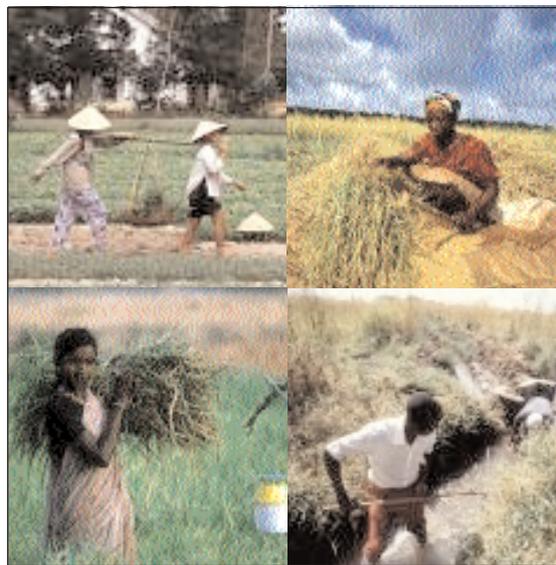


MAINSTREAMING GENDER IN WATER RESOURCES MANAGEMENT

WHY AND HOW

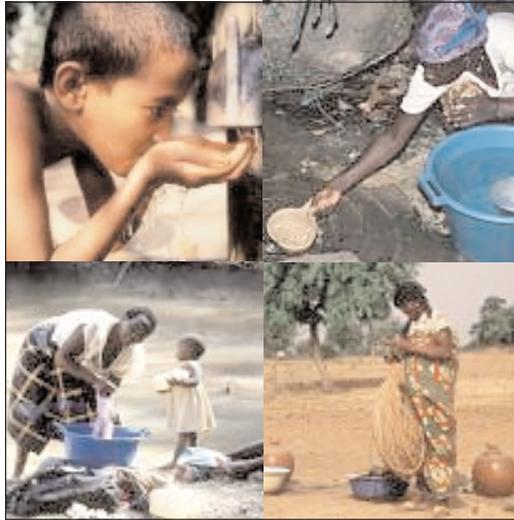


**BACKGROUND PAPER FOR
THE WORLD VISION PROCESS**



Contents

6	TOWARDS A VISION OF EQUITY AND SUSTAINABILITY
8	BEFORE AND AFTER – THE GENDER APPROACH
10	WHY A GENDER APPROACH?
10	BLACK HOLES IN COMMUNITY PARTICIPATION
12	TRADITIONAL WATER MANAGEMENT AND WOMEN’S DOMESTIC ROLES
14	WOMEN’S 11-TRILLION-DOLLAR ECONOMIC CONTRIBUTION
15	BUT WOMEN DROP OUT OF THE MODERN MANAGEMENT PICTURE
19	SUSTAINABLE WATER MANAGEMENT – A NOTE
20	THE GENDER APPROACH
24	THE GENDER APPROACH IN ACTION - EXAMPLES FROM THE FIELD
29	MAINSTREAMING THE GENDER PERSPECTIVE IN WATER RESOURCES MANAGEMENT
36	BENEFITS OF GENDERED WATER MANAGEMENT



The objective of water projects is not to build a dam or to install a pump. It is to ease the burden and drudgery of those who have to draw water from unsafe and far-away sources. It is to improve health, boost production, stabilize income etc. And for that to happen and for the positive results not to wither away quickly, the projects must function, be used, and perhaps most important, they must be part of a more general process of social change.

Jan Lundqvist
Department of Water and
Environmental Studies
Linköping University

Towards a Vision of Equity and Sustainability

Safe, adequate and sustainable water supplies for all is one of the main social goals enunciated at global level in the past few years. One-quarter of the developing world's population still lacks clean water while millions die annually from water related diseases. As the world population continues to grow, the need and demand for water escalates. Water has become a strategic resource: its control is a source of power, a key to economic development, and a trigger to socio-political stress. The multiple uses of any water source in any given area can be incompatible, both in terms of the amount of water people require and the effect on the resources they have. Conflicts are brewing over the use and preservation of the globe's increasingly scarce supplies of water, while it is increasingly being recognized that improved management of water is imperative to sustainable development, poverty alleviation and biodiversity preservation.

To resolve these issues in humane ways, we have to take a hard and critical look at the way we have managed freshwater resources in the past, and find new solutions that will be sustainable in the long-term. These must guarantee:

- Basic services for all
- Integrated water and land management for multiple uses
- Equity across gender and class
- Sustainable ecosystem management practices
- Public standards on service quality, set in all countries
- Accountability for sustainable use and management of freshwater resources

Current approaches to water management are highly segregated, focusing on technical improvements and sectoral solutions without sufficient attention to their basic social and sustainability goals. Recent research has shown that shifting the emphasis to the social base has major implications for strategy and the technologies employed. More technology is not always better. A reorientation of the technological approach may be more effective in delivering water services where they are needed,

when they are needed, at a cost that is realistic and acceptable, and with consideration of the larger time frame and scale necessary to ecosystem sustainability.

Within this social re-orientation, most recent policy documents have recognized, a gender approach is essential to the development of effective, efficient and sustainable systems and strategies. This paper outlines why. It also provides some simple guidelines for putting a gender approach into action. It is meant for policy-makers in international and national institutions, professionals within water-sector organizations, and individuals working on sustainable development and conservation strategies.

This paper is not just for water specialists but aims to convince all the partners of the Vision exercise that gender is a crucial issue that have to be taken into account in the different ongoing vision consultations to build a comprehensive shared Vision. The World Water Vision will influence in the long-term, for reaching changes in the overall water sector.

The document was prepared by Niala Maharaj, principal author, with the advice of Kusum Athukorala (ADRC Sri Lanka and member of the Steering Committee of GWP), Mariela Garcia Vargas (CINARA, Colombia), Gabriella Richardson (IUCN Social Policy Group).

Before and After THE GENDER APPROACH

Efficiency, effectiveness, equity and affordability are the main gains of adopting a gender approach. It requires detailed attention to social realities during the design, and throughout the execution, of water delivery systems. In Malawi, the 1980s demonstrated that none of these goals would have been met if a gender approach had not been inserted into the government's program for providing piped water to 50 rural and peri-urban districts. Before the gender approach, the system was successful but unsustainable, since delivery costs weren't being met. With the gender approach, 24,000 low-income families were guaranteed effective supplies. The information in this account was provided by Fabiano Kwaule, of the Ministry of Works, Malawi.



An Innovative System of Community Participation In the 1980s, Malawi's government designed a highly innovative system of community management for the delivery of piped water to low-income households. 600 Communal Water Points were constructed in 50 districts, and Tap Committees were elected to manage them. User Groups were established in each district, and households asked to register with the most convenient one. A Tap Committee member was designated to hold the key of each Water Point—so as to control wastage—and to open and close the point at agreed. The Tap Committee's members were to collect contributions from each household on a monthly basis and pay metered water bills on behalf of their User Group.

Results All households received and used piped water.

But...water bills weren't paid.

Investigations showed that, prior to this project, local men had had nothing to do with water management. They were away from home much of the time, working and doing business, while women managed water supplies. But, as the men saw the official project as an external invasion, they had sought to gain control over it. When meetings were held, they sat at the front of the room and elected each other to the committees. The women remained silently at the back and hardly participated because of: a feeling of powerlessness; fear of overstepping customary roles by speaking in group meetings; lack of experience in working with groups; and lack of skills in planning and problem solving.

Tap committees thus comprised 90% men, who were often away from the district. Collection of payments was haphazard, and carried out in an aggressive fashion. The men also mismanaged the money, while agreed times for opening and closing taps were not adhered to. Tap committees rarely met, while user groups kept changing water points to try and find one that functioned better. Membership in most communal water points dwindled. Leaders failed to utilize extension support or attend leadership courses. Thus hygiene education and sanitation promotion activities, which had been planned as part of the project, suffered.

Introduction of a Gender Approach Efforts were made to integrate the women directly. During tap committee elections, the communities were guided to elect 60% women and 40% men, and efforts were made to develop positive attitudes of men to the involvement of women. Consultation of women was done separately at meetings or at places where they gathered for daily activities, and both female and male extension workers were used.

Results Payment of water bills improved. Women began to make up over 90% of the tap committees and became the longest surviving active members. Meetings began to be held regularly and attendance was good. Hygiene and sanitation improved remarkably. However, in issues of a technical nature, the women totally relied on the men, so the men still dominated decision-making in the tap committees, holding all key positions.

Special training courses were organized for the women in: leadership; community participation; problem solving; community financial management; hygiene and sanitation; and operating procedures and maintenance.

Membership of the water points improved, as did hygiene and sanitation. Taps began to open and close to the satisfaction of users. The women got involved in redesigning the water points to make them more convenient. But men began to disappear from the tap committees entirely. Where they remained, they occupied lower positions. Thus new efforts had to be made to encourage men to rejoin and contribute to the water management process.



Why a Gender Approach?

Black Holes in the Practice of Community Participation

Participation of users in decision-making produces more efficient and more sustainable projects. When communities influence or control the decisions that affect them, they have a greater stake in the outcomes and are more committed to ensuring success. Participation helps to break down the cycle of dependence which characterizes much top-down development work.

40% of the water supply infrastructure built during the Water Decade (1981-1990) was not working by 1998, states a World Bank report published that year. The reasons cited? Lack of community participation and the use of inappropriate technologies.

We are now one decade further on. Many efforts have been made to reconsider technologies, and to take into account the experience, knowledge, needs and expectations of local water users. Conservation agencies are increasingly recognizing the need to involve and negotiate with different stakeholders and establish joint management systems to protect and rehabilitate degraded or vulnerable ecosystems.

'Community participation' has become a catchphrase.

But there are black holes in the practice of community participation. A community is not a collection of equal people living in a particular geographic region. It is usually made up of individuals and groups who command different levels of power, wealth, influence and ability to express their needs, concerns and rights.

Communities contain competing interest groups. The rich and the poor. Farmers with fields and livestock to water. Landless farmhands with children to care for. Marginalized groups and members of minority religions, tribes or castes. Businessmen who own industries which require water. Conservationists committed to protecting freshwater ecosystems. Housewives who need water for drinking and washing. Women and men.

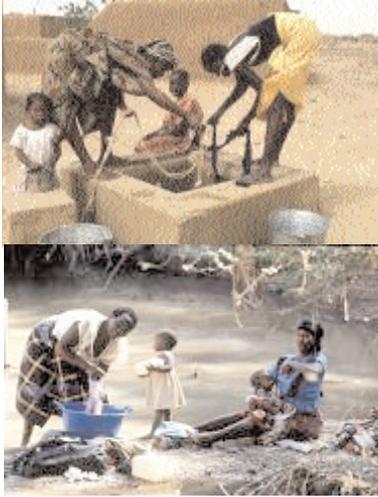
Where water is a scarce and vulnerable commodity, there will be competition for supplies and those at the lowest end of the power spectrum will go without. That means the poor.

Poor housewives from the small town of Felidia, in Valle Province, Colombia, initiated and built a biological treatment system for water piped from a nearby mountain stream. They wanted to have a clean supply for household needs, and the local water committee collaborated in setting a low tariff for the water so that all members of the community could afford access.

But soil erosion from agriculture and forestry activities in the catchment area clogged the treatment system. Fertilizers, herbicides and pesticides seeped into the water, while latrines and pigsties owned by subsistence farmers drained directly into the river. Some farmers began using the piped water for irrigation, while wealthy weekenders from the city built houses with swimming pools.

The piped system simply could not cope with this level of demand or contamination. The activities of different interest groups in the community made the system ineffective. The local water committee proposed to raise the tariff and upgrade the system. But the weekenders, who had political influence in the city, resisted this.

COLOMBIA



TOP: MALI
BELOW: BURKINA FASO

'Of the 1.3 billion people in absolute poverty,' states UNDP's 1995 Human Development Report, 'the majority are women.' Poverty is growing among women partly as a result of an increasing absence of men from the household unit. In Sri Lanka, official census data show that one in five homes is now female-headed due to male deaths as a result of civil conflict. There, 70% of female agricultural workers work without pay or profit.

In parts of Latin America, researchers say, the majority of households are now female-headed due to migration of men in search of work.

'Experiences in the rural areas related to water resource management, the value given to water for irrigation and domestic use, the politicization of water in the peri-urban areas, etc, show how water relates to power and results in power struggling,' states Norah Espejo. 'Therefore water is not just a vital element people need for life but also an element that can lead them to economic resources. Power issues place women in a very disadvantaged position. Their limited access to formal power reduces their negotiation capacity to get water supply systems required for their practical needs.'

Blanket 'community participation' is therefore insufficient to mediate between the various needs of water users in any given situation. The power hierarchy within communities will ensure that water distribution follows its patterns. Disadvantaged groups will always lose out.

Instead, strenuous efforts have to be made to ensure that community participation is based on democratic principles that increase social stability and create conditions whereby all stakeholders within communities are ensured fair rights, access to information and an adequate share in decision-making processes.

Water consumption measurement and price increase are important regulating tools to decrease water consumption. However they have the risk that lower income groups are excluded from basic water services. Single women heads of households are an important category in these groups, especially in urban areas. Another risk is that it forces poorer women to reduce certain water uses, for example domestic water use for hygiene. In a study in the United Kingdom, Cunningham and Laws found that 70% of the low-income families interviewed in the outer London area had cut their water bill by reducing use for hygiene. Colleagues working in water supply in Asia, Africa and Latin America voiced their concerns about the effect of water metering on hygiene habits.'

UNITED KINGDOM, ASIA,
AFRICA, LATIN AMERICA

In the past two decades, many strikes and roadblocks over empty water taps have taken place in the Bogota Savannah of Colombia. Rivers have been drying up and drinking water is scarce. Yet gigantic supplies of fresh water are being channeled to greenhouses where 100,000 women and children work for just 65 US cents per day. These greenhouses earn foreign currency. They grow roses and carnations for shipping to the US.

COLOMBIA

Traditional Water Management and Women's Domestic Roles

Current thinking in the water sector states that management systems must be user oriented.

Amongst users, one of the largest visible groups can be identified by gender. In most societies, the provision of water for fulfillment of fundamental human needs has always been a woman's responsibility. Women are responsible for preparing food, washing clothes, cleaning. Family hygiene is in their hands—and caring for the ill when hygiene is insufficient. In developing countries, women and girls spend an estimated 40 billion hours every year hauling water from distant and frequently polluted sources. Women have been reported to spend as much as 8 hours per day carrying up to 40.8 kg of water on their heads or hips.



TOP: SRI LANKA
BELOW: CAPE VERDE

Yet when technology is improved, women's needs tend to be overlooked. In the early eighties in Mexico, for instance, housewives in low-income districts of Monterrey had to resort to kidnapping water officials before they were provided with sufficient water. For a decade, they had sent delegations to the governor's office and the water authority, and mounted telephone campaigns to plead for regular supplies. Later, they took to the streets, disrupting traffic with tubs and barrels, and gathered en masse in the plaza in front of the Governor's Palace, bathing their children and washing mounds of dirty laundry in the fountain there.

But women are not simply passive users of water. In most parts of the world, they are managers of the community water supply. They are the ones who select water sources and determine which should be used for drinking water and which for bathing and watering animals. They monitor water quality and devise strategies to conserve supplies in times of scarcity. They protect and manage water sources and quality standards.

'Nowhere did we find widespread casual or indifferent evaluations of water sources,' reported White et al in their classic study. 'Most users had evaluative judgements and most were interested in ways of improving their supplies.'

United by their need for reliable and affordable water, and their dislike of high water prices from private vendors and license holders, women in low income urban neighborhoods in Honduras, Burkina Faso and Kenya have taken on and managed their own licensed water vending points. Characteristics reported are: lower and fixed water price, provision of part-time employment to poor single women with children, and use of the group's surplus for neighborhood projects.

Poor urban women in, among others, Mexico, Brazil and Kenya helped organize their own local water supply, or financed a connection to the municipal network. Water is used for income generation from beer brewing, teashops and a launderette.'

BURKINA FASO, BRAZIL,
HONDURAS, KENYA, MEXICO

Meetings of local councils and development committees are restricted mainly to men. A study of 18 communities in Tanzania has shown that the average number of women councilors is two out of 25 members. In two provinces in Colombia, representation of women on 3,500 community development committees is between 8 and 17%. Absence of women in decision-making organizations is also reported in Kenya, Thailand, South Korea and Guatemala... According to Indian law, one third of the members elected on the local council must now be women. A study in three villages in Madhya Pradesh reported: "Often these women did not know they were elected". More recently the author had the same experience in Gujerat. Women in the lake zone in Tanzania said they often were not informed of elections and were not given voting cards...'

TANZANIA, COLOMBIA, KENYA,
THAILAND, SOUTH KOREA,
GUATEMALA, INDIA

Many projects have revealed that, when there are opportunities to improve water supplies, women participate avidly, contribute labor, and are more diligent than men in maintaining installations and sources. It's simple self-interest...but it benefits the entire community.

In a study of the United States of America, Rita Schmidt Sudman points out that educated woman have recently been deliberately entering the field of water management because the quality of water supplied is so vital to their children's health. She cites the case of Susan Seacrest, who founded the Groundwater Foundation when she began suspecting that her child's illness was a result of pesticide pollution in ground water.

'The Groundwater Foundation is an example of an NGO run entirely by women. It has grown to become a nationally known, well-respected voice for public groundwater education. Many studies show that the majority of people who work, or volunteer, for these organizations are women. Of the 52 state and territory co-ordinators of the national environmental teacher training program - Project WET (Water Education for Teachers) 69% of the co-ordinators are women and 31% are men... Many of the US Environmental Protection Agency (EPA) managers are women with science and political policy backgrounds.'



ETHIOPIA

Thus external projects and programs which neglect indigenous management, and treat women as beneficiaries and users, and not as water and waste managers and decision-makers, hamper their results and diminish women's position.

Women's 11-Trillion-Dollar Economic Contribution

'Water has an economic value in all its competing uses and should be recognized as an economic good. Within this principle, it is vital to recognize first the basic right of all human beings to have access to clean water and sanitation at an affordable price.'

Dublin Statement on Water and the Environment

In Tanzania, women produce 60-70% of all food consumed. Though they make up 52% of the total population, they account for 70% of the agricultural labor force. About 98% of rural women classified as economically active are engaged in agriculture.

This situation is typical. Hundreds of studies have shown that the food security of poor regions is often dependent on women's agricultural work. While men are involved in cash-crop production, it is the women who grow vegetables and maintain livestock to feed their families or sell in local markets. Their use of water is therefore two-fold: for domestic purposes and for economic benefit. And, all over the developing world, poor women are involved in small-scale agro-industry as a means of subsistence for themselves and their families.

'Reality of peri-urban areas shows that domestic use goes beyond health purposes (personal hygiene, cooking and washing),' Norah Espejo has pointed out. 'It also goes into household production activities such as preparation of sweets, ice creams, food, washing, ironing etc. As the majority of households are female-headed in peri-urban areas the integration of domestic use for health and for household production become crucial...'

Many of women's economic contributions are grossly undervalued or not valued at all – on the order of \$11 trillion per year. Women work longer hours than men in nearly every country. About half of this work time is spent in economic activities in the market or in the subsistence sector. The other half is normally devoted to unpaid household or community activities.

But when government policies promote private sector investments that might change local resource management practices, little attention is paid to the affect on women's abilities to use and manage resources for subsistence and for their economic development.

A case is the shift in gender economics in Abaluyan farming households in West Kenya. Within the family, husband and wife have different responsibilities. Husbands provide school fees, clothing, medicines; women, among other things, grow all the vegetables for meals. When smallholder sugar cane growing was introduced in the area, the women lost their vegetable gardens to the cane, but the responsibility to buy vegetables or provide the money for them did not shift to the husbands. The effect of the lower resources but unchanged gender-based duties for the mothers was that the use of vegetables in the diet decreased and children started to suffer from nutrition deficiencies despite growing overall incomes in the region.'

KENYA

Until the 1970's, the fisheries of Lake Victoria were exploited solely on a small scale. Most local communities operated within a set of informal rules that regulated sustainable use of resources. The men dominated the harvest and fishing operations. The women depended on the processing and trading sectors for their livelihoods, smoking or drying fish and selling it locally. Then, in 1954, Nile perch was introduced into the Lake to boost export quotas for the local fishing industry. Nile Perch grow to 200 kg, and are predators that consume enormous quantities of small fish.

Today, Lake Victoria has lost 200 taxa of endemic cichlids and the remaining 150 are listed as endangered. Processing companies dominate the fishing scene; local people have lost employment opportunities. Fish prices have gone up, and many local people are denied access to fish. The women have lost their source of income, and their source of food. The export oriented processing factories have also created unsustainable demands on Lake Victoria. The international capital invested in export oriented capacity could also have been invested in developing local capacity and infrastructure to process and market the fish. But decision making at national and global levels was of a top-down variety. Local people were not consulted.

But Women Drop Out of the Modern Management Picture

Thus, when water resources management is part of the unpaid, informal economy, governed by traditional male/female norms, women are the responsible parties. But once it enters the paid, public domain, it becomes subject to hierarchical rules which state that men are managers and women carry out the decisions they make.

'Since it is known that household water provision is traditionally a female responsibility in most African communities,' notes Benedict P. Michaels of Tanzania's Ministry of Water, 'one would therefore expect that female members would dominate the bottom-most planning stage so as to correctly identify what they consider to be the key water problems worth considering in the planning business. Contrary to expectations, these so-called planning committees are overwhelmingly dominated by the male members of the community.'

'In Tanzania, most villages have established what are generally known as Village Water Committees, which are charged with the responsibility for all matters related to water supply issues. Women are also greatly underrepresented on these. The main factors leading to such a situation are the women's lack of self-confidence, which again is mainly influenced by cultural limitations, and the low level of literacy relative to the men. Parallel to this is the factor of women's commitment to other domestic roles, which are paramount to their social welfare, and that of their family members e.g. cooking, childcare, general sanitation etc.'

The situation described in Tanzania is echoed all over the world.

I. Women are severely overburdened by the double responsibilities of household work and economic effort.

In Far Western Nepal, for instance, the Ministry of Water Resources, Water and Energy Commission Secretariat found that over 75% of the women were engaged in agriculture compared to 48% of the men. Meanwhile, in 99% of households, women did all household tasks, and in 94% they alone fetched water (84 liters per day). No wonder, then, that female representation in irrigation systems management committees was only 7%. The women had no time to attend meetings.

'Due to a lack of irrigation facility and related low productivity in 52.6% of the households,' the ministry noted, 'there is a high possibility of negative impacts on the nutritional status of women in particular. This is heightened due to cultural factors which dictate that men should be served before women of the household.'

Nutrition has an impact on energy levels. Women simply have no energy to spare for talking. The Nepal study concluded, 'in order to improve productivity and nutritional status of households, additional irrigation facilities have to be provided. Women should be encouraged to get involved in planning, decision-making and implementation of such projects.'

The question is how?

2. The cards are culturally stacked against women's participation in public decision-making bodies.

At community meetings in Africa and Asia, men outnumber women even though they may never have hauled a milliliter of

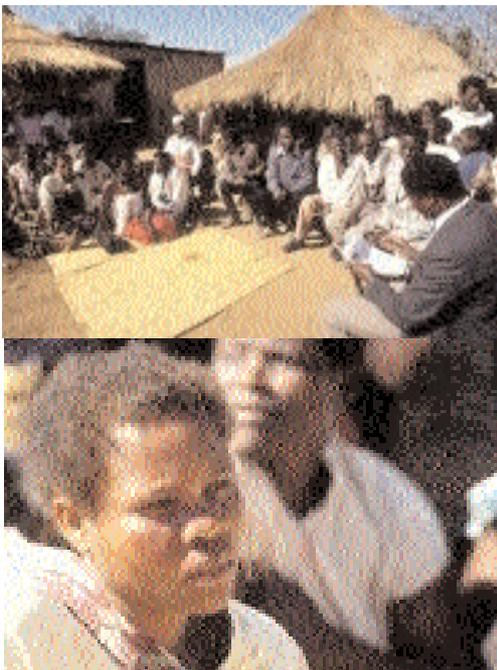
water in their lives. Community meetings are a man's domain. They sit at the front while the women sit at the back where they can hardly hear. Men elect each other to management committees, since that's their proper role, according to cultural norms. The women, by contrast, are shy and diffident to speak up or take active roles, even though, according to numerous studies, they are usually keenly interested in any discussion to do with water, and willing to contribute knowledge, labor and time to participate in projects aimed at improving supplies, quality and freshwater protection.

'In segregated and secluded societies' van Wijk has observed, 'it is often difficult or impossible for

them to attend predominantly male meetings, especially in male meeting places. Men heads of household represent the family and it is assumed that the women are informed and influenced by their husbands, even though research shows that much communication is gender-segregated, and so male family members will keep the information to themselves.'

In certain villages,' writes Leelamma Devasia in a report of a study conducted in Maharashtra, India, 'the men were antagonistic towards the idea of women acquiring more facilities in their day-to-day life. The men thought that from early morning to late at night women must be kept occupied with household responsibilities such as looking after children, cooking, cleaning, washing, attending other members of the family and animals and rendering a helping hand on the farms. If running water was provided, what would the women do with the time saved on fetching water daily, they asked. They also expressed the fear that if women had more time and space for themselves, they might become beyond the control of men, and that may disturb the rural social fabric.'

INDIA



ZAMBIA

This cultural bias against public participation, even in matters where women have more experience and expertise than men, is one of the most serious impediments to women's involvement in modern water management, for it has ingrained itself in the minds of both men and women for centuries and expresses itself concretely in the composition of local and national management and decision-making structures. It is deeply linked with concepts of male and female identity, and with the fundamental machinery of power and hierarchy. Hence, for modern freshwater management systems to utilize the traditional knowledge and concern women have displayed, it is necessary to address these cultural and power impediments.

3. Patriarchal relations also express themselves in control over land rights.

Water rights are often closely tied to land tenure arrangements and are often transferred with land. In many places, land rights are passed from father to son. Thus, though women may be working on the land, they often have no right to participate in organizations that take decisions regarding its use. Moreover, both in Latin America and Asia, they are culturally excluded from irrigation and hence from decisions and activities involved in water provision.

'In many of the countries,' writes Maria Nieves Rico, 'analyses relating land tenure by sex with irrigation show that whereas men own and work irrigated land, women are not in this same advantageous position. Again, it is often the case that irrigation is regarded symbolically and culturally as an activity for men, even though many women take part in it, and there is a mistaken perception about the distribution of productive tasks within rural families that causes the work carried out by women to be overlooked. These conditions mean that women are not consulted when infrastructure work to improve irrigation projects is being planned, or when grants are being allocated, and in general they are denied participation in decision making and benefits, which further exacerbates the discrimination and insecurity they suffer.'

4. These patriarchal patterns also inform official decision-making at national level.

One clear example comes from Burkina Faso, where women and men each have their own organization with rights to water and land for agriculture: the women in the river valleys, the men on the higher grounds.

'When the state took over the land for irrigation, it only gave out plots and water rights to male heads of households and only male water users groups were created. These did not



Women are often less informed about technical projects because project staff and village men consider this a male topic. Where women are able to attend meetings, they often do not speak the national language and feel restrained by their lack of education and because of cultural barriers. At public meetings, the accepted role of a woman is often to listen to the men talk; she is not expected to express herself. Women are also less familiar with the public sphere. They have little experience in public debates, and even women councilors have been found to express themselves less freely or frequently than men. Men travel more widely on business and attend political and religious meetings while women's mobility is restricted largely to visits to relatives, the dispensary, market, or flour mill.'

maintain the water supply system, as, unlike the women, they were used to dry agriculture. The women lost their production and harvest rights, saw their traditional organization not recognized and lost motivation to spend much energy in agriculture. When the government realized this, new plots were given out also to women and productivity as well as operation and maintenance of the watercourses improved.'

5. Women often lack skills relevant to participation, partly because of their lower access to education and resulting lower self-confidence.

Among the developing world's 900 million illiterate people, states the Human Development Report of 1995, women outnumber men two to one.

6. Women often lack technical skills required for concrete participation.

In many cases, water projects involve introduction and maintenance of new technology and construction work. These are not regarded as activities for women and they are often not offered the training necessary to equip them to enter these fields. Though it is accepted that natural resource conservation and management cannot be achieved without the involvement of both men and women, women often miss out with regard to environmental education, extension services and job opportunities.

In Zambian wetland communities, where women and young girls often fish in the shallow waters where fish breed, only men are trusted with investment in form of capital, extension services and education to use the natural resources more sustainably. Because of the close relationship between conservation and management, it has also been assumed that these aspects of biodiversity would benefit women. In practice, however, this does not always appear to be the case. If women are to benefit they must be accepted as equal partners in the structures which control wetland conservation and fisheries projects.

ZAMBIA

7. Women are often absent from managerial, engineering and policy-making levels of society.

'The water Education Foundation is involved with 661 major public and private water agencies,' writes Rita Sudman of the US situation. 'Of these agencies, there are only 24 women general managers. The national Association of State Drinking Water Administrators is an association of the highest drinking water officials in each US State. Of the 50 states in the association, three state administrators are women.'

'Tanzanian women's capacity to have input into the decision-making machinery concerning water resources planning

Table 3.1 (a)

Decision Makers of Top Management by Institutions, Status & Sex, (Sri Lanka)

Types of Institution	Policy Makers		Administrators		Scientist		Total Decision Makers	
	Male	Female	Male	Female	Male	Female	Both Sexes	Female
Ministry of Agriculture	07	0	08	0	0		15	0
Dept of Agriculture	02	0	12	01	166	70	251	29.1
Dept of Agrarian Services	02	0	40	04	0		46	8.7
Dept of Export Agriculture	01	0	02	0	23	06	32	18.8

In developing countries, women constitute less than a seventh of administrators and managers, even though girls make up 70% of the enrolment in tertiary level education. In 32 countries of the world, more women than men were enrolled in tertiary institutions.

UNDP HUMAN DEVELOPMENT REPORT, 1995 [BOLD]

and management is partially hampered by their lack of exposure to scientific and technological fields related to the development of the water sector in general,' states Benedict P. Michaels. 'Though there has been a considerable number of educated women in Tanzania since independence in 1961, most of them are in non-technical fields, and the few who have been trained in technical fields do not hold positions which give them the privilege to influence decisions favoring them in the water sector development process. They simply implement what is decided by their senior male bosses.'

Sustainable Water Management – A Note

A sustainable development program is 'a development project/program which is able to deliver an appropriate level of benefits for an extended time period after major financial, managerial, social and technical assistance from external donors is terminated (OECD/DAC).' Water resource services that are developed as part of sustainable development are thus not dependent on ongoing service delivery and use. Rather, the services should be developed and established in such a way that they meet demands of the users while addressing the five components of sustainability:

- **Technical sustainability:** user involvement in the choice of appropriate and affordable technology
- **Social sustainability:** user recognition of the benefits of water resource provisions through stakeholder participation and gender sensitive approaches
- **Financial sustainability:** user management of financial resources (e.g. cost recovery, maintenance systems, etc)
- **Environmental sustainability:** user resource management
- **Institutional sustainability:** user involvement as stakeholders in devolved power, capacity building and local autonomy

The Gender Approach

The 1992 Convention on Biological Diversity mentions, ‘the vital role that women play in the conservation and sustainable use of biological diversity and affirming the need for the full participation of women at all levels of policy making and implementation for biological diversity conservation.’

Agenda 21 calls for the ‘development of public participatory techniques and their implementation in decision-making, particularly the enhancement of women in water resource planning and management’, and urges, ‘equality in all aspects of society... particularly as pertains to access to resources, credit, property rights and agricultural input and implements.’



VIET NAM
INDIA

Today, there appears to be consensus that women must be involved in water resources management if there is to be sustainable development -both in North and South. Systems would then become more efficient, user-focused, financially viable and environmentally sustainable—and economic production would improve. So would payment of costs, since women value water as an input to their economic activities, as well as to the health and well being of their families, and are often willing to pay fair costs.

Hence, many water management programs now place a focus on ‘women’s involvement’. But this raises a problem. Such programs often seek to alter women’s conditions and position without taking into account the larger social picture: the entrenched and dynamic power relations that are capable of negating any gains women may achieve. This can simply result in more burdens being placed on the backs of women.

Even a people-centered approach does not automatically ensure that women and men’s different needs and interests are reflected in development or conservation programming. If there is no explicit confrontation of gender equality issues, there will be no

Sometimes agencies promote the management of water supplies exclusively by women and do not address male responsibilities and tasks. It also occurs that project agencies pay so much attention to women’s as compared to men’s involvement, that the service comes to be seen as a women’s project, for which only the women are responsible. Women’s groups that build rainwater collection reservoirs at the members’ houses also tend to finance these facilities single-handedly, for example in Kenya, Tonga and the Philippines. In such cases projects cause women to carry the burden of a community water supply from which also male household members profit, irrespective of women’s higher workload and lower resources.’

KENYA, TONGA, PHILIPPINES

guarantee that women will receive the resources needed to contribute to development or conservation of the environment. True sustainability of these programs will only be achieved when women receive an equitable share of development and environmental resources and benefits.

Development resources include human resources. Indeed, the most important under-utilized resources we have are human resources. If half the world's population is prevented from developing its capacities -mental, physical and social- then we are severely restricting our potential to effectively manage our increasingly scarce reserves of water.

The gender approach

This approach, developed and refined through trial and error in many projects in developing countries, has proven to be the most efficacious in harnessing the human resources of local and national communities for the delivery of safe, reliable supplies of water at a cost users are willing to pay. It has also been shown to be an effective instrument for achieving sustainable use of water resources to protect and safeguard water resources for future generations.

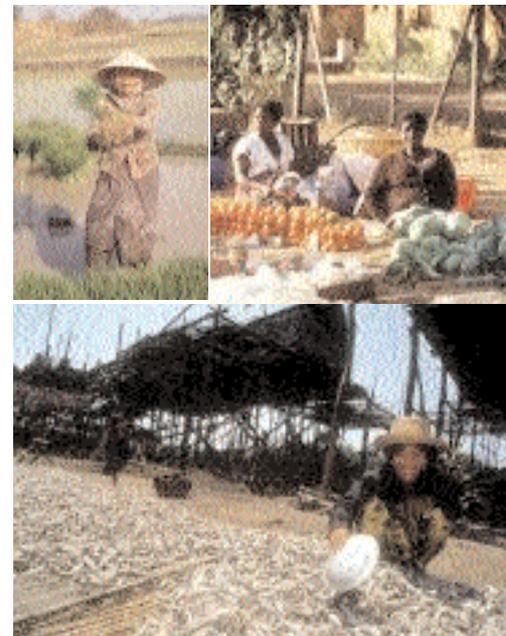
A sound gender approach would ensure that the complementarity of men's and women's roles and responsibilities is mobilized to best effect, and that the creativity, energy and knowledge of both genders contribute to making different water schemes and freshwater ecosystem projects work better, and the benefits and costs of water use accrue equitably to all groups.

The main feature of the gender approach is that it focuses on men AND women and not on women in isolation. Gender refers to the specific roles and responsibilities adopted by women and men in any society. It is related to how we are perceived and expected to think and act, as women and men, because of the way society is organized, not because of our biological differences.

The gender approach implies that attitudes, roles and responsibilities of men and women are taken into account, that it is recognized that both sexes do not necessarily have the same access to, or control over, resources, and that work, benefits and impacts may be different for both groups. The gender approach

The absence of women in official roles has delayed progress in improving water quality in the United States.' 'If a quantitative assessment of women's productive potential was to be carried out in Tanzania, it would reveal the negative socio-economic impact which is derived from the gender imbalance in water resources management.'

UNITED STATES, TANZANIA



LAOS; ZAMBIA
CAMBODIA

requires an open mindedness and aims at the fullest possible participation of both women and men.

It highlights the:

- Differences between women and men's interests even within the same household and how these interact and are expressed.
- The conventions and hierarchies which determine women and men's position in the family, community and society at large, whereby women are usually dominated by men.
- Differences among women and men based on age, wealth, ethnic background and other factors.
- The way gender roles and relations change, often quite rapidly, as a result of social, economic and technological trends.



VIET NAM
INDIA

Understanding the role of gender in water resource management requires attention to the complex relationship between productive and domestic uses of water, to the importance of participation in decision-making of men and women, and to the equitable distribution of benefits and costs from improved infrastructure and management structures. It also requires an understanding of the interactions between institutional, socio-economic, cultural and environmental ecosystem functions, dynamics and systems.

The gender approach seeks to change existing situations into situations where more equality and justice prevail, but takes into account existing attitudes, roles and responsibilities of women and men. It thus becomes an effective approach to give more opportunities to women and to have men share the burden and recognize the women as equal partners. It provides mechanisms for women and men to recognize and re-value existing patterns and to look for possible

Gender efficiency identifies women and men as the most important under-utilized resources, which programs and projects must incorporate for more effective and efficient development. That is: women and men are key factors in the various development sectors (water resource sector) throughout the developing world. Through their direct involvement in projects, both as beneficiaries and participants, and through adequate planning and designing based on a proper understanding of gender differences, can ensure that projects 1) achieve the immediate purpose and broad social economic goals and 2) maximize returns on investment in these sectors. This approach emphasizes the importance of mainstreaming attention to equality between women and men in economic analysis and policy development, and of increasing women's equitable participation in economic decision-making and economic independence

WORLD BANK 1989

The latter is a quantitative evaluation of 122 water projects financed by the World Bank. In 21% of these projects, the users influenced or controlled decisions and in 17% decisions were made by women and men. Such participation was found to be a strong determinant of project effectiveness... With participation of women, the correlations were consistently six or seven points higher for nine of the fourteen indicators.'

actions to improve the balance between women's and men's work, control and benefits. It also fosters more participatory and democratic management and decision making practices, providing more stable social conditions for long-term freshwater management.

It includes addressing both practical gender needs, such as improving women's conditions through the provision of water and sanitation closer to their houses, as well as strategic gender needs: improving women's position in society by increasing her awareness of her situation and her capacity to take decisions and influence change. A gender approach also seeks to prevent further overburdening of women and stresses the importance of not automatically reinforcing and perpetuating traditional roles. This implies the need to address men as well as women, since men are required to change their attitude and behavior to support this.





Gujerat, India

Initiated and managed by extremely poor women, this decade-long program leads to increased watershed sustainability, rehabilitation of ecosystems, and sustainable livelihoods for participants.

Patan District is arid. Average annual rainfall is 7 inches. Frequent droughts, severe salinity in land and water, high temperatures and sandstorms reduce communities to survival level. When crops fail due to drought, there is no option except migration.

2/3rds of water users are women.

In 1995, the Self-Employed Women's Association (SEWA), a trade union of 215,000 poor self-employed women, launched a ten-year water campaign in 9 districts of Gujerat.

Watershed Committees were set up at meetings where every villager from Users Groups and self-help Groups was present. Out of a total of 11 members, at least seven were women. The chairperson was unanimously elected from the women members.

The Watershed Committees first collected detailed information on the resources of each village - natural resources as well as human resources. Then they prepared an action plan for every four years. Treatment works were implemented on the basis of annual micro plans.

Results

Over the period of the program, the committees constructed 15 farm ponds, recharging 120 tube wells. They also repaired 20 village ponds, and recharged 3 check dams and 15 open wells in 8 projects. Through soil and moisture conservation work, the salinity of the land decreased. With more productive land, the women began getting higher and more sustainable incomes. About 3,662 hectares were thus treated. Now they grow cash crops using organic farming.

Using panchayat wasteland, community pasture land and private land, about 5,000 trees have been grown and grass cover created on 3,500 sq. meters of field bunding for better retention of water. This has created a green belt in the area and generated employment opportunities for about 240 women. About 2,500

hectares of land, which formerly had only rain-fed agriculture, have an irrigation facility, and drinking water is now assured.

The key messages of the rural women in the program:

1. The most important method of mainstreaming women is enhancing their financial and managerial powers.
2. Unless women watershed users groups manage their own watershed resources, the watershed will remain unbalanced, in favor of men and vulnerable to overuse.
3. Equity, not only between women and men, but also between poor women and better-off women, is important. This means recognizing the poor women as watershed users in an individual capacity as well as in a group.
4. Women are good managers and they have access to traditional technical knowledge.
5. The key to women's effective involvement in forestry and biodiversity protection is through their access to the watershed.



Tanzania

Mangrove degradation is a serious ecological problem in many parts of the world. Mangroves are crucial in protecting freshwater resources. A careful application of the gender approach has stemmed destruction on the Tanga Coast of Tanzania.

Men fished on the Tanga coast of Tanzania. Women caught small shrimps and planted rice. Men also planted crops - but coconuts and cashew nuts that could be sold for cash.

Up to 1996, women were thus among the poorest people in villages studied by a team commissioned by the government and the IUCN - the World Conservation Union. Women owned and controlled few resources.

The study was part of an effort to help local people find more sustainable ways to use their coastal environment and protect the mangroves, which are vital for protection of freshwater resources.

At the beginning, the women did not attend meetings. Special meetings were thus held with women to analyze both the consequences and the causes of the lack of participation. They listed a number of reasons for their absence, the main one being that the men would not listen to them so they did not want to waste their valuable time. The second reason was that meetings occurred at times that were not suitable for them. They also complained that they were not properly informed about the meetings.

A new meeting were convened with both the women and the men to discuss the women's absence, and, after some discussion and promises from the men that they would listen to them, the women finally agreed to attend the meetings.

Women are now engaging in planning, monitoring and evaluation activities and they are apparently actively participating in the formulation of a fisheries management agreement. Illegal mangrove cutting and destructive fishing practices, including dynamite fishing, have declined through the enforcement efforts of the villagers themselves, and there is a voluntary mangrove replanting and weeding program.

Despite the potential conflict between the gender equity objective and the objective of reducing fishing pressure by developing alternative livelihoods, the program has in general had positive results. In the pilot villages, both the environmental committees and village management committees are more gender balanced today. Levels of gender awareness, participation and motivation have increased women's self-confidence and some are now even actively participating in typical male activities like village patrols. The situation improved gradually as the women gained self-confidence after participating in training courses, workshops, and study tours and seeing the results of their activities.



Guinea-Bissau

Women are often left out of technological training. However, in Guinea-Bissau, the government discovered that decentralized management and maintenance of handpumps was successful when placed in the hands of women.

Since 1987, the government of Guinea-Bissau has focused on the development of a decentralized maintenance system and the standardization of handpumps. This has improved pump

performance and supported the introduction of cost recovery strategies and the principle of users' involvement. In 1993, these efforts started to yield results: users financed 5-10% of maintenance costs.

Early in 1994, a survey was made in 46 villages to review the management performance of the water point committees. In almost all cases, the committees were functioning well. Some 53% of their members were female, with 20% of the women having management functions outside their traditional task of cleaning pump surroundings.

Candidates for the position of area mechanic were selected at village meetings. Villagers preferred male mechanics due to the need for travelling by bicycle to visit villages and the physical labor involved in pump repair. However, though the job was well liked, its payment was not sufficient to maintain the bicycles. The provincial promotion team encouraged the villagers to select women for this job, as they had more direct interest and were less likely to leave the village to seek income. By mid-1993, a total of 177 village mechanics, including 98 females, had been trained and were maintaining their handpumps.

Bangladesh

Irrigation is usually regarded as man's work. But once women in Bangladesh got their hands on equipment for increasing their access to water, agricultural productivity rose. It shot up further, when the women gained access to other inputs – land, credit, seeds and fertilizer.

In 1987, the Grameen Bank and its sister organization, the Grameen Krishi Foundation (GKF), purchased 790 deep tube wells from public organizations. Management of this irrigation equipment and the supply of agricultural inputs and credits to farm households became the core activities of GKF. The approach was to explicitly link agricultural productivity and efficiency objectives with poverty alleviation and women's empowerment, targeting the so-called "land-poor" who owned between 0.5 and 3 acres of land.

The GKF began to recognize that women would be able to make much more income if given adequate support, compared with returns on labor in traditional female activities. GKF made

irrigation available to either groups or individuals in the form of access to deep tube wells or shallow tube wells, to irrigation technology (shallow tube wells, treadle pumps, or hand tube wells). It was found that women experienced problems in enjoying the full benefit of access to irrigation water due to poor access to other inputs - land, credit, seeds and fertilizer. Therefore GKF attempted to provide these inputs as well as negotiating with landowners to secure lease arrangements on behalf of women.

The result was that female involvement in irrigation activities increased dramatically, as did their income. Whereas, as wage laborers, they would have earned around Tk500, seasonal net income from irrigation ranged from Tk1,000 (with a treadle pump) to Tk5,000. Increased income-generating capacity strengthened their self-confidence and reduced dependence on male intermediaries, in spite of some initial problems due to loss of social status for contravening purdah norms.

"I became a widow 21 years ago,' one woman observed to the project officials, 'and was lucky to inherit some land from my late husband. I had five young children whom I had to feed. My only choice was to cultivate my land to produce food for the family. People in the village made very rude remarks. They said 'she is a tribal' or 'if she prays God will not accept her prayer' and 'she is the husband of a man' and other similar things. I continued with my struggle. Nowadays my life is easier as my son and daughter in law live in my house and help with all the work. I am now a professional farmer, doing all men's work. I am no longer interested in household work."

Mainstreaming the Gender Perspective in Water Resources Management

The examples in this paper demonstrate that a gender approach results in greater efficiency, greater effectiveness, improved environmental sustainability and greater equity. **How this approach is applied varies from case to case and circumstance to circumstance.** What is essential, however, is a commitment to the process of gender mainstreaming in the entire system of freshwater management.

Gender mainstreaming is the process of assessing the implications for women and men of any planned action, including legislation policies or programs, in all areas at all levels. It is a strategy for making women's, as well as men's concerns and experiences an integral dimension of the design, implementation, monitoring and evaluation of policies and programs in all political, economic and societal spheres so that women and men benefit equally, and inequality is not perpetuated.

At the United Nations Fourth World Conference on Women, held in Beijing in September 1995, participating governments undertook to carry out a comprehensive platform for action intended to ensure "that a gender perspective is reflected in all our policies and programs", and recognized gender mainstreaming as the principal means to achieve these objectives.

The Beijing Declaration: Source OECD/DAC, 1998

A. At Global level

1. Mainstreaming gender in the development of global efforts: the latest global movement towards developing international policy to guide the long term vision on water, life and the environment in the 21st century has been launched recently by the World Water Council. The vision process, which seeks to raise awareness among the civil society and decisions makers in order to foster political will and leadership for future action, should ensure that gender equity concerns are voiced during consultations at all levels. More importantly, these concerns should be integrated into the design and implementation of the Framework of Action affirming appropriate follow-up.



CAMBODIA

B. At International level

2. Policy changes in bilateral and multilateral organizations to mainstream gender as part of the strategy of water management. This requires taking gender equity concerns in all policy, program, administrative and financial activities, and in organizational procedures, thereby contributing to a profound organizational transformation. Specifically, it brings the outcome of gender socio-economic and policy analysis into all decision-making processes of the organization, and tracks the outcome.

Many different departments with SIDA work on SIDA's policy for promoting equality between women and men, both in the context of bilateral projects and programs and in specific targeted inputs through NGO's and other institutions. Details of their mainstreaming strategy are included in the individual action plans of these departments.

This policy is clearly established as an important criteria for overall country strategic development, influencing the choice of sectors to support in a country, the choice of interventions within sectors and the approach taken in provision of support.

SIDA –SWEDISH DEVELOPMENT COOPERATION AGENCY, 1997

C. At national/institutional level:

3. The emphasis on mainstreaming gender perspectives in the water sector reflects recognition that the interests and needs of women as well as those of men must be systematically pursued in the development of all national/regional policies and programs. That is, attention to gender issues cannot be confined to a sector called "women's development" or addressed through isolated or marginal programs within the water sector (OECD/DAC, 1998).
4. Legal frameworks and institutional reform to incorporate gender considerations, so that women and men have equitable access to productive resources, such as land, credits, fertilizer etc. At the moment, 90 countries still have not fully adopted the UN convention on the elimination of all forms of discrimination against women. This means women do not always have rights of property or inheritance.

In Dakiri, Burkina Faso, the current study shows, allocating smaller plots separately to men and women instead of allocating bigger plots to household heads has positive production and social benefits. When both men and women have irrigated plots, the productivity

of irrigated land and labor is higher than that in households where only men have plots. Women are equally good or even better irrigation farmers than men, and those who have obtained irrigated plots are proud of their increased ability to contribute to the needs of their households. Women prefer to contribute to their households by working on their own plots rather than providing additional labor to their spouse's or to the collective plots. As they become economically less dependent upon their husbands, they can help support their relatives and increase their own opportunities for individual accumulation of wealth in the form of livestock. The effects of having an individual plot significantly improve the bargaining position of a woman within a household and are a source of pride in the household and the community.'

BURKINA FASO

5. Building capacity to increase the understanding of gender implications for water management, as part of an effort to empower women so that they can acquire the skills to enter water management at a senior level. This involves an increase in technical and scientific education offered to women.

US women make up less than a quarter of the science and engineering labor force: only 8% of engineers are women, according to the National Science Foundation. One of the encouraging signs that the future may be different is the emergence of a number of organizations formed to encourage girls to get involved in mathematics and science... A mother with a Ph.D., Corinna Lathan, founded Keys to Empowering Youth, designed to interest middle school girls in science and engineering. To find real role models in science and technology, girls can also turn to a program called Advocates for Women in Science, Engineering and Mathematics. In this after-school club, girls from 11-18 years old meet college students majoring in science, mathematics and technology. Teen Women in Science and Technology is another program, developed by the Oregon Institute of technology, to encourage teenage girls to discover mathematics, science and technology in a unique hands-on summer residential program. In 1996, the theme of 'water' sent the group on a problem-solving quest and discussion of careers from a water-related perspective. Teenagers were asked to investigate a water pollution problem scenario.'

UNITED STATES OF AMERICA

6. A proactive effort to gender sensitise water management approaches at senior policy making levels in national structures as part of a strategy to ensure equity and increased women's involvement in these processes.

Engendering the development paradigm involves radical change in the long-standing premises for social, economic and political life. The free workings of economic and political processes are unlikely to deliver equality of opportunity, because of the prevailing inequities in power structures. When such structural barriers exist, government intervention is necessary -both through comprehensive polity reforms and through a series of affirmative actions.

UNDP, 1995

7. Gender training for men and women working in water-related national and regional bodies, non-governmental organizations and private water companies.

In Sulawesi in Indonesia, the Pompengan Integrated Areas Development Project organized gender training for male and female extension staff working in rural development, food crop, irrigation, family welfare, land planning and agriculture. The participants became aware that the activities of their projects affect men and women differently. They learned to do a gender analysis approach and developed ways to practice gender in their work. In Tanzania, the Health through Sanitation and Water project developed training and a training file on gender and well as a gender strategy.

INDONESIA, TANZANIA

8. Policy changes so that gender becomes an intrinsic part of the water resources management strategy of countries.

Water resources will be managed in a way which recognizes the distinctive roles of men and women. Priority will be given to activities which facilitate traditional gender roles and strengths. In particular the interests of women in vulnerable positions (such as low income, female-headed households or migrant workers) will be supported in all aspects of water resource management. The water resources policy should be interpreted in a gender sensitive manner.'

DRAFT NATIONAL WATER RESOURCES POLICY, SRI LANKA

Recognizing the principal role of women in water supply and sanitation, gender equality will be given adequate attention. Increasing women's participation and reflecting women's interests in the project development will be two major strategies to implement principle of gender equality. Detailed work procedures will be guided by the principle of gender equality.'

NATIONAL WATER SUPPLY SECTOR POLICY AND STRATEGY, NEPAL
SRI LANKA, NEPAL

D: At project/local/community level:

9. Gender stratification in research and planning. Most current investigations of users and their needs fail to collect data differentiated along gender lines. This results in faulty assessment of levels of need and patterns of need. When information is gathered that takes into account specific gender needs, users are often more willing to pay the costs involved in supply, infrastructure and maintenance.

In Ghana, Nigeria, Tanzania, India, Thailand and Indonesia, only male heads of households and authorities were interviewed, even about women's issues such as water needs, water transport and use, laundry provisions, and preference for a foot or handpump. Nor is a distinction between the sexes always made in analysis and reporting. In a number of cases males heads of households were consulted on topics which are outside their sphere of knowledge, views and influence, or topics were discussed on which women have different knowledge, views or demands from those of men.'

GHANA, NIGERIA, TANZANIA, INDIA, THAILAND, INDONESIA

10. In-depth gender-sensitive consultation processes that allow participation of both women and men in decisions regarding location of water installations, technology and price implications. This may require separate meetings to ensure that women feel free to offer their opinions, and the use of female as well as male project staff.

Wells often run dry after a few years and pumps frequently break down. Although it is the women who stand to lose most, they are rarely involved in the construction of wells or trained in the operations and maintenance of pumps. A project in the Upper Volta dug wells to inadequate depths because only men were involved in its design and implementation. Village women were not consulted, although they were responsible for collection of water from the well and had better knowledge of the depth to be dug to retain water year-round.'

GHANA

11. Care in ensuring gender balanced participation in management at community levels. Since the provision of water has so long been a women's responsibility in many societies, there is a great danger that efforts to increase community participation can have the grotesque effect of increasing the work women are expected to undertake. Women continue to provide unpaid, manual work, while men secure any managerial or decision-making roles that become available.

Failure to address gender biases in community organizations can undermine project performance, as shown by the Macina Wells Project in Mali. An evaluation of this project in 1994 found both women's and men's work to be substandard. Women, assigned the tasks of well cleaning by older, authoritative male caretakers, neglected this task because it was added on to their already overloaded work schedules and because many of the male imposed rules of the well were impractical and illogical. Women were given minimal influence over project planning, kept out of key decision-making responsibilities, and excluded from all technical aspects of the project. The allocation of men to high status also proved to be counterproductive since men lacked the incentive to carry out work related to water provision and sanitation which they felt to be in the women's domain.'

MALI

12. Capacity building so that women are able perform managerial functions. This includes the development of skills in financial management, decision-making, community participation, leadership, confidence building and communications.

The effects of female participation in management on the women and men in communities are manifold. Recognition of women's management tasks and training for new tasks and skills has increased their status and self-confidence. Women in Visayayas in the Philippines reported that their views are increasingly met with respect and their needs met with regard to time of meetings, design of water supply and design of latrines. They now believe that they can really contribute something for the good of the community and be 'partners in progress' and not 'for decorative purposes only'. In a project in Indonesia women grew in knowledge, self-confidence and leadership, and autonomous management of water systems increased.'

PHILIPPINES, INDONESIA

13. Gender training for both men and women at local levels, so that men understand and support the changes taking place in social organization. This requires also training of trainers, both men and women.

In Dosso, Niger, the issue of gender was first raised by the external support agency. However, the manager of the community participation program remarked that the program itself had also noted the overburdening of women in the villages. For the water supply, sanitation and hygiene program, it was also a matter of common sense to involve women more in the water management and get more male support in matters of health and hygiene. But how to change behavior

across the board: of men and women in villages as well as staff? To start off, gender-determined tasks and authority were investigated for old and young women and men and boys and girls in five villages in the program area. The workshops have led to a greater gender consciousness of staff and also to some changes in their own practices. Acceptance and pursuit of gender measures in the program -organizing separate meetings with women; shared committees; conscientization of men on responsibilities in water payments- have increased.'

NIGER

14. Capacity building to equip women to perform technical functions.

Available research tends to indicate that women perform technically as well or better, and that the costs of maintenance to the agency are lowered. This is reported, for example, by projects in Tanzania, Bangladesh, Zimbabwe and Uttar Pradesh in India. In the case of Rajasthan, both frequency and duration of handpump breakdown were lower for female than for male mechanics. However, the opportunity costs are high. The amount of time the women spent on preventive maintenance was almost seven times higher than men. Having still to carry out their domestic work, they also face a double workload.'

TANZANIA, BANGLADESH, ZIMBABWE, INDIA

15. Strategies to ensure that both women and men share the benefits of changes in water supply management.

The imbalance increases when work done by women is voluntary while the same or similar work by men is paid. In Samoa, indigenous water sources were managed by women's groups on a voluntary basis, under the supervision of an older public health nurse. When the public health policy was changed, the women's work was not recognized but taken over by salaried male health inspectors. The result was that environmental conditions deteriorated, at a higher cost to the government. Similar tendencies are reported in Kenya and India. In Western Province, Kenya, the project replaced paid repairmen by voluntary women pump attendants for reasons of misconduct and because the men moved to town. In Rajasthan the project trained male mechanics, but also 72 female mechanics. The women did not get the same working and payment conditions as the men and the local councils have not agreed to take on the payment of their salaries. Similar reports on women trained and doing the work but not being recognized comes from Karnataka, India.'

Benefits of Gendered Freshwater Management

A new development paradigm is needed that puts people at the center of development, regards economic growth as a means and not an end, protects the life opportunities of future generations as well as the present generations, and respects the natural systems on which all life depends.

Such a paradigm of development enables all individuals to enlarge their human capabilities to the full and to put those capabilities to their best use in all fields – economic, social, cultural and political.

Human Development Report 1994

People who have a stake in something, work at it. This is the case where women are household and community managers of water. They conserve supplies, invest time and labor in improving supplies, and monitor quality and quantity.

Clearly, the time has now come for this long-standing interest and concern to be optimized. But, women cannot be expected to play effective roles as managers and decision-makers if their position is undermined by the wider society. Hence, their status in society, their self-confidence as managers, the development of their technical skills and their autonomy to act as independent, capable members of the human race, has to be supported.

For this to happen, a gender approach in integrated freshwater resources management is essential. This will lead to greater:

- **Effectiveness:** the infrastructure, as well as valuable freshwater resources, will be more widely and optimally used and sustained by all user groups, rich and poor, women and men
- **Efficiency:** with limited funds and resources, the sector agency can reach more individuals
- **Development:** the service and its social processes will not only bring water, it will increase consumption, production, income, environmental security, health and overall family welfare.
- **Sustainable use in freshwater ecosystems:** Women's and men's direct and fair participation in research and project implementation can increase the potential flexibility and creativity in responding to environmental insecurity and changes in resource systems.
- **Equity:** Burdens and benefits will be shared more equitably between women and men in the household and in the community at large.

The benefits that will accrue to society, to the environment, and to the water sector are many.

Economic: If women have a more effective role in water management, it will boost economic production both in agriculture and small industry. Use of irrigation methods will increase and be improved, and both food security and cash crop production will benefit. Increased services (in beer brewing and provision of refreshments, for example) will result.

Nutrition and health: Since women are generally more concerned with family nutrition hygiene than men, their greater autonomy over water use will boost health. A gendered approach will also spread concern for nutrition, child-care and health among men.

Social: A larger share of community responsibility for women tends to increase mutual respect within communities and families. It unlocks creative potential currently imprisoned by the pressures of maintaining artificial hierarchies, and relieves men of the stress of sole responsibility for the family vis-à-vis the wider community. It allows natural skills and talents to flow to the surface, where they can contribute to community and national development. Skills levels in general increase, leading to a rise in incomes.

Environmental: Broader social participation will result in more effective use of existing water resources through rehabilitation activities, waste reduction and innovative arrangements. Women's involvement in a wide range of activities will facilitate freshwater ecosystem maintenance and protection, and some potential water conflicts can be resolved. An improvement in strategies for water conservation, pollution protection and demand management can be expected.

Financial: Real user demand is more efficiently and effectively mobilized so that payments for valued services are less of a problem.

Cultural: An effective and socially useful improvement in women's position has many spin-off effects. The contribution of half the world's population is more effectively mobilized towards other sustainable development goals.

- Athukorala, K. and Weerakoon, P (1998). Women's Participation in Irrigated Agriculture and Farmer Organizations - Implications for the Future: presented at the National Conference on Water. Colombo, Mimeo.
- Chileshe, J. (1997). 'Approaches to Local Community Participation in the Conservation of Wetland Resources'. In: Community Involvement in Wetland Management: Lessons From the Field: incorporating the proceedings of workshop 3: Wetlands, Local People and Developments, of the International Conference on Wetlands and Development, Kuala Lumpur, Malaysia, 9-13 October 1995. Kuala Lumpur, Malaysia, Wetlands International.
- Espejo, N. (1993). Gender and the Management of Drinking Water Supply in Low Income Urban Communities in Latin America. The Hague, The Netherlands, IRC International Water and Sanitation Centre.
- Jordans, E. and Zwartveen, M. (1997). A Well of One Own, Gender Analysis of an Irrigation Program in Bangladesh. (Country Paper Bangladesh; no. 1). Bangladesh, International Irrigation Management Institute and Grameen Krishi Foundations, International Water Management Institute.
- Kwaule, F. (1993). Gender and Peri-Urban Water Supplies in Malawi. Malawi, Water Department, Ministry of Works.
- Kweka, R. (1998). 'Women in Smallholder Irrigation in Tanzania', In: Gender Analysis and Reform of Irrigation Management, Concepts, Cases and Gaps in Knowledge. Tanzania, International Water Management Institute.
- Lundqvist, J. (1994). General Introduction to the Concept of Water Resources Management: report from a seminar held in Stockholm, 1-3 December. Stockholm, Sweden, Swedish International Development Cooperation Agency, Department for Policy and Legal Issues, Gender Group.
- Michael, B. P. (1998) 'The Role of Women in Water Resources Management: The Tanzania Case'. In: International Journal of Water Resources Development, vol. 14, no. 4.
- Ministry of Water Resources (1996). Study of Gender Issues Related to the Water and Energy Sectors in the Far Western Development Region of Nepal. Nepal, Ministry of Water Resources, Water and Energy Commission Secretariat.
- Oakley, P. et al. (1991). Projects with People: The Practice of Participation in Rural Development. Geneva, Switzerland, International Labor Office.
- OECD/DAC (1994). Meeting on Water Resources Management. 10-11 May 1994: Conclusion. Paris, France, Organization for Economic Cooperation and Development, Development Assistance Committee.
- OECD/DAC (1998). DAC Guidelines for Gender Equality and Women's Empowerment in Development Cooperation. Paris, France, Organization for Economic Cooperation and Development, Development Assistance Committee.
- Rico, M. N. (1998). 'Women in Water-related Processes in Latin America: Current Situation and Research and Policy Proposals'. In: International Journal of Water Resources Development, vol. 14, no. 4.
- SEWA (undated). Women Lead – Watershed Development in Desert Areas. Ahmedabad, India, Self Employed Women's Association.
- SEWA (1995). Women, Water and Work – SEWA's Membership Campaign. Discussion Paper Presented at the NGO Forum on Women Beijing 95 in the theme session, Rural Women in the 21st century, Empowerment through Employment and Organisation, held by International Labor Organization. Ahmedabad, India, Self Employed Women's Association.
- Sida (1997). Sida's Action Programme for Promoting Equality between Women and Men in Partner Countries: Experience analysis, policy and Action Plan. Stockholm, Sweden, Swedish International Development Cooperation Agency, Department for Policy and Legal Services.
- Sida (undated, ca. 1997). A Gender Perspective in the Water Resources Management Sector. (Publications on Water Resources; no. 6). Stockholm, Sweden, Swedish International Development Cooperation Agency, Department for Natural Resources and the Environment.

Sudman, R. S. (1998). 'Contribution of Women in the Field of Water Resources' In: In: International Journal of Water Resources Development, vol. 14, no. 4.

UNDP (1994). Human Development Report. New York, USA, United Nations Development Programme.

UNDP (1995). Human Development Report. New York, USA, United Nations Development Programme.

UNDP (1996). Human Development Report. New York, USA, United Nations Development Programme.

Van Ingen, T. and Kawau, C. (undated). Involvement of Women in Planning and Management in Tanga Region. Tanzania, IUCN-The World Conservation Union.

van Wijk-Sijbesma (1998). Gender in Water Resources Management, Water Supply and Sanitation, Roles and Realities Revisited. (Technical Paper Series; no. 33-E). The Hague, The Netherlands, IRC International Water and Sanitation Center.

van Wijk-Sijbesma and Francis, J. (1999). Setting the Stage: Global Trends in Gender and Demand Responsive Water Supply, Sanitation and Hygiene. The Hague, The Netherlands, IRC International Water and Sanitation Centre.

Veziņa, M. (1995). Woman, Water, Sanitation. The Hague, The Netherlands, IRC International Water and Sanitation Centre.

Visscher, J. T., and Werff, K. van de (1995). Towards Sustainable Water Supply: Eight Years of Experiences from Guinea-Bissau, The Hague, The Netherlands, IRC International Water and Sanitation Centre.

White, A. U. (1977). 'Patterns of Domestic Water Use in Low-income Communities'. In: Water, Waste and Health in Hot Climate. London, UK, Wiley.

WMO (1992). International Conference on Water and the Environment: Development issues for 21st Century, January 23-26 1992, Dublin, Ireland: the Dublin Statement and Report of the Conference. Geneva, Switzerland, Hydrology and Water Resources Department, World Meteorological Organization.

World Bank (1989). Operational Issues Paper on the Forestry Sector. Washington DC, USA, The World Bank.

World Bank (1998). World Bank Report. Washington DC, USA, The World Bank.

WWF International and The Division for Sustainable Development in Collaboration with Equilibrium Consultants (1999). The role of major Groups in Sustainable Oceans and Seas: a background paper prepared for the commission on Sustainable Development 7th Session, New York, 1999. (Background paper; no. 6). Washington, DC, USA, World Wildlife Fund International and The Division for Sustainable Development in Collaboration with Equilibrium Consultants.

Zwartveen, M. and Meizen-Dick, R., (1998). 'Gendered Participation in Water Management: Issues and Illustrations from Water User Associations in South Asia.' In: Merrey, D. and Bhaviskar, S. (eds.). Gender Analysis and Reform of Irrigation Management: Concepts, Cases and Gaps in Knowledge, Proceedings of the Workshop on Gender and Water, 15 - 19 September 1997. Habarana, Sri Lanka, International Water Management Institute.

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