. What are the chances of boys and girls to benefit from education and training both in general and from attention paid to the water supply and sanitation sector? What knowledge and skills are educational and training programmes imparting to boys and girls, women and men? Are both female and male field staff and community members receiving benefits from education and training in the water supply and sanitation sector on an equitable basis? Do women as well as men have job opportunities in the labour market, once trained and educated in water and sanitation fields? And what is the reaction of men when women receive education and training and have influence or paid jobs as a consequence? Is the training of women for new roles representing a burden to their already heavy workload? How are men being trained for the new roles they should also play?

One conclusion appears quite clearly: although in the last decades much has already been achieved in favour of education in general, and especially of girls and women, these are still in a disadvantageous position. Poverty of families, cultural factors, financial and economic difficulties at country level, illiteracy or low level of education of mothers are among the major causes affecting the low level of girls' education with serious consequences for their future position in society.

The lower level of education for girls has several links with water supply, sanitation and health/hygiene education. One of the main factors keeping girls away from schools is the need to help their mothers in domestic tasks, such as water collection. This work consumes a substantial amount of time of girls as young as 6 years old. In several such cases, mothers have reported that a better domestic water supply resulted in a higher school attendance for children. This is clearly an area for further investigation, through comparative studies in time (before/after) and in location (areas with and without improved domestic water supply).

Lack of water and sanitation facilities in schools or their inappropriateness in design and location is another main factor which discourages families to enrol girls in schools and allow them to attend classes. A higher school enrolment and attendance by girls and young women would benefit from appropriate water and sanitation facilities in which also gender factors (in design, maintenance) are taken into account.

Other requirements are better trained teachers in health and hygiene matters, and non-gender biased teaching materials and text books on sanitation and hygiene; and hygiene and health education curricula combined with improvements in the environmental sanitation conditions.

At higher levels of education, even when boys and men are outnumbered by girls and women in school enrolment and attendance, the courses and areas leading to better position in the labour market are still predominantly taken up by male students. This tendency gets reflected in the low representation of women in higher levels of decision making in the sector.

It is however comforting to see that women are present at the lower levels of decision making. This is especially important for the decentralisation processes, where responsibilities traditionally held at central levels are now being transferred to the local level. Decisions concerning issues which directly affect the life of the members of the households, especially women and girls, are now increasingly being taken at the lowest levels of administration and management.

Governments, ESAs, educators and their institutions, NGOs and CBOs are better aware of the importance of introducing gender considerations in all programmes and activities. Reference- and sourcebooks, policy and project documents, and statements of international fora reflect this tendency and steps are being taken to enhance a gender balance in the sector's education and training activities.

Agencies' staff, well trained in technical issues and in social aspects of development, in gender sensitive planning and management and in communication with communities, will help the implementation of policies and of the guiding principles of international fora. Trained staff at government ministries will influence educational policies and curricula for a better gender balance.

For community level, a number of innovative education and training programmes could be traced. These give women and girls access to new skills, functions and jobs in water supply and sanitation and address men on their responsibilities for health and hygiene. The new skills for which women are increasingly being trained are in handpump maintenance, latrine construction and installation, and water system management, especially financial management. This has brought benefits for the programmes (better performance at an equal or lower recurrent cost although investment costs tend to be higher) and for the women (paid jobs, increased respect from themselves and others). However, sometimes training of women increases their burdens, without much benefits for them - for example in caretaking or tariffs collection, where they have to do more physical work without compensation or say in decisions.

To allow women to take part in training, projects have taken special measures, such as local courses or travel in groups when courses are given in faraway locations, and crèches for the female trainees' small children.

Care is required to see that also men are trained to avoid tensions of the withdrawal of men from male responsibilities, such as financing or certain physical tasks.

Recommendations on gender issues in education and training in the water supply and sanitation sector, which follow from this literature review, relate to:

◆ ***More chances for female schooling and training***

- World Bank, UNDP and UNESCO studies have shown a high return on investments in female education. More investments in water supply and sanitation will reduce the work of women and girls, especially in areas where these activities involve long and arduous walking, and give them more time for schooling and education.
- Adequate and gender-sensitive sanitation facilities in schools are required to increase the attendance and continuation of girls in education.
- The link between improved water supply and sanitation and a higher school attendance of girls can be demonstrated more clearly through comparative research on this issue before

and after the introduction of improved facilities and between areas with and without facilities.

- Increasing the number of female staff and their training for a non-gender biased school environment, where also girls are stimulated to go on to higher grades and to choose subjects related to water and sanitation, will lead also women to a better and more influential position in the sector labour-market.
- At planning levels, a link is needed between the introduction of improved water supply and sanitation and the improvement of opportunities for schooling of women and girls, especially in areas where improved water and sanitation facilities are expected to result in considerable time savings. Adding schooling opportunities also gives women in secluded cultures new meeting opportunities to replace those at the traditional water sources
- Water, sanitation and hygiene projects are recommended to train women for paid work in fields where they have natural cultural advantages, such as handpump mechanics (regular visits to handpumps, greater interest and peer pressure to keep systems working), treasurers (high commitment to keep systems operative, lower mix of financial interests, visits for fee paying by women to women more culturally acceptable) and latrine masons (traditionally involved in plastering and environmental cleanliness; presence of female masons in other persons' yard or house more culturally acceptable).

◆ **Enhanced impact on health**

- Reports of the WHO and PAHO on epidemiological studies show that good sanitation and hygiene have the greatest impact on health. High risks of disease transmission exist especially in schools where many children are daily in close contact. Young children are also most susceptible to infectious diseases. Installation of better facilities in schools is a first condition to reduce serious health risks to schoolchildren.
- For better health both boys and girls need to practice hygiene in schools and take part in keeping the facilities and environment clean. Training boys and girls to regularly measure the hygiene conditions in their schools and homes is a promising tool to promote active learning and enhance health risk reduction.
- Health and hygiene education should be part of school curricula and be relevant and realistic for local conditions. More innovative methods for education in schools are needed which do not reinforce gender inequities, e.g. only addressing girls on tasks of cleaning and caring.
- All schools should be encouraged to have a participatory monitoring system on health and hygiene focusing on key risky practices and conditions, such as use and hygiene of sanitation facilities and handwashing

◆ **Breaking through gender stereotypes**

- New approaches in education and training prepare women and men for new roles, jobs and functions in water supply, sanitation and hygiene. Opportunities for women to enter the managerial and technical fields have increased. However, tendencies to train women only for lower level voluntary jobs should be avoided. Attention is further needed to avoid that the workload and the responsibilities of women, for example in heavy construction work, maintenance, financing and environmental care, are increased and men withdraw or reduce their involvement in water supply and environmental sanitation.
- The role of men in hygiene and sanitation education needs further attention, addressing in particular their responsibilities in financing, gender divisions in physical work and means to

alleviate this work, their own hygiene practices, educating children and being a role model for sons and daughters.

- In educational materials more attention is needed to avoid gender stereotypes in illustrations and contents. Programmes in Botswana, Nepal, India, Uganda and Kenya, for example already have training and education materials and programmes for schools and non-formal education that depict boys and girls, men and women in new roles and functions in the sector.
- Projects, staff, and education and training institutes in the sector should be encouraged and capacitated in the use of rapid gender analysis to assess which model they use for the division of work, functions and benefits between men and women.

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