



Water and Ethics

WOMEN AND WATER: AN ETHICAL ISSUE

Alice Aureli and Claudine Brelet



UNESCO International
Hydrological Programme



World Commission on the Ethics of
Scientific Knowledge and Technology



Water and Ethics

**WOMEN AND WATER:
AN ETHICAL ISSUE**

Alice Aureli and Claudine Brelet



UNESCO International
Hydrological Programme



World Commission on the Ethics of
Scientific Knowledge and Technology

The authors are responsible for the choice and the presentation of the facts contained in this book and for the opinions expressed therein, which are not necessarily those of UNESCO and do not commit the Organization. The designations employed and the presentation of material throughout this publication do not imply the expression of any opinion whatsoever on the part of UNESCO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

Series on Water and Ethics, Essay 4

Published in 2004 by the United Nations Educational,
Scientific and Cultural Organization

7, Place de Fontenoy, 75352 Paris 07 SP (France)

Composed by Marina Rubio, 93200 Saint-Denis

Printed by UNESCO

ISBN 92-9220-019-4

© UNESCO 2004

Printed in France

Preface

This essay is one of a series on Water and Ethics published under the International Hydrological Programme of UNESCO. A Working Group on the Use of Fresh Water Resources was established under that programme in 1998. Preliminary drafts on fourteen aspects of this topic were prepared under the guidance of this Working Group.

An extended executive summary was prepared by J. Delli Priscoli and M. R. Llamas and was presented to the first session of the World Commission on the Ethics of Scientific Knowledge and Technology (COMEST) held in Oslo in April 1999. At the latter meeting, COMEST established a sub-commission on the Ethics of Fresh Water under the Chairmanship of Lord Selborne. The first meeting of this sub-commission was held at Aswan in October 1999. A 50-page survey by Lord Selborne on the Ethics of Fresh Water, based on the above meetings and documents, was published by UNESCO in November 2000.

Since then, the original draft working papers have been revised under the editorship of James Dooge and published on CD ROM as an input to the Third World Water Forum held in Kyoto in March 1993. These are now being published in printed form as the first fourteen titles in a series of Water and Ethics

These essays are written from the point of view of experts on different aspects of the occurrence and use of fresh water who are interested in the ethical aspects of this important subject. They do not purport to be authoritative discussions of the basic ethical principles involved. Rather, they aim at providing a context for a wide-ranging dialogue on these issues between experts in diverse disciplines from the natural sciences and the social sciences.

James Dooge
John Selborne

This publication is concerned with the ethical issues arising from the special role of women in water use and from related social and environmental problems. It discusses both the nature of some of the key problems and the efforts in recent decades by both inter-government and non-governmental organisations to overcome these problems.

Alice Aureli is Programme Specialist in the Division of Water Sciences of UNESCO. Claudine Brelet is an anthropologist and former Programme Specialist at the World Health Organisation.

Contents

1. **Introduction**
2. **The role of women in natural resources management**
 - 2.1 The linkage between gender issues and fresh water
 - 2.2 The impact of environmental degradation on women's life
 - 2.3 Women and education
3. **Access to the fresh water as a fundamental human right**
 - 3.1 The international instruments and UN Conferences concerning women
 - 3.2 The right to share fresh water
 - 3.3 Women and poverty
4. **Gender commitment in natural resources management**
 - 4.1 Women, water science and technology
 - 4.2 UN programmes concerning women in natural resources management
 - 4.3 The NGO: a participatory approach in natural resources management
5. **Conclusion**
6. **References**
7. **Additional bibliography**

1. Introduction

The recognition of the equal and inalienable rights of all members of the human family as the foundation of freedom, justice and peace in the world was proclaimed as early as 1948 in the Universal Declaration of Human Rights (UN, 1948). Although the fifty-eight Member States which formed the United Nations at that time very much varied in their ideologies, political systems, religious and cultural background, and patterns of socio-economic development, this *Magna Carta* for all humanity paved the way for a common set of normative values concerning human will and action: an ethics valuable for men as well as for women.

The World Summit on Sustainable Development (also known as Stockholm+30 and Rio+10), held in Johannesburg in September 2002, has emphasized the importance of considering the use of freshwater to be an ethical issue. This consideration comes from the perception that current natural resources of the world are submitted to an increasing deadly threat created by the human impact, and that freshwater is one of the first to be affected. By 2025, the UN estimates that as many as 5.5 billion people, the two thirds of the world's population, will face a water shortage. The degradation of water quality worsens the imbalance between water supply and demand. It threatens the sustainability of life in an increasing number of regions throughout the world. *Lack of access to water for drinking, hygiene and food security inflicts enormous hardship on more than a billion of the human family* said UN Secretary General Kofi Annan on December 12, 2002 in New York. Whereas access to fresh, clean water has always constituted a source of tensions and fierce competition, *it could become even worse if present trends continue*, also warned Kofi Annan. Because women and children are usually the most affected persons by conflicts, they would clearly be the main victims of the resulting poverty often linked with the lack of access to fresh water (UNDP, 2001).

Modern science and technology have widely contributed to alleviate a number of difficulties related to the great diversity characterizing the geographical distribution of freshwater resources throughout the world. Yet, ethical, normative values and legal tools to overcome the disparities in water access related to gender still need to be developed, especially in developing regions where women are particularly exposed to serious health risks.

Access to freshwater resources influences directly women's lives. It has an immediate impact on children's health (infant mortality rate show the links existing between women and water), and on that of the family in general. According to the World Health Organisation, approximately 250 million individuals were diagnosed

with a water-borne disease at the dawn of the twenty-first century. Of the 250 million, 75% of these individuals lived in tropical rural or slum-like areas (UNICEF/WHO, 2000). Although most of them were clearly women, and although it is now recognized that sex and gender are primary determinants of health, the health data both produced and disseminated still needs to be sex disaggregated and a gender analysis of it undertaken on a routine and systematic basis to address gender issues effectively and therefore to recognize the ethical dimension of water issues (WHO, 2002). Since water is the source of life and because safe water is a crucial component of health, this ethical issue is a matter of survival for humanity.

Women are most often the collectors, users and managers of water in households as well as the farmers of irrigated crops. For example, at least half of the world food is grown by women farmers and it amounts to 80% in some African countries (FAO, 2000). Whereas African women increasingly assume a vital role in agriculture, they remain among the most disadvantaged populations. Easier access to fresh water would improve living conditions for girls who generally drop out of school and start working in the fields and fetching water at a very young age. Lack of access to water is an obstacle to their right to have access to formal education.

Yet, women's considerable knowledge of water resources, including quality, reliability, and storage methods is too often not taken into account by decision makers who still ignore that this hidden chest of knowledge is one of the major keys to the success of water resources development and irrigation projects. Actually, in traditional societies the division of labour and the technology do not constitute pragmatic means only. They also have a spiritual meaning which is expressed in their cosmologies. Thus and consequently, the local labour organization deserves due respect in these communities when efforts are made to improve a local or regional situation: the contents of cultural rights is an integral part of human rights (Murcott, 1991; UNESCO, 2002).

It is now recognized that the exclusion of women from the design, planning and decision-making of water supply and sanitation projects in developing countries is a major obstacle to the improvement of their well-being (World Bank, 1989). International initiatives, such as the International Drinking Water Supply and Sanitation Decade and the United Nations Conference on Environment and Development (UNCED), have been instrumental in promoting the role of women in the protection of natural resources as well as in water management (Verhasselt, 1998). Peaceful sharing of water resources and the need to protect less favoured groups such as women and children call for the application of the principle of equity contained in the Article 2 of the *Universal Declaration of Human Rights*. Considering that women are the main users of water, in rural as well as urban areas, their participation as water-scientists, engineers and policy makers is an urgent moral imperative in respect

of the democratic governance (Deshingkar, 1995). In addition to the set of principles against discrimination of all kinds contained in its Article 2, the *Declaration of Human Rights* states that each person has the right to attain a minimum standard of quality of life. It implies that access to fresh water must provide equal opportunity for both women and men to enjoy a productive livelihood and that it must ensure the life for the next generation (UNICEF, 1998).

‘Environmental ethics focuses on the moral foundation of environmental responsibility, and how far this responsibility extends’ (IEP, 2001). Today everyone agrees on the need to be more environmentally responsible. Hence a few weeks after the World Summit on Sustainable Development (Johannesburg, September 2002) the United Nations Committee on Economic, Cultural and Social Rights took unprecedented steps by agreeing on a General Comment on water as a human right, saying: ‘Water is fundamental for life and health. The human right to water is indispensable for leading a healthy life in human dignity. It is a pre-requisite to the realization of all other human rights.’ As a result, Water for Health was clearly declared a Human Right by the World Health Organization on December 4, 2002.

The time is clearly ripe to link sustainable development to gender issues. The responsibility for the use of water and its degradation includes the respect for women’s dignity as well as the equal and peaceful sharing of natural resources. These issues are the core of the building of a universal ‘Water Ethics’.

In the global society of the twenty-first century, *our futures will be increasingly shaped by interdependence of the world’s people* (UNDP, 1995). From the UN *Declaration of Human Rights* in 1948 to water being declared a human right by WHO in 2002, almost six decades were necessary to consider women and water as an ethical issue and to recognize the need to include social and cultural dimensions within new policies and scientific programmes. This long educational process was initiated by the Dublin Conference in 1992. Then for the first time and throughout the world, water experts recognized the central role of women related to water supply and sanitation. This recognition was enlarged during the Rio Conference, particularly by the chapter of *Agenda 21* devoted to women and their right to participate in the decision making processes, by the World Conference on Women organized by the UN in Beijing in 1995. Eventually the full implementation of *Agenda 21*, the Programme for Further Implementation of *Agenda 21* and the Commitments to the Rio principle, were strongly reaffirmed at the World Summit on Sustainable Development (WSSD) held in Johannesburg in September 2002.

The regional seminar on ‘Women’s Participation and Gender Consideration in Water Supply and Sanitation Services’ organized by UNESCO in co-operation with UNICEF, UNDP and the World Bank, in November 1997, in South Africa, stated that: ‘The shortage of water supply can become a source of conflict. We need ethics to

guide water resources management into the next century. And women have an important role to play' (UNESCO, 2001). Today, the international community eventually agrees that mainstreaming gender in sustainable development means committing to human security. This concept at first developed by the UN system encompasses ecological, economic, social, cultural and personal security for women and men alike, and it must now be put into practice.

2. The role of women in natural resources management

2.1 *The linkage between gender issues and fresh water*

Water is for all life, including for human life. Since water and women are both considered to be the source of life by most civilizations throughout history, why are gender and water issues not solved, whereas they are so specifically interlinked? The question raises a very important ethical problem because women, the half of humanity, have a greater responsibility and suffer more than men from water scarcity and pollution, particularly in developing countries.

In our changing world, gender issue is a very sensitive question because it is directly related to power and dominance. The term gender points out the relation between men and women as a social construction through which all human beings organize their work, rights, responsibilities and relationships – in short their culture, and their civilization. The gender issue affects not only the inner person in his or her self-representation, but also his or her outer expression in the exercise of the power allowed by and within the group (UNESCO, 1995).

According to UNESCO Programme for Gender Equality, 'Gender equality means: giving women and men, girls and boys, the same opportunities to participate fully in the development of their societies and achieve self-fulfilment. Gender equality is an essential component of human rights, and it is a key of development' (UNESCO, 2003).

An ethical gender approach to freshwater related issues means that all decisions regarding the design, localization, management and use of fresh water resources must take into account the needs of both men and women through an equitable approach. It means that both men and women be allowed to influence, participate in and benefit from development (Hannan-Anderson, 1995).

In developing countries women's life is particularly concerned with water availability and domestic contexts are very different from those of industrialized ones. Family work usually covers one third to one half of a woman's working day. In both rural and urban areas, it includes tiring tasks such as fetching water for domestic use. Women are the main users of water: for cooking, washing, family hygiene and sanitation. In these countries, in the same manner as boys enjoy easier access to education than girls, men are traditionally given greater access to technology, training and engineering than women. Although women's better understanding of natural variations of water availability, accessibility is acquired through countless generations' experience as managers of domestic water sources, this knowledge is still scorned or simply ignored by policy-makers and engineers who are still usually men (Baden, 1993).

The Swedish International Development Cooperation Agency (SIDA) points out: 'There is a very clear gender division of roles and resources in all areas of water resources management'. In rural developing areas, women are traditionally the main managers of domestic water resources at local level. Women alone decide where and how to collect domestic water, what amount and how to use it. Although women have little time, money and technological assets to maintain and control their domestic water sources, their knowledge about the reliability, location and seasonal variation of local water sources is a precious resource gained through personal experience, and through interpersonal and intergenerational contacts with other women (SIDA, 1994).

Women traditionally play also a major role in managing and maintaining communal water supply. In most African communities, women are responsible for the regulation and control of the social use and safe maintenance of water resources. For example, they restrict cattle watering to particular sites, and washing to specific downstream sites on the river. Since their managerial work is performed informally, women are rarely involved in the political and legal processes of making strategic decisions regarding water resources management at a level beyond the local one.

As early as in the 1970s, African women became engaged in projects related to water supply and sanitation (IWES, 1989). In Ghana and Burkina Faso, women have increasingly influenced communal decision making: they are those who decide when to drill new wells (SIDA, 1996). Being the main target group, they are those to be consulted to choose and localize a new water point in order to improve safe water accessibility. This is the best way to meet their specific needs, namely to ensure that time and energy daily spent by women on collecting water be reduced, and consequently spent on more productive activities such as their household sanitation, food production, etc. In addition, involving women from the design to the accomplishment of a water and sanitation project, even from the design to the building of

simple water-pumps, is the best way to reduce their physical workload which often results in deformity and disability (UNICEF, 1994a) (UNICEF, 1994b).

Collecting water is usually undertaken several times a day, and that often entails a long walk of up to some eight hours/day an exhausting task especially during dry seasons when women carry about twenty kilos water cans on their heads, shoulders or strapped to their backs to meet their families' water needs.

Although the International Conference on Water and Environment held in Dublin in 1992 stated that *the involvement of women in all phases of water management can benefit water supply and sanitation projects regarding their crucial role in the practical day-to-day supply, management and use of water*, their participation in technical training programmes and their implication in decision making process still remain to be improved (ACC/SGWR, 1992).

IFAD stresses that a gender perspective is essential in the selection of new projects because the access of women to resources is disproportionately small relative to that of men (IFAD, 2002). Resources include not only productive and social assets such as land, agricultural inputs, credit and education but also the very source of all life in nature that is water. According to the UN Commission on the Status of Women, the global advocate for equality between women and men, women are increasingly recognized to be key actors in the conservation and safeguarding of natural resources as managers, producers, users and intermediaries between the natural environment and the society. The Commission on the Status of Women (CSW) is one of the first bodies established by the UN Economic and Social Council. Set up in 1946, it monitors the situation of women and promotes their rights in all societies around the world. It prepares recommendations and reports for the UN on any issue affecting women. In case of urgent problems, the Commission can press for immediate international action to prevent or alleviate violations of women's rights. However, a number of countries also stress that tradition, inheritance laws and lack of funding for women's activities, jeopardize opportunities to increase and strengthen the benefits of women's impact on the environment (IFAD, 2002; UN, 1995).

2.2 The impact of environmental degradation on women's life

Since the early 1980s considerable attention has been devoted to the relationship between women and environment. The workshop of non-governmental organizations, run in parallel to the World Conference on Women in Nairobi (1985),

recognized that 'women and development' cannot be separated from 'environmental issues', and that these issues must be incorporated into policy planning (FAO, 2002).

Together with 'The Nairobi Forward-looking strategies for the Advancement of Women', the theme of environment was introduced in a specific chapter under the objective 'Development'. Attention was focused on natural and man-made disasters and the resulting environmental degradation. There was concern that such degradation deprived a growing number of poor women, in rural and urban areas, of their traditional means of livelihood and pushed them into a marginal environment, leaving them in critical circumstances (UN, 2000).

In 1987, the report of the World Commission on Environment and Development, titled *Our Common Future*, (Brundtland, 1987), drew the international community's attention to the concept of 'sustainable development', but it did not include much reference to women. The linkage between environmental degradation and poverty, in particular related to women's life, was recognized five years later, during the Conference on the Environment and development (UNCED) held in Rio in 1992. The Rio Declaration stated that 'Women have a vital role to play in environmental management and development. Their full participation is essential to achieving sustainable development' (UN, 1992).

Women's vital role is at stake when one considers, for example, that although improved water supply grew from 4.1 billion people in 1990 to 4.9 billion in 2000, there are still approximately 4 billion cases of diarrhoea each year, and that they cause 2.2 million deaths, mostly among children under the age of five (WHO, 1991; Murray and Lopez, 1996; WHO, 2000). This number, the equivalent of 20 jumbo jets crashing every day, represents approximately 15% of all child deaths under the age of five in developing countries. However, the sufferings and sorrows of mothers are not taken into account by the statistics whereas water, sanitation and hygiene interventions could reduce diarrhoeal disease by one-quarter to one-third. The only figure that can give an idea of this absurd situation at the beginning of the twenty-first century is that in sub-Saharan Africa, two out of five Africans lack improved water supply, and sanitation in rural areas is still about less than half that in urban zones.

Women are not only those who give birth, breed and educate infants and children to play a vital role in development. As stated in *Agenda 21*, 'Women are the main food producers and the environment'. They play a crucial role in agricultural work and in the sustainable use of the land, however might be underestimated their participation in official economic statistics. Women farmers achieve marvel in improving traditional cropping methods developed over time to protect natural resources and the conservation of soil fertility whenever they are given the possibility (FAO, 2002).

Women's water-related tasks at home are numerous. When water sources are far from their homes, unclean, or in short supplies, women are the first to suffer from the

resulting fatigue and disease that inevitably affect both themselves and their families. When children or other family members are sick on account of water-borne or water-related diseases which are preventable and which were widely eradicated from the developed countries during the past century, women must care for those who are ill, thus having less time to care for the other family members, to support their children's schooling, to work in the field and do other activities (Rodda, 1991).

According to the World Health Organisation (WHO), the lack of safe drinking water and poor sanitation contribute to about 80 per cent of communicable diseases, particularly among children and in Africa where the total water supply is the lowest of any region, with only 62% of the population having access to improved water supply (Chan, 1997; Simpson-Herbert and Wood, 1998) There is a strong correlation between high levels of coverage of combined water and sanitation and low child mortality. According the WHO, over one in every ten children dies annually in developing countries before the age of five because of health complications. The major cause of death is diarrhoeal disease. The disadvantaged position of children and women is particularly important in countries where women's opportunities are limited (WHO, 1996). Safe water and basic sanitation are major determinants of health and as such, of development.

WHO has pointed out that women's health and well being exert an important influence on their children, families and community health and development, and generally on the society as a whole. Ill-health and malnutrition in one female generation carry the risk of generating ill-health among the next generation.

As stated in the Declaration of Beijing, a result of the Fourth World Conference on Women held in 1995, 'Equitable social development that recognizes empowering the poor, particularly women living in poverty, to utilize environmental resources sustainably is a necessary foundation for sustainable development'. (UN, 1995) Since then, the fundamental role of women as environmental actors has been increasingly recognized: 'Women have often played a leadership role in promoting environmental ethics, reducing resource use and recycling resources, to minimize waste and excessive consumption. Women, especially indigenous women, have particular knowledge of ecological linkage and fragile ecosystem management. A sustainable development that doesn't involve women will not succeed in the long run.' (UN, 2001). Yet, much still needs to be achieved to involve them in the decision-making process: it means to give women equal access to education.

2.3 Women and education

Investing in human capital is a most effective means to reduce poverty and stimulate

sustainable development. For example, four years of primary education can increase farming productivity by up to 10 per cent. However, in many developing countries women receive less education than men (FAO, 2001).

Socio-cultural factors and discrimination against women explain this situation. In poor countries, girls receive less health care and food than boys. Gender-specific inequalities, such as an anti-girl bias in nutrition, are reinforced by unequal access to education (UN, 2002). A study in Bangladesh showed that 14 per cent of girls, as against 5 per cent of boys were undernourished. The lack of equity characterizing girls's childhood is reflected at the adult age: women work about 25 per cent more hours than men, but their total remuneration is less.

In addition to socio-cultural discrimination, fatigue, whether due to frequent or early pregnancies, care of children and families, or agricultural activities and casual employment, add to lack of time for some educational activities (Ramadas and Gerhard, 1989). According to the 1995 Human Development Report, girls constitute 60% of the 130 million children without access to primary school. A UNESCO study of 1997 shows that, both sexes combined, the lowest illiteracy rates among developing regions are found in Latin America/Caribbean, followed by Eastern Asia/Oceania, and the highest illiteracy rate are found in Southern Asia. Sub-Saharan Africa, with an overall illiteracy rate of 43.2%, is at the same level as the Arab States (43.4%). The gap between female and male illiteracy indicates that disparities exist in all regions and that they are always in favor of men (UNESCO, 1997).

Illiteracy remains a major impediment to the development and well being of women. Generally women are marginalized into the informal sector that requires less skills and education. Thus, women in rural and peri-urban areas are generally employed as petty traders, street vendors, construction workers or domestic servants, activities that make them extremely vulnerable, economically and socially, in particular in highly indebted countries (Simard 1996). Studies in several developing countries have pointed out that women's education plays an important role in reducing infant mortality and improving child development (Smyke, 1991).

The *Agenda 21* pointed out there is a close relationship between environmental factors and women's lives. A greater number of literacy programmes focussed both on women and water will contribute to the conservation of natural resources and to environmental protection. The fact that women suffer from the effects of the environmental deterioration make them particularly concerned about the well being of the planet and future generations. Because of women's roles as producers, users, consumers and administrators of water, energy, agricultural products, housing and natural resources, and as educators of their children, they can be at the forefront to encourage a more rational attitude towards food, water and energy consumption (UNDP, 2002).

Education is a fundamental right both in the *Universal Declaration of Human Rights* and the *Universal Covenant on Economic, Social and Cultural Rights* (Ballara, 1992). The United Nations in the framework of the International Literacy Year proclaimed in 1990 to promote literacy, it should also be proclaimed that women's literacy is an essential step to guarantee sustainable development (United Nations resolution 44/127).

3. Access to fresh water as a fundamental human right

3.1 *The international instruments and UN Conferences concerning women*

The *United Nations Charter* (1945) was designed to promote international co-operation and the respect for human rights and fundamental freedoms for all without distinction as to sex (Article 1, paragraph 3, article 55). Its Preamble stresses the international community's determination to reaffirm faith in the equal rights of men and women. In the *Universal Declaration of Human Rights* (1948), the United Nations condemn discrimination on the basis of sex and clearly state: 'All are equal before the law and entitled without any discrimination to equal protection of the law. All are entitled to equal protection against any discrimination in violation of this declaration and against any incitement to such discrimination' (Article 7).

Since then, a number of international conferences and conventions were devoted to women, their rights and their role in the society. The Commission on the Status of Women was established in 1946 in line with the preamble to the *United Nations Charter*. Its activities were designed to elevate the status of women and led to the adoption of various conventions related to women:

- 1951: the *ILO Equal Remuneration Convention* established the principle and practice of equal pay for work of equal value);
- 1952: the *Convention on the Political Rights of Women* committed Member States to allow women to vote and hold public office on equal terms with men;
- 1954: the *Convention for the Suppression of the Traffic in Persons and of the Exploitation of the Prostitution of Others*;
- 1958: the *Discrimination (Employment and Occupation) Convention* promoted equality of rights between men and women in the workplace;

- 1960: the *Convention against Discrimination in Education* was launched by UNESCO to pave the way for equal education opportunities for girls and women;
- 1962: the *Convention on Consent to Marriage, Minimum age for Marriage and Registration of Marriages* (1962) decreed that no marriage can occur without the consent of both parties;
- 1967: the *Declaration on the Elimination of Discrimination Against Women* affirmed that discrimination against women, denying or limiting their equality of rights with men, was fundamentally unjust and constituted an offence against human dignity.

Finally, the UN Member States decided to ensure that these conventions reach a wider audience by actually going into action through a continuous effort at all levels, and drawing the mass-media attention so important to reach the lay-people. Thus, the UN organized the *First World Conference on Women*, in Mexico City, 1975. The Conference adopted a World Action Plan. It proclaimed 1976–85 as the *United Nations Decade for Women*. During this decade, a number of events and initiatives took place. The most important one related to women, water and ethics is certainly the *UN Conference on Science and Technology for Development*, held in 1979, because its resolution concerning the interrelationship between scientific and technological advances insisted on the increased participation of women in the development process. Women's participation was for the first time brought to the fore in international debates about science and technologies. Two key recommendations in the 1979 resolutions focused on increasing women's participation in science and technology decision making in order to stimulate women's equal access to scientific and technological training and professional careers.

The *Convention on the Elimination of All Forms of Discrimination Against Women*, or *CEDAW*, is a human rights treaty for women. The UN General Assembly adopted this convention on 19th December 1979. It came into force as a treaty on 3rd December 1981; thirty days after the twentieth member nation ratified it. By 2002, 170 countries had ratified or acceded to the CEDAW Convention. The Convention was the culmination of more than thirty years of work by the United Nation Commission on the Status of Women, created in 1946 to monitor the situation of women and to promote women's rights. It results from the Mid-Term World Conference of the International Decade for Women, also known as the *Second World Conference on Women* (Copenhagen, 1980). Its article 14 calls governments to take all appropriate measures to eliminate discrimination against women, particularly in rural areas in order to ensure equality of men and women.

The *Third World Conference on Women* (Nairobi, 1985) outlined the women's key role in national and international ecosystem management and control of environ-

ment degradation in the very relevant *Nairobi Forward Looking-Strategies for the Advancement of Women* (FLS). The Conference emphasized the key-role of women in all development activities, particularly in the control of environment degradation and ecosystem management, and also for the first time, it clearly warned the UN Member States about the threats on the availability of water resources in relation with women and generally with society: 'During the period from 1986 to the year 2000, *changes in the natural environment* will be critical for women. One area of change is that of the role of women as intermediaries between the natural environment and society with respect to agro-ecosystems, as well as the provision of safe water and fuel supplies and the closely associated question of sanitation. *The problem will continue to be greatest where water resources are limited* – in arid and semi-arid areas – and in areas experiencing increasing demographic pressure' (UN, 1985). The Nairobi Strategies also pointed out that women's deprivation of their traditional means of livelihood most often results from environmental degradation resulting from both natural and man-made disasters such as droughts, floods, hurricanes, erosion, desertification, deforestation and inappropriate land use. Consequently, it stressed the need for increasing women's access to technologies and stated that women must have the same opportunity as men to participate in the programmes aimed at improving urban and rural environments, and steps be taken to improve sanitary conditions, including drinking water supplies with the participation of women at all levels in the planning and implementation process (UN, 1985).

Today, due to the development of mass-media and since still very few women work in the world's media, ethics encompasses all sources of information, including computerized dissemination of information and education in order to ensure that men be less tempted to reinforce wrong stereotypes of women. The *Nairobi Strategies* insisted that *these new means also be mobilized to increase the self-help potential of women in conserving and improving their environment (...) and be recognized as active and equal participants in this process.*

In 1989, the *Convention on the Rights of the Child* recognizing the rights of children to the highest standards of health and medical care and to education, in particular with regard to the young girls, was adopted and opened for signature by the UN General Assembly. It is now ratified by 191 countries (i.e. all except two, the United States of America and Somalia).

In 1990, the International Conference on Education for All (held in Jomtien, Thailand) appealed to Heads of State and other leaders to give priority to education for all as a life-long commitment, giving special importance to education for women and girls in the *Jomtien Declaration and Framework for Action on Education for All*.

But it was in January 1992 that the International Conference on Water and the Environment held in Dublin (January 1992), emphasized the need to ensure the full

involvement of the women at all phases of water management. It resulted in the famous *Dublin Declaration* stressing that water is and should be regarded as a finite resource that has an economic value with significant social implications, and that local communities must participate in all phases of water management and simultaneously ensure women's full involvement of women in view of their crucial role in the practical day-to-day supply, management and use of water.

In the same year, this concept was strengthened by the Earth Summit held in Rio recommending enhancing the role of women in water resources planning and management through equal access in education and training programmes. The *Agenda 21* (www.un.org/esa/sustdev/agenda21) also highlighted their role in protecting natural resources and the environment, especially in the chapter 24, entitled 'Global Action for Women towards Sustainable Development'. It contains specific recommendations to eliminate any obstacle to their equal participation in decision-making activities relating to promotion of sustainable development.

In 1993, the World Conference on Human Rights (held in Vienna, Austria) amplified women's rights set forth in the 1945 *UN Declaration of Human Rights* (United Nations 1948). For the first time, the right to economic, social, sustainable and equitable development was recognized as a human right, and the human rights of women and of the female child were held to be an inalienable, integral and indivisible part of human rights, and the eradication of all forms of discrimination on grounds of sex recognised as priority objectives of the international community (UN, 1993). Part 3 of the Vienna World Conference on Human Rights insisted that equal status of women and the human rights of women should be regularly and systematically integrated into the mainstream of the system-wide activity of the United Nations.

Since then, increased co-operation and integration of objectives and goals between the Commission on the Status of Women, the Commission on Human Rights, the Committee for the Elimination of Discrimination against Women, the United Nations Development Fund for Women, the United Nations Development Programme, the Centre for Human Rights and the Division for the Advancement of Women and other United Nations agencies were increasingly strengthened.

The *UN Declaration on Violence Against Women* (1993) defined a broad spectrum of unacceptable forms of violence against women and lead to the nomination of a Special Reporter on Violence Against Women.

In 1993, the *Ouagadougou Declaration on Girl's Education in Africa* identified priority areas for a regional framework for action, national programmes and plans to improve educational opportunities for girls. It also considered strategies for resources mobilization at national level.

In the same year, the *Delhi Declaration and Framework for Action of Education for All in the Nine-High Population Developing Nations* emphasized that education and

empowerment of girls and women are key factors in contributing to social development, well being and education of present and future generation.

In 1994, the Cairo Programme of Action of the International Conference on Population and Development demonstrated that education accompanied with additional measures to reduce poverty is the most powerful single factor in empowering women.

In 1995, the UNESCO General Conference endorsed the *Declaration of the Forty-fourth Session of the International Conference on Education* (Geneva, October 1994). It aimed at giving an *Integrated Framework of Action on Education for Peace, Human Rights and Democracy* that defined the rights of women as an integral and indivisible part of universal human rights and promoted women's fundamental role to education for peace and democracy ([www.unesco.org/human rights](http://www.unesco.org/human%20rights)).

The same year, the *Copenhagen Declaration and Programme of Action* of the World Summit for Social Development reaffirmed the importance of formulating national policies that provide assistance to women through equal opportunities for basic education, primary health care, safe drinking water, family planning and access to credit for small producers, with special attention to the needs of women.

In 1995, too, the Fourth World Conference on Women (held in Beijing) (UN, 1995) made a breakthrough and boosted concrete actions for women's equality and development, and for their role in peace-keeping. The Plan of Action defined in Beijing is an agenda for women's empowerment. It aims at accelerating the implementation of the *Nairobi Forward-Strategies for the Advancement of Women* and at removing all obstacles to women's active participation in all spheres of public and private lives through a full and equal share in economic, social, cultural and political decision making.

In 1996, the Agenda of the International Conference on Human Settlements, or Habitat II (held in Istanbul) stressed the need to improve living conditions in human settlements and environments, especially through the provision of adequate quantities of safe water and effective management of waste (UNDP, 1996, 2002). It also emphasized the importance to integrate gender perspective in human settlement planning and to collect gender disaggregated data and information that recognize and make visible the unremunerated work of women.

All these efforts made by and throughout the UN system stimulated the creation of UNIFEM, the women's fund of the United Nations. Since the beginning of its operations in 1996, the Trust Fund has awarded US\$ 5.3 million in grants to 127 initiatives in over 70 countries, and it has experienced an increase in grant applications from 136 in 1999 to more than 325 proposals with requests totalling over US\$ 17.5 million in 2001. This expansion is partly explained by the Fund's growing community of grantees, but it also points out both its unique standing as a

specific multilateral funding mechanism and the overwhelming need to support local innovation to confront gender-based violence, another word often connected to gender inequity and lack of easy access to water...

In September 2000, the UN General Assembly unanimously adopted the *Millennium Declaration*, outlining that the primary goals for aiding the developing world over the first quarter-century of the new millennium should be poverty alleviation and pointing out to the global community the immensity of the challenge if poverty is to be significantly reduced, as it must be, over the coming twenty-five years. This state of poverty is illustrated by an estimated 1.1 billion of the world's people (about one in six) who do not have access to clean drinking water, and still 2.4 billion people (roughly one in 2.5 persons) without access to a safe latrine

In 2001, UNIFEM launched a regional advocacy campaign to end violence against women in eight countries of the Commonwealth of Independent States (CIS) and Lithuania, building on lessons learned from UNIFEM's 1998–9 campaigns in Latin America and the Caribbean, Africa and Asia-Pacific. UNIFEM's work on the *Convention on the Elimination of All Forms of Discrimination against Women* (CEDAW), focused on stimulating governments and NGOs to use the Convention to create stronger legal and policy frameworks for gender equality. UNIFEM's actions include fostering NGO – government partnerships and 'Training of Trainers' on women's human rights and technical expertise to link CEDAW to other critical issues on the global agenda, such as water issues.

3.2 The right of access to fresh water

In 2002, following the World Summit on Sustainable Development (held in Johannesburg), a United Nations committee siding with those who objected to the privatization of water supplies, formally declared for the first time: 'Water should be treated as a social and cultural good, and not primarily as an economic commodity.' Then, ECOSOC, the United Nations Committee on Economic, Cultural and Social Rights agreed on a general comment on water as a human right, said: 'Water is fundamental to life and health. The human right to water is indispensable for leading a healthy life in human dignity. It is a pre-requisite to the realization of all other human rights.'

The *International Covenant on Economic, Social and Cultural Rights*, adopted by a UN General Assembly resolution in December 1966 and entered into force in January 1976, depends on the UN Office of the High Commissioner for Human Rights. A General Comment, an interpretation of its provisions expressed in November 2002, was that although the Covenant does not precisely refer to the word water, the committee considered that the right to water is clearly implicit in the rights contained

in two sections of the Covenant. Article 1, paragraph 2: 'All peoples may, for their own ends, freely dispose of their natural wealth and resources without prejudice to any obligations arising out of international economic co-operation, based upon the principle of mutual benefit, and international law. In no case may a people be deprived of its own means of subsistence.' Its Article 12, on the right of everyone to the enjoyment of the highest attainable standard of physical and mental health, includes the improvement of all aspects of environmental and industrial hygiene in its paragraph b. In December 4, 2002, Dr Gro Harlem Brundlandt, the WHO Director General said: 'This is a major boost in efforts to achieve the Millenium Goals of halving the number of people without access to water and sanitation by 2015, two pre-requisites for health.'

The fact that water is now regarded as a basic human right will give all UN Member States an effective tool to make a real difference. Knowing that lack of access to safe water and inadequate sanitation are major causes of poverty and growing disparity between rich and poor, and that they particularly impact on women in developing countries, an ethical approach of water related to gender issues must be based on the following basic human rights, which are all interrelated.

The right to life

Each person has an inherent right to life. No human life should put at risk or be endangered by reasons of non-access to the use of fresh water.

The right to liberty and equality

All persons must be free to enjoy the access to natural resources without any restriction and discrimination. Therefore, the right to the access and use of freshwater resources includes also the ethical responsibility for the use of water and for its degradation.

The right to own property and manage natural resources

Everyone has the right to own property alone as well as in association with others. No one shall be arbitrarily deprived of his property. Although many developing countries have legally affirmed women's right to own land, gender asymmetry in access to and control of land is one of the main obstacles to the full participation of women in rural development and to strengthening their role in ensuring national and household food security. When inheritance practices prevail, whereby land traditionally passes from father to son, it reinforces male control.

The right to information and education

This basic human right is essential for the achievement of equality. Women's ability to access employment depends on their level of education. In developing countries many young girls still have no access to primary school.

The right to natural resources includes also the right to achieve autonomy

Each person has the right to be autonomous through one's own work. Women and men need legal and secure rights to cultivate land and use natural resources. In developing countries where women are not allowed to own land or where their rights to arable land are weaker than those of men, women cannot be autonomous.

The right to income-generating activities

Everyone has the right to work and to have access to training, credit and technology. Improving the lives of rural women depends on increasing the levels of their incomes. It can be achieved through facilitating women's access to credit, which is crucial in raising the productivity of any economic activity, and consequently the workers' income levels.

The right to have health care and protection

In developing countries, women's health needs are often neglected whereas they are the ones most exposed to health risks where water supplies are unsafe and sanitation facilities are unavailable. Besides, carrying heavy water exposes women and girl to health problems, which can lead to deformity and disability. Moreover, in the poorest countries, women have no access to health care.

Women's right to have health care implies also the respect of their reproductive rights

About half a million maternal deaths occur each year in developing countries because of pregnancy complications. For example, carrying heavy water pots is a primary cause of pelvic distortion that can lead to death in childbirth.

The rights of children

The right for the women to have easy access to fresh water and natural resources affects directly the rights of children, in particular the right of children to have a safe life and to be assisted and protected. Improving domestic water supply, and liberating time for food production and processing, would greatly contribute to improving children's health and nutritional condition. Mothers could dedicate more time to childcare, education, maintenance of clean environment and thus reduce risks of infection among children. In addition, more numerous and improved water sources, easier water transportation can allow more children, in particular girls, to attend school because their labour is required less at home.

The right to freedom of opinion and expression

Each person has the right to hold his own opinions: women have the right to participate in decision making processes concerning the management of natural resources.

The right to organize themselves to protect their rights

Each person can be a member of a group with the aim to improving their own

social condition and ensuring recognition of their rights. Various types of organizations address the needs of rural women. Increasing their participation in decision-making processes requires first of all collective actions through and participation in local organisations. Women's groups also facilitate community development, and increase women's visibility, for example by enabling them to learn management and how to earn and save income, and to have access to land, credit, agricultural extension service and training.

The right to participate in the cultural life of the community and share in scientific advancement and its benefits.

There is a close relation among women's education, women's access to natural resources and in particular to water, children's health, population growth, environment and sustainable development. Increasing the awareness of women in developing countries of their rights and improving their knowledge of the legal system empowers them to assess critically the law, interpret the meaning of their rights and participate more fully in the political process (NEDA, 1997).

3.3 Women and poverty

Although women's conditions have changed since the UN decade for Women (1975–85), many differences between men and women still persist. As it was stated in the Beijing Declaration: 'Poverty have women face, almost 70% of the poorest peoples in the world are women.'

Women play a substantial role in food production although it varies regionally and from country to country. In Africa, over 70 per cent of the food is produced by women. In Asia, they are responsible for 60 per cent, but their work is underestimated and does not appear in the national accounts for the Gross National Product (GNP) because of inadequate measurements. In spite of their immense role in agricultural production, women are not integrated in agricultural education or training, and in extension services: 'Despite the fact that women are the world's principal food producers and providers, they remain 'invisible' partners in development. A lack of available gender disaggregated data means that **women's contribution to agriculture in particular is poorly understood** and their specific needs ignored in development planning. This extends to matters as basic as the design of farm tools. But women's full potential in agriculture must be realized if the goal of the 1996 World Food Summit – to halve the number of hungry people in the world by 2015 – is to be achieved. FAO recognizes that **the empowerment of women is key** to raising levels of nutrition, improving the production and distribution of food and agricultural products and enhancing the living conditions of rural populations' (www.fao.org/gender).

Moreover, women's participation in world food production is in extreme contrast with their ownership of the land: women own only one per cent of all the world's land. If and when they do own land, they often end up losing it through marriage or inheritance laws. In most societies, in addition to controlling land, men still control major livestock resources, a large share of subsistence output and most of the household income. Rural women are frequently dependent on men for final decisions about most of the activities that affect their lives and those of their communities.

Since the World Summit for Social Development held in Copenhagen in March 1995, the priority given to poverty eradication has grown. Some studies have recently shown that reasons for poverty reside in the lack of control that people can exercise over their own resources, livelihoods, self-sufficiency and knowledge. Empowering people by increasing their access to all the factors of production, including credit, is now recognized to be an important asset for development and poverty alleviation. Women receive a disproportionately small share of credit from formal banking institutions. They are assumed to have no collateral to offer, despite working much harder than men work. For example in Latin America and Caribbean, women constitute only 7–11% of the beneficiaries of credit programmes.

The World Summit for Social Development underlined the importance of improving access to credit for small rural and urban producers, with special attention to the needs of women, the most disadvantaged group. Since then, microcredit is considered as a means to allow women to create employment opportunities and engage them in economically productive activities. Microcredit is based on the recognition that the latent capacity of the poor for entrepreneurship should be encouraged by making available small-scale loans and thus introducing them to the small enterprise sector (<http://www.grameen-info/microcredit>).

In many countries microcredit programmes have proved to be effective tools to free people from poverty and to increase their participation in the economic and political life. Currently there are about 3,000 microfinance institutions in developing countries.

In the less developed countries in Africa, where women account for more than 60 per cent of the agricultural labour force and mainly contribute to the food production, they receive less than 1 per cent of the credit allocated to small-scale farmers. In five East and Central African countries, women received only 1 per cent of the total credit in agriculture.

With an increased income, rural women invest more in household consumption and human capital development. It improves their access to food, education and health care services, including family planning services, safe water and sanitation for the household. A study of the International Fund for Agricultural Development (IFAD) concluded that the food security of households is usually dependent on

women's earnings, and that low-paying jobs and lack of regular employment for rural women often mean inadequate food security and poor nutrition. In many Sahelian rural areas women are often head of their family because men abandoned the villages due to water resources shortage that reduces the possibility to have activities generating income. Thus in these villages, women, children and aging people represent the totality of the population.

According to the Declaration and Plan of Action of the Microcredits Summit (Washington D.C., February 1997), microfinance has now become an important instrument of poverty alleviation, especially for rural women who, as a group, have consistently demonstrated superior repayment records and credit-worthiness. The Summit's goal was to reach 100 million of the world's poorest families, especially women, with credit and other financial and business services by the year 2005.

The Grameen Bank in Bangladesh is the most successful micro-finance programme targeting poor rural women through the disbursement of small loans averaging about US\$140. Ninety-four per cent of its 2 million borrowers are women. Operating with a staff of over 12,000 in 1,048 branches, the Green Bank has loaned US\$1.5 billion to the poorest in more than half of the villages (35,000) in Bangladesh and maintained a loan recovery rate of more than 98 per cent. Similar successful examples are known in Latin America (Banco Solidario in Bolivia), and in Africa (The Kenya Rural Enterprise Programme). These schemes are characterized by relatively small loans, a few hundred dollars at most. The repayment period is relatively short, about a year. Women are the major beneficiaries of their activities, and the destination of the funds primarily includes water supply and agriculture, distribution, trading, small craft and processing industries.

OECD emphasized that credits need to be supplemented with access to land and appropriate technology. In particular, women's lack of access to land is the most critical single cause of the poverty of rural women. By providing opportunities for self-employment, these programmes of micro-credit have significantly increased women's security, autonomy, self-confidence and status within the household. The United Nations Development Fund for Women (UNIFEM), working in partnership with several United Nations Agencies and other organisations, has facilitated the creation of women's business networks in regions where women have limited economic power. In Africa for example UNIFEM supported the establishment of MICROFIN-Africa, a network of 42 non-governmental enterprise organisations that deliver small credits to women in 17 countries of sub-Saharan Africa. UNIFEM has also facilitated the formation of the International Coalition on Credit, which consist of 32 of the world's leading microcredit and non-governmental business organisations with more than 200 affiliated organizations providing credits to women as a way of strengthening women's institutions at the grass-roots level. Women borrowers have

steadily improved their lives, and half of them have been able to transcend the poverty line.

4. Gender commitment in water resources management

4.1 *Women, water science and technology*

According to the Preamble of the UNESCO Declaration of the 'World Conference on Science for the Twenty-first Century: A New Commitment' in Budapest, in June 1999: 'Access to scientific knowledge from a very early age is part of the right to education belonging to all men and women, and that science education is essential for human development, for creating endogenous scientific capacity and for having active and informed citizens.' (UNESCO, 1999).

While most women are considered technologically illiterate, their traditional knowledge should be considered when implementing rural projects and developing research on appropriate technology for food production and processing, rural water supplies, sanitation, and renewable energy sources. Nevertheless, women often have inadequate access to improved and appropriate technologies because of the barriers to obtaining financial resources (UNIFEM, 1994).

The workshop on Water Resources in Arid and Semi-arid Zones. Exchange of knowledge on cultural practices: the contribution of women (Mauritania, 1996) organized in the framework of the International Hydrological Programme of UNESCO stressed: 'Over the past generations, women have accumulated an impressive store of environmental wisdom. Women have always known which water sources are reliable, which plants have medical properties. On the contrary, statistics show that in Africa few women have access to higher education and women's participation in agriculture, forestry, hydrology and other water sciences-related educational programmes is very poor.' The Declaration also affirmed that: 'Today, more than ever, development is linked to science and its application. Governments should provide enhanced support for building up an adequate and well-shared scientific and technological capacity through appropriate education and research programmes as an indispensable foundation for economic, social, cultural and environmentally sound development. This is particularly urgent for developing countries. Technological development needs to be directed towards less polluting production, greater efficiency in resource use and more environmentally friendly products'.

In developing countries access of women to scientific and technological education, training and careers is limited. The fact that women are not technically literate is particularly relevant with regard to water supply and sanitation (Brelet, 2001).

According to a Report of the Commission on the Status of Women for the implementation of the Nairobi Forward-looking Strategies for the Advancement of Women, Africa has a relatively low proportion of female college students enrolled in agriculture. However, in universities where medicine and food science are taught, women's enrolment increased between 1988 and 1991 from 20% to 28% and from 13% to 40% respectively. In most developing countries, educational levels of women improved over the decade. Yet, women are still underrepresented in the sciences related to the environment, such as agronomy, veterinary, medicine, biology, ecology, and in those related to human health (UN, 1995). Thus the workshop on 'Water resources in arid and semi-arid zones. Exchange of knowledge on cultural practices: the contribution of women' (Mauritania, 1996) also stated: 'over the past generations, women have accumulated an impressive store of environmental wisdom. Women have always known which water sources are reliable, which plants have medical properties. On the contrary, statistics show that in Africa few women have access to higher education and women's participation in agriculture, forestry, hydrology and other water sciences-related educational programmes is very poor.'

UNIFEM affirms that even fewer women are involved in science policy and decision-making. The World Conference on 'Science for the Twenty-first Century: A New Commitment' stated: 'Equality in access to science is not only a social and ethical requirement for human development, but also a necessity for realizing the full potential of scientific communities world-wide and to orient scientific progress towards meeting the needs of humankind. The difficulty encountered by women in entering and pursuing a scientific career and in participating in decision making in science and technology should be addressed urgently.'

Improving the status and the role of women in the development of science and technology and enhancing women's access to leading roles in science constitute a strategy for creating an efficient system of science and technology able to make significant contributions to national economies. 'More women in the world of science means more science in the world' (UNIFEM, 2001).

In 1996, a concrete follow-up to the Beijing Platform of Action was adopted at the Fourth World Conference on Women. A Medium-Term Strategy for 1996–2001 was designed to ensure women's full access to the processes leading to sustainable human development, and their increased presence in decision-making posts so as to promote women's rights, to improve their participation in society and to prevent injustices resulting from their social exclusion and poverty. The Special Project Women, Higher Education and Development was evaluated at UNESCO Headquarters, in September

2001. It was decided that six inter-university networks and UNESCO Chairs would continue or launch training and action research programmes in order to empower highly educated women to play a more active role in the social development process.

4.2 UN Programmes concerning women in water resources management

UNESCO launched in 1996 a Special Project entitled 'Women and Water: Resources Supply and Use' to be implemented in the Sub-Saharan region of Africa, as part of the International Hydrological Programme (IHP). This project aims at improving the quality of life of women in rural and urban areas in Sub-Saharan African countries, by facilitating their access to water resources management. The project is both a follow-up to the Fourth World Conference on Women (Beijing, 1995) and a reinforcement of UNESCO's action in favour of women. The objectives are:

- to implement national and regional policies which facilitate women's involvement in water resources development programmes;
- to organize training courses at national and at regional level;
- to improve south-south co-operation;
- to publish learning material;
- to develop studies and research.

The UNESCO Special Project encourages an open dialogue between specialists in water resources, social sciences and gender issues in order to develop a gender-oriented and more holistic approach to the management of water resources. A Pilot project for the development of the Oasis of Oudane in Mauritania was initiated in 1996, with the financial support of the German Agency of Co-operation for Development (B.M.Z.). Because of a significant exodus of the male population towards the capital, Nouakchott, the majority of the population of Oudane consists of women and children. This project aims at meeting the community needs as a whole, and developing a participatory strategy based on enhancing local capabilities and allowing women to participate in the decision making process.

FAO's Plan of Action for Woman in Development aims at the integration of a gender perspective in all FAO programmes and activities. It identifies three strategies to eradicate poverty and food insecurity among rural women and their family, and the degradation of the environment: gender-based equity in the access to, and control of productive resources, enhancement of women's participation in decision and policy-making processes at all levels. This approach should reduce the workload of rural women and multiply the opportunities for them

to get a remunerated job, and have some income in cash. Recently in Ethiopia, field personnel were trained to planning activities based on gender disaggregated data from case studies conducted at community level, using participatory rural appraisal (PRA) tools and techniques. Although this initiative is still on a pilot basis, preliminary results show noticeable improvement in making extension services more gender responsive and more client-oriented. Extension officers are trained to use improved technology, manage resources and achieve maximum production and income for all. Given the evidence of the role of women in agriculture and food production, their participation in extension activities will strengthen rural development strategies and food security at national and world level.

UNDP applies the principle of 'gender mainstreaming', and seek to ensure that women and men are provided with equal opportunity to develop their skill and to participate in decisions affecting their lives. In Kenya, UNDP launched a project to provide rural women with access to credit and technical assistance and give support in improving the Kenyan Women Finance Trust (KWFT) planning management and services. With four branches KWFT now has more than 2,000 women entrepreneur clients. UNDP in Asia launched a project on gender equality through science and technology. It recognizes the priority interest of China, Mongolia and the Republic of Korea for women's participation in the eradication of poverty and for access to science and technology appropriate for sustainable and equitable development.

UNICEF assists countries to put in place essential interventions to promote safe motherhood and to improve access to quality services. Depending on the needs of the country, UNICEF helps in the training of health service staff, manages health facilities, establishes transport or monitoring systems, and provides supplies and equipment. UNICEF puts particular emphasis on community mobilization and participation in the planning and management of health services in order to strengthen family links, and community support for improving women's nutrition, general health, and birth preparedness for timely and safe deliveries. UNICEF programmes seek to engage men and communities in efforts to delay marriage and childbearing, to expand girls' access to quality education and training, to increase women's income-earning abilities and opportunities, and to help governments to undertake legal and regulatory reforms to support these specific goals as well as to improve the overall social and economic status of women.

The **World Bank** carries out projects involving women in water supply and sanitation aiming to reduce the environmental and social cost, and eliminate unsafe drinking water and inadequate sanitation. In collaboration with UNDP in

1991, it launched a program on Water and Sanitation focused on community participation techniques. The programme promoted the effective involvement of users, most notably the PROWWESS (Promotion of the Role of Women in Water and Environmental Sanitation) project that has a particular emphasis on the Gender dimension of participation in water and sanitation projects.

4.3 The role of NGOs, a participatory approach in water resources management

Non-governmental organizations (NGOs) are independent groups with their own priorities and programmes. Their close ties with communities make them well placed to identify the basic and deeply-felt needs of local communities and to meet them. Their usual participatory approach put them in an exceptional position to motivate and mobilize the people, and to extend their influence to areas of the community that the state sector does not reach. Yet, the participatory approach means that women and men have different roles and responsibilities in society because of differing demands for goods and services. It is obvious that successful and sustainable action to improve lives of women in rural regions can only be carried out with the full participation of the women concerned. They have to express their own ideas about what their needs are and decide on the best ways to meet them. This can be particularly difficult in cultures where women are not accustomed to speak up and be listened to.

Over the past decade, many NGO programmes have identified women as a 'target group' to change the society, and recognized women as providers of health care and educators. Women must be involved in water and sanitation projects and in efforts to protect the environment.

UNDP, World Bank and Sanitation Programme, UNICEF and WHO – in co-operation with non-governmental organizations, including CARE, KWAHO, and WaterAid – launched a program entitled 'Participatory Hygiene and Sanitation Transformation' (PHAST) aiming to increase the participation of women in the development process. The objective of PHAST is to go beyond teaching hygiene and sanitation concepts to enable women in particular to overcome constraints against change and involve them in decision making processes. A regional pilot programme of PHAST was implemented in September 1993 in Kenya, Botswana, Uganda and Zimbabwe.

The Participatory Development Fund (PDF) provides small grants to NGOs to implement innovative activities to promote learning and exchange of information about issues related to participation. The PDF supports a variety of NGOs' activities involving women in promoting water and sanitation projects.

The International Water and Sanitation Center (IRC) proposes an interesting training methodology based on the fact that the sharing of knowledge and experience is a valuable learning tool to improve water and sanitation services. It supports the activities of the Desert Research Foundation of Namibia (DRFN), that recently produced a radio soap opera for rural communities in north central Namibia, on how a fictional village overcomes a severe drought, and promotes better management of water supplies and agricultural land in the region. The soap opera is broadcast 5 days per week during 8 weeks in the whole region. IRC also promotes a gender approach to water and sanitation projects and programmes through its projects, publications, training programmes and its active participation in international efforts to raise awareness of gender issues. IRC co-ordinates GEN-NET, a Gender Issues Network, of the Water Supply and Sanitation Collaborative Council, and is very active in the UNDP/World Bank global initiative on Gender and Participation.

5. Conclusion

The first statement of the Right to Water was underlined at the International Conference organized in Mar del Plata, in 1977. It affirmed that : 'All people have the right to have access to drinking water'. Then the Dublin and Rio Conferences in 1992 linked water with a cause and effect process to sustainable development, the conditions of women in developing countries, poverty and human rights. Water as a basic need to life is an ethical issue and thus a priority of development commitments.

The importance of women for water and water for women was formally recognized in the Dublin Conference. One of the four principles of efficient and effective water provision incorporated into the Dublin Declaration claimed for the full involvement of women in the planning and implementation of all scheme and initiatives for drinking water and sanitation (ACC/ISGWR, 1992).

In 1999, a Conference on Culture of Peace organized by UNESCO has launched a Pan-African women's movement for peace to promote new values: since shared limited resources on their continent can lead to conflict, a particular effort should be made to stress women's contribution in conflict prevention (UNESCO, 1999). The role of women in conflict prevention was also underlined previously in the Zanzibar Conference, notably the Kampala Action Plan for Peace (1993), the Beijing Conference (1995), and the Pan-African Conference on Peace, Gender and Development of Kigali (1997).

As stated in the World Conference on Women in Beijing, women historically have developed caring abilities and they have an important role to play in transforming the culture of violence into a culture of peace.

The Final Report of the International Consultation to Advance Women in Ecosystem Management: has stated that: 'There is a natural convergence of interest between the needs of women and the need to conserve natural resources environments. Women maintain a rich storehouse of technical environmental knowledge, which can be mobilized in the problem-solving process. In addition to their profound knowledge of fragile ecosystem management and sustainable resource use, women have a remarkable ability to work together, in taking care of children. Women also have a powerful influence over future attitudes towards the environment.' (International Consultation 1993).

Women have an important role to play in promoting a new attitude towards the use of water resources, based not only on technical knowledge, but also on cultural and ethical values. This new attitude would contribute to build a more just and peaceful world, provided it includes mutual exchange of gender specific knowledge, skills and sharing of opportunities to improve and manage our future limited freshwater resources.

6. References

- ACC/ISGWR. 1992. *The Dublin Statement and the Report of the Conference – Dublin International Conference on Water and Environment: Development Issues for the Twenty-first Century. 26–31 January 1992, Dublin (Eire).*
- BADEN, S. 1993. *Practical Strategies for Involving Women as well as Men in Water and Sanitation Activities.* SIDA, Brighton, IDS, Bridg.
- BALLARA, M. 1992. *Women and Literacy.* Zed Books Ltd, London and New Jersey.
- BRELET, C. 2001. *Les femmes, l'éducation et l'eau en Afrique.* UNESCO-PHI-V, Documents techniques en hydrologie, No. 41, Paris, 2001.
- BRUNDLANDT, G. 1987. *Our Common Future.* The World Commission on Environment and Development, Oxford University Press, Oxford.
- CHAN, M.-S. 1997. The Global Burden of Intestinal Nematode Infections – Fifty years on. *Parasitology Today*, 13 (11), pp. 438–43.
- DESHINGKAR, P. 1995). *Integrated Gender Concerns into Natural Resources Management Policies in South Africa.* The Stockholm Environment Institute.
- FAO. 2000. <http://fao.org/gender/gender.htm>
- FAO. 2001. Women and Education. <http://www.fao.org>
- FAO. 2002. Gender and Environment. <http://fao.org/gender>.
- FAO. 2002. Women and Environment. <http://fao.org/gender>.
- GRAMEEN BANK. <http://grameen-info/microcredit>.
- HANNAN-ANDERSON, C. 1995. *Gender Perspectives on Water Resources Management:*

- Domestic Water Supply and Environmental Sanitation*. Fourth World Conference on Women and Development, Beijing.
- IFAD. 2002. *Rural Poverty Report 2001 – The Challenge of Ending Rural Poverty*. Rome, International Fund for Agricultural Development, <http://www.ifad.org>.
- Final Report on the International Consultation to Advance Women in Ecosystem Management and to Promote Co-operation, Co-ordination and Strategic Planning among Multilateral, Regional and Bilateral Agencies and Organizations*. Washington, D. C., 4–6 October 1993.
- IWES. 1989. *Water and Sanitation in Developing Countries*. Edited by B. J. Dangerfield, compiled by the Institute of Water Engineers and Scientists, London.
- MURCOTT, S. 1991. *The First Buddhist Women: Translations and Commentary on the Therigatha*. Bekeley: Parallax Press and <http://www.sustainableliving.org/nepal.html>.
- MURRAY, C. and LOPEZ, A. (Eds.). 1996. *Global Burden of Disease and Injury*. Cambridge, MA, Harvard School of Public Health on behalf of the World Health Organization and the World Bank, 1996 (Series Vol. 2).
- NEDA. 1997. *Rights of Women to the Natural Resources Land and Water* (working paper 2). Women and Development, The Hague (Netherlands), Department of Rural and Urban development, Women and Development Division.
- RAMADAS and GERHARD, H. P. (1989). Literacy for What? *Prospects*, Vol. XIX, No 4.
- RODDA, A. 1991. *Women and Environment*. Zed Books Ltd., London and New Jersey.
- SIDA. 1994. *Towards a Framework for Including a Gender Perspective in Water Resources Management*. Development Assistance Committee Meeting on Water Resources Management, Paris, 10–11 May 1994. Stockholm.
- SIDA. 1996. *Rural Village Water Supply Programme – Botswana*. Department for Natural Resources and the Environment.
- SIMARD, G. 1996. *Petites commerçantes de Mauritanie*. Paris, ACCT-Khartala.
- SMYKE, P. 1991. *Women and Health*, Zed Books Ltd., London and New Jersey.
- SIMPSON-HEBERT, M. and WOOD, S. 1998. *Sanitation Promotion*. WHO/EOS/98.5, World Health Organization, Geneva.
- THE UNIVERSITY OF TENNESSEE AT MARTIN. The Internet Encyclopedia of Philosophy, 2001. Environmental Ethics, <http://www.utm.edu/research/iep/e/environm.htm>
- UN. Universal Declaration of Human Rights, adopted and proclaimed by General Assembly resolution 217 A (III) of 10 December 1948. Official homepage: <http://unhchr.ch/udhr>.
- UN. 1985. *Nairobi Forward Looking-Strategies for the Advancement of Women*. Chapter 'Current trends and perspectives to the year 2000', para.28. New York/Nairobi.
- UN. 1985. *Nairobi Forward Looking-Strategies for the Advancement of Women*. Chapter 'Women deprived of their traditional means of livelihood', paras. 292–3. New York/Nairobi.

- UN. 1985. *Nairobi Forward Looking-Strategies for the Advancement of Women*. Chapter 'Environment', paras. 224–7. New York/Nairobi.
- UN. 1992. *Agenda 21* (Chapter 24). Organization of United Nations, New York.
- UN. 1993. *Vienna Declaration* (Articles 18, 36). <http://www1.umn.edu/humanrts/instreet/11viedec.html>.
- UN. 1995. *Commission on the Status of Women*. gopher://gopher.un.org/OO/esc/cn6/1995.
- UN. 1995. *Beijing Declaration and Platform for Action* (paragraph 36). New York, gopher://gopher.undp.org/00/unconfs/women/off/plateng/9520p1.en%09%09%2B
- UN. 1995. *Platform for Action*, <http://un.org/womenwatch/daw/beijing>.
- UN. 1995. *Commission on the Status of Women, Thirty-ninth Session, New York*. <http://www.un.org>.
- UN. 2000. *Implementation of the Nairobi Forward-Looking Strategies for the Advancement of Women*. gopher://gopher.un.org/00/conf/fwcw.
- UN. 2000. *Human Development Report*.
- UN. 2001. *Women and the Environment*. <http://www.u.org/womenwatch>; <http://www.un.org/esa/sustdev/agenda21.htm>.
- UNDP. 1995. *Annual Human Development Report*. <http://www.undp.org>.
- UNDP. 1996. *Habitat Agenda – Section III D. Commitments – Gender Equality*. <http://www.undp.org>
- UNDP. 2000. *Thinking about Men and Gender Equality*. <http://www.undp.org>
- UNDP. 2001. *Choices for the Poor*. New York. <http://www.undp.org>
- UNDP. 2002. <http://www.undp.org>.
- UNDP. 2002. *Habitat Agenda – Section III D. Commitments – Gender Equality*. <http://www.unhabitat.org/programmes/genderpolicy>.
- UNESCO. 1995. *Our Creative Diversity. Report of the World Commission on Culture and Development*.
- UNESCO. 1997. *Gender-Sensitive Education, Statistics and Indicators. A Practical Guide* (Annex I).
- UNESCO. 1999. *Conference on Women Organize for Peace and Non-Violence in Africa*.
- UNESCO. 1999. *World Conference on Science. Draft Declaration*. <http://www.unesco.org>.
- UNESCO. 2001. *UNESCO Special Project on Women and Water Supply and Use; Sub-Saharan Africa. IHP homepage*.
- UNESCO. 2002. *Universal Declaration on Cultural Diversity*, par. 4. A document for the World Summit on Sustainable Development. UNESCO, Johannesburg September 2002.
- UNESCO. 2003. <http://www.unesco.org/women>.
- UNICEF. 1994. *Implementing Agenda 21: a Priority for WES. Waterfront* (Special issue, March).

- UNICEF. 1998. Empowering the People to Improve Sanitation. *Water Front*, No. 12. <http://www.unicef.org/crc/crc.htm>.
- UNICEF/WHO. 2000. *Global Water Supply and Sanitation Assessment 2000 Report*.
- UNNIFEM. 1994. *Newsletter*: June 1994.
- UNIFEM. 2001. *UNIFEM News: Women Scientists Reshaping Science and Technology*. United Nations, New York.
- VERHASSELT, Y. (Ed.). *Water: Worldwide and Worthwhile*. United Nations Office, Brussels (1998); World Bank (1999): <http://www.worldbank.org>.
- WHO. 1991. *The World Health Report: Making a Difference*. Geneva, World Health Organization, 2000. 4. SA, E. et al. Effects of improved water supply and sanitation on ascariasis, diarrhoea, dracunculiasis, hookworm infection, schistosomiasis and trachoma. *Bulletin of the World Health Organization*, 1991, 69(5), pp. 609–21.
- WHO. 1996. *The World Health Report 1996 – Fighting Disease, Fostering Development*. Geneva.
- WHO. 2002. *Consultation Meeting with Gender Experts, 27–29 November 2002*. Geneva.

7. Additional bibliography

- ANDERSON, I. 1996. *Swedish Support to Water and Sanitation in the Least Developed Countries*. SIDA, Stockholm.
- ATHUKOURALA, K. 1997. Water Forum – Where Have all Women Gone? A View from Sri Lanka. *NewsFlows*, No. 1.
- BARETTO DE CARVALHO, F. 1998. At the Cutting Edge of Environmental Information. *Courier*, No. 170.
- BOOT, M. 1995. *Hygiene Education in Bangladesh*. International Water and Sanitation Center. UNICEF, New York.
- CHANCELLOR, F. 1998. Gender Sensitive Issues in Irrigation. *Aqua News*, No. 47. Springfield, Virginia.
- CLEAVER, F. and ELSON, D. 1995. *Women and Water Resources : Continued Marginalizations and New Policies*. Gatekeeper series, No. 49. Sustainable Agriculture Programme of the International Institute of Environment and Development (IIED), London/Edinburg/Dakar.
- DANKELMAN, I. and DAVIDSON, J. 1989. *Women and Environment in the Third World: Alliance for the Future*. Earthscan, London .
- DFID. 1997. Gender Sensitive Design for African Small-scale Irrigation. *Water Issues*, No. 5. Department for International Development, London.
- ECOSOC for Asia and Pacific. 1997. *Report on Phase I of the Project on Promotion of the Role of Women in the Protection and Management of Water resources: National*

- Training Workshops on Women, Water Supply and Sanitation*. United Nations, New York.
- ELMENDORF, M. and ISELY, R. 1984. *Role of Women in Water Supply and Sanitation Programmes: Implication for Education*. UNESCO/UNICEF Programme of Educational Assistance. ED 84/WS/62.
- Final Report on The International Consultation to Advance Women in Ecosystem Management and to Promote Co-operation, Co-ordination and Strategic Planning Among Multilateral, Regional and Bilateral Agencies and Organisations*. Washington, D.C., 4–6 October, 1993.
- FOURNIER, F. 1995. Beijing Declaration Calls Nations to Action. Women Rights are Human Rights. *Most Newsletter*, No. 4–5. UNESCO, Paris.
- HIGGINS, D. 1994. Women, Water, Wood and Waste. *Waterfront* (Special issue). The Waterfront Center, Washington, D.C.
- I CHIBUYE, G. 1996. Gender Perspectives of the Water Sector. *Water Sector News*, No. 4. International Water and Sanitation Centre, Delft (The Netherlands).
- ILO. 1995. Women. They Have the Jobs. They Want Equality. *The Magazine of the International Labour Office*. ILO, Geneva.
- KHAN, S. 1996. *Handing Over of Water Supply Schemes to Communities in Northern Punjab, Pakistan : A case for Collective Action*. Pakistan Multi-Donors Support Unit, Sustainable Development Policy Institute.
- KARRAM, A. 1998. *Women, Islamism and the State. Contemporary Feminist in Egypt*. Macmilian, London.
- KOPPEN, B. and MAHMUD, S. 1996. *Women and Water-Pumps in Bangladesh: The impact of Participation in Irrigation Groups on Women's Status*. Intermediate Technology Publication, London.
- LYONNAISE DES EAUX. 1998. *Alternative Solutions for Water Supply and Sanitation in Areas with Limited Financial Resources*. Paris.
- LUSTER, P. 1998. *Capital Accumulation and Women Labour in Asian Economies*. Vistor Publications, New Delhi, and Zed Books, London.
- MAHAPATRA, K. 1996. Towards Empowerment: Women Mobilizers in the Community Water Supply and Sanitation Programme in Nepal. *Waterfront*, No. 9. The Waterfront Center, Washington, D.C.
- MATHEW, T. 1998. New Skills, News Lives: Kerala's Women Masons. *Waterlines*, Vol. 17, No 1. Intermediate Technology Development Group, The Schumacher Centre for Technology and Development, Rugby, UK.
- METELL, K. and MOOIJMN, A. 1998. Water and more for The Barrios of Tegucigalpa. *Waterlines*, Vol. 17. The Schumacher Centre for Technology and Development, Rugby, UK.
- PHI/REUNIR. 1997. *Elle et l'Eau*. UNESCO, Paris.

- RODDA, A. 1991. Women and Environment. *Women and World Development Series*. Zed Books, London and New Jersey.
- RODDA, A. 1992. Women in the Humid Tropics. IHP – Humid Tropics Programme Series, No. 6. UNESCO, Paris.
- SANDI, A. 1980. *Science, Development and Women's Emancipation*. UNESCO, Paris.
- SHIVA, V. 1989. *Staying Alive: Women, Ecology and Development*. Zed Books, London.
- SIMS, J. 1994. *Women, Health and Environment*. World Health Organisation, Geneva.
- SORCINELLI, P. 1998. *Storia Sociale dell'Acqua*. Mondadori, Milano.
- UNDP/PROWWESS. 1989. *Les femmes, l'eau et l'assainissement*. New York/Washington D.C.
- UNDP. 1998. *Human Development Report*. Oxford University Press, New York.
- UNESCO. 1999. Science Matters. In : *Promoting Science for Development*. UNESCO, Paris.
- UNICEF 1994a. Clean Water and Environment: Women and Children at Particular Risk. *Waterfront*, No. 6. UNICEF, New York.
- UNICEF 1994b. Implementing Agenda 21 : a Priority for WES. *Waterfront* (Special Issue, March). UNICEF, New York.
- UNICEF. 1998a. *Sanitation and Hygiene, A Right for Every Child. A Summary of Lessons Learned and New Approaches from the UNICEF Workshop on Environmental Sanitation and Hygiene*. UNICEF, New York.
- UNICEF 1998b. Environmental Sanitation : A Global Challenge for the Twenty-first Century. *Waterfront*, No 12. UNICEF, New York.
- UNICEF. 1998c. *Convention on the Rights of the Child. Adopted by the General Assembly of the United Nations on 20 November 1989*. UNICEF, New York.
- UN. 1990. La Promotion des activités des femmes pour la mise en valeur des ressources en eau. Rapport du Séminaire de Bamako (Mali). *Ressources naturelles. Série Eau*, No. 25.
- UN. 1995. *The World's Women. Trends and Statistics*. United Nations, New York.
- UN. 1996. *IDNDR Day 1995 – Women and Children: Key to Prevention*. United Nations, Department of Humanitarian Affairs, New York.
- UN. 1997. *Report of the Secretary General. Improvement of the Situation of Women in Rural Areas*. Paragraph 107, Provisional Agenda, Fifty-second Session: Advancement of Women. New York.
- UN. 1998. *Water World Wide and Worthwhile*. Edited by Y. Verhasselt. United Nations Office, Brussels.
- WATER SUPPLY AND SANITATION COLLABORATIVE COUNCIL. 1999. *Household-centred Environmental Sanitation: Report of the Hilterfingen Workshop, March 1999*. Geneva.
- WATER SUPPLY AND SANITATION COLLABORATIVE COUNCIL. 2000. *VISION 21: A shared Vision for Hygiene, Sanitation and Water Supply and a Framework for Action*.

- Proceedings of the Second World Water Forum, The Hague, 17–22 March 2000.* Geneva.
- WHO. 1993. *Amélioration des pratiques d'hygiène concernant l'approvisionnement en eau et l'assainissement. Rapport d'une consultation informelle.* Genève, 18-20 mai 1992. WHO/CWS/93.10.
- WHO. 1994. *Education sanitaire et hygiène du milieu dans les écoles de l'Afrique de l'Ouest francophone.* Rapport d'un atelier régional sur les problèmes et les possibilités d'amélioration. EIER, Ougadougou 19-21 avril 1994. WHO/EOS/94.
- WHO. 1995. Les femmes et la santé. *Le Magazine de l'Organisation Mondiale de la Santé* (Special issue, September 1995).
- WHO. 1996. *The World Health Report 1996*, Geneva.
- WHO. 2001. *The World Health Report 2001*, Geneva.
- WORLD BANK. 1995. *Toward Gender Equality: The Role of Public Policy.* World Bank, Washington, D.C.
- WORLD BANK. 1995. *Advancing Gender Equality: from Concept to Action.* World Bank, Washington, D.C.