

ROLE OF WOMEN IN PROMOTION AND MANAGEMENT OF SANITATION: REFLECTIONS FROM GLOBAL EVIDENCES

5.1.0. Introduction: During the International Drinking Water Supply and Sanitation Decade (1981-90), the development community recognized that greater women's involvement was a critical element in reaching the target of sanitation for all. New programs were launched by the United Nations system and bilateral agencies that targeted women and sought to broaden their involvement in the planning and implementation of water supply and sanitation services. In most cultures, women are primarily responsible for the use and management of water resources, sanitation and health at the household level. Over the years, women have accumulated an impressive store of environmental wisdom, being the ones to find water, to educate children in hygiene matters and to understand the impact of poor sanitation on health. At the same time, women and girls are often obliged to walk many hours every day fetching water, while men are rarely expected to perform such tasks. (WGTF, 2006). Against this backdrop, this chapter has made a concerted effort to explore the significance of women's role in sanitation-promoting initiatives, citing evidences of several case studies and best practices from across the Globe.

5.2.0. Inter-linkages between Sanitation, Gender and Water

The vital role of women in water, sanitation and hygiene (WASH) interventions is undeniable. But even though women's involvement in the planning, design, management and implementation of such projects and programmes has proved to be fruitful and cost-effective, the substantial benefits of this approach are not properly recognised. Lack of basic sanitation and safe water is an acute problem for the women and girls who live in poor and overcrowded urban slums and in the rural areas of the developing world. Many of them have to wait to relieve themselves until dark, sometimes confronting the fear and the reality of harassment and sexual assault. When crises hit and personal safety and security are diminished, even fetching water becomes risky for fear of assault. In many countries, school attendance by girls is lower and drop-out rates are higher in schools that have no access to safe water and no separate toilet facilities for boys and girls. If we do not focus on these challenges, it will negatively affect our chances of delivering on a number of Millennium Development Goals. (WSSCC, 2006)

A 2002 UNICEF study of rural household in 23 sub-Saharan African countries found that a quarter of them spent 30 minutes to an hour each day collecting and carrying water, and 19 % spent an hour or more. With closer water comes greater self-esteem, less harassment of women and better school attendance by girls – three things spontaneously mentioned by people in Ethiopia, Ghana, Tanzania and India in a different study. (The Washington Post, 2004) Yet all too often decisions about the design and location of water facilities are made without the involvement of the female users, who have most at stake in this regard. Despite their number and their prominent roles and responsibilities in relation to water and sanitation, women often have no voice and no choice in decisions about the kind of services they need or are receiving.

Gender considerations are at the heart of providing, managing and conserving our finite water resources and safeguarding health through proper sanitation and hygiene. The importance of involving both women and men in the management of water and sanitation has been recognized at the global level, at least since the 1977 United Nations Water Conference at Mar del Plata and during the International Drinking Water Supply and Sanitation Decade, 1981-1990. The Dublin principles, endorsed at the International Conference on Water and the Environment in 1992, recognized that “Women play a central part in the provision, management and safeguarding of water.” The statement called for recognition of the contributions of women as providers and users of water and guardians of the living environment in institutional arrangements for the development and management of water resources. (UNICEF, 2003)

Dublin was followed by the United Nations Conference on Environment and Development, held in Rio in 1992, which outlined approaches to Freshwater Management in chapter 18 of Agenda 21. Chapter 18 includes numerous references to the participation, capacity building, education and mobilization of women as decision makers and managers of water resources and sanitation. Principle 20 of the Rio Declaration states: “Women have a vital role in environmental management and development. Their full participation is therefore essential to achieve sustainable development.” In the Johannesburg Plan of Implementation of the 2002 World Summit on Sustainable Development (para 24), governments agreed to: “...support capacity-building for water and sanitation infrastructure and services development, ensuring that such infrastructure and services ...are gender-sensitive.” (GWTF, 2006)

Building on all these commitments at the end of the International Year of Freshwater, in December 2003, the General Assembly proclaimed the International Decade for Action “Water for Life” from 2005 to 2015. Resolution 58/217 stresses that the “goals of the Decade should be

a greater focus on water-related issues ... and implementation of water-related programmes and projects, whilst striving to ensure women's participation and involvement in the water-related development efforts." (GWTF, 2006) Following these principles requires determining what people (consumers) want, what they will contribute and how they will participate in decision making on the types and levels of service and operation and maintenance. Recognizing the different roles of men and women when designing projects can increase chances for project sustainability.

5.3.0. Women's access to water supply

Access to safe drinking water is a basic human right and essential for achieving gender equality (freeing women and girls from spending long hours fetching water), sustainable development and poverty alleviation. Having water points nearer the homestead will reduce the distance women and girls have to walk, thus allowing time for other activities, including training, childcare, growing food and income generation. The latter could include construction and management of water and sanitation facilities. (GWTF, 2006)

Water near the home produces significant improvements in nutrition and health. The carrying of water over long distances is a health hazard, especially during development and pregnancy periods. During daily water collection, women face the risk of drowning (from floods) and injuries from attacks. General Comment 15 on the right to water, adopted in November 2002 by the Committee on Economic, Social and Cultural Rights, states: "The human right to water entitles everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses." (Gender and Water Alliance, 2003). It is essential that both women and men be involved in decision making processes regarding the provision, location and technology of water and sanitation facilities in the community and household.

At the Millennium Summit in 2000, Heads of State pledged to halve the proportion of people who are unable to reach or to afford safe drinking water by the year 2015. This "Millennium Development Goal" (MDG) was reinforced by a similar goal for sanitation contained in the Johannesburg Plan of Implementation (JPOI) agreed to at the World Summit for Sustainable Development (WSSD) in 2002. Even though the water and sanitation goals seem ambitious to some, they are very modest—these goals do not envisage providing a tap in every kitchen or a flush toilet in every house. The WHO definition of access to water varies according to location,

but averages 20 litres per person per day within one kilometres walking distance from the household. (GWTF, 2006)

African women may walk over six kilometres per day in search of water, spending as much as eight hours collecting water. (UNFPA, 2002). In most countries, girls often are given the task of collecting water, carrying 15 to 20 litres of water from the water point home. Access to water and sanitation is therefore related to the time that girls need to attend school, and can be the reason why they are kept out of school. In many developing countries, furthermore, girls are often not permitted to attend schools that do not have latrines out of concern for their privacy and modesty. (World Bank, 2004). Therefore, access to fresh water and sanitation does not only improve the health of a family, but it also provides an opportunity for girls to go to school, and for women to use their time more productively than in fetching water. It is estimated that the investment required to meet the Millennium Development Goals for safe drinking water and basic sanitation would require an additional investment of approximately \$30 billion a year, twice what is now spent in those countries which currently have large numbers of people without access. (Devarajan et al. 2002)

5.3.1. Evidences

In Morocco, the Rural Water Supply and Sanitation Project of the World Bank aimed to reduce the burden of girls “who were traditionally involved in fetching water” in order to improve their school attendance. In the six provinces where the project is based, it was found that girls’ school attendance increased by 20 % in four years, attributed in part to the fact that girls spent less time fetching water. It was also found that convenient access to safe water reduced the time spent fetching water by women and young girls by 50 to 90 %. (World Bank, 2003)

In Pakistan, school enrolment of all children increased by 80 % over seven years as a result of the Punjab Rural Water Supply Project. The project, which involved both women and men in all aspects of planning, design and implementation, brought water to 325 poor and remote villages and transformed the lives of 800,000 people. (ADB, 2003)

Leaving women out of the project design may result in inadvertently increasing the women’s burden. For example, in east Nepal the tap-stands and tube-wells of the improved water services “are located along the roadside where women cannot bathe freely and wash their clothes comfortably for fear of being seen by men. In order to avoid this, women in Hiel village in east

Nepal carry water all the way to their homes several times each day, spending significant amounts of time and energy to do this. In three villages women reported waiting until dark to undertake these activities. All these women complained that the surveyors had not involved them in designing the tap-stands or tube-wells.” (Regmi and Fawcett, 1999)

In the peri- urban areas of Malawi, female participation in water management has shown to be very constructive. At first, male managers were put in charge of the communal water points. However, this was found to be ineffective, as the men were absent during the day and lacked service orientation and financial management skills. A new management group, consisting only of females, was set up and both water and sanitation management improved significantly. However, this was a heavy burden for the women, and the programme now follows an equitable strategy where the management group consists equally of men and women and where the burden of work and influence is shared equally. (World Water Vision et al., 2000)

5.4.0. The Issue of Equitable access to land rights and water for productive use

Equitable access to water for productive use can empower women and address the root causes of poverty and gender inequality. Lack of access (ownership) to land may be the underlying cause of women’s limited access to water. Women hold title to less than 2 % of the world’s private land, (Deda and Rubian, 2004) and in many countries (e.g. most of Latin America), land ownership is a precondition for access to water. Thus, land reforms that allocated legal land tenure to the heads of households or permanent agricultural workers (who are generally male) resulted in women losing any legal claim to water. (Gender and Water Alliance, 2003). Moreover, even if women do have a legal right to land, customs often prevent them from taking de facto control of land and natural resources, for instance, in Zimbabwe, Burkina Faso and Cameroon. (Sass, 2002)

Women and indigenous groups must be accorded recognition as citizens, land holders and contributors to the development process. They need to have secure access to water and land for productive use in agriculture and livestock rearing, in addition to access to water for domestic use. Responding to the needs of poor farmers requires a detailed understanding of men’s and women’s local knowledge systems, resource utilization and income generating opportunities. Water is also needed for a range of small enterprises, including: home gardens in peri-urban areas (which are often overlooked in agricultural statistics); growing fruit trees; raising poultry; preparing food, etc. (ADB, 2003)

In general, the Food and Agriculture Organization (FAO) reports an increasing “feminization of agriculture” due to wars, pandemics and the exodus of men seeking paid work in urban areas. (FAO, 2003) The International Fund for Agricultural Development also highlighted the fact that women are heads of an increasing number of rural households in the developing world; these women are put in the position of farming the land and providing for their families alone, without legal rights to water and land. (Gender and Water Alliance, 2003) It is estimated that women in particular are responsible for half of the world's food production (as opposed to cash crops) and rural women produce between 60 - 80 % of the food in most developing countries. (FAO, 1995)

Women's role in agricultural production is totally undervalued, although in poor regions food security is often dependent on women's subsistence production to feed the population. Women also have an important role in establishing sustainable use of resources in small scale fishing communities, and their accumulated knowledge is valuable for managing and protecting water sources and watersheds. (FAO, 1995)

5.4.1. Evidences

The Self-Employed Women's Association in India (SEWA) has concentrated much of its work on gaining access to water for productive enterprises, which are often part of the so-called self-employed workers segment. Today more than 93 % of all workers in India are considered self-employed workers, more than half of whom are women. (Makiko, 2004) While both women and men need water for productive purposes, their priorities may differ. SEWA has helped selected areas in India to develop plastic-lined ponds for water conservation, with technical support and training provided by the Foundation for Public interest (FPI). Local women are now managing their own village ponds, including all book-keeping and accounts. In eight villages of Banaskantha district of Gujarat, women have formed their own water committees. Through these they undertake contour binding, building checkdams, repair of village ponds and other water conservation related construction. (Makiko, 2004)

Since the mid-1990s, the World Bank has put increased emphasis on poverty reduction as a key development goal. Substantial research has been done on gender and poverty issues, and women's role in agricultural production. Women's disadvantaged position with respect to access to productive resources such as land, labour and financial services, is often mentioned as a key reason for the greater poverty of female-headed households. Access to water is not in itself seen

as the point of vulnerability, however. (Blackden and Bhanu, 1999) Discussion of access to water is often seen in domestic terms, i.e., time spent on water collection or the availability of adequate water and sanitation services. Access might better be linked to productive activities, or the opportunity cost of time and energy spent in fetching water that detracts from the overall productivity and efficiency of women. The real problem faced by many female farmers, however, is that they have very little or no access to irrigation water for agricultural purposes and are entirely dependent on rainfall.

5.5.0. Women's Access to Sanitation

The definition of access to basic sanitation, the term used in the Johannesburg Plan of Implementation's time-bound goal, is a sanitary means of excreta disposal. This could just mean sanitizing human excreta – through dehydration or composting -- to make them safe for recycling in agricultural fields, as is widely practiced in China and elsewhere. Access to a pit latrine would be considered more advanced than basic sanitation -- improved sanitation. Since health and environmental benefits from basic and improved sanitation accrue to the community at large, governments and community institutions have a vested interest in expanding access to sanitation. The social and environmental health costs of ignoring the need to address sanitation are far too great. (GWTF, 2006)

Lack of sanitation and poor hygiene are responsible for the transmission of diarrhoea, cholera, typhoid and several parasitic infections. Moreover, the incidence of these diseases and others linked to poor sanitation – e.g., round worm, whip worm, guinea worm, and schistosomiasis – is highest among the poor, especially school-aged children. (WHO, 1997) These diseases have a strong negative impact on the health and nutrition of children and their learning capacities, and contribute to significant absences from school. (Nokes and Bundy, 1993) More than 2.2 million people in developing countries, most of them children, die each year from diseases associated with lack of access to safe drinking water, inadequate sanitation and poor hygiene.

A focus on gender differences is of particular importance with regard to sanitation facilities. Often the availability of latrines in schools can enable girls to get an education, particularly after they reach puberty, by providing privacy and dignity. It is particularly important that the public institutions with the most extensive and sustained public outreach – schools and health centres – should become learning and demonstration centres for good hygiene and its benefits. (GWTF, 2006)

Moreover, the design and the location of latrines close to the home can reduce violence against women, which may occur when women have to relieve themselves in the open after nightfall. They may also suffer gastric disorders from waiting until dark to defecate in the open. Particular concerns include ensuring privacy and security, notably for girls and women (especially in common facilities), and designs that take account of specific needs, such as of small children or menstruating girls. (UNICEF, 2003)

Men, women and children who do not have access to basic sanitation put the whole community at risk. The lack of adequate sanitation undermines the relative benefits of having safe water supply in the community. Women play a crucial role in influencing the hygiene behaviours of young children, and men can – and should -- also serve as role models in sustaining changes in habits. The success and effective use of water and sanitation facilities will depend on the involvement of both women and men in selecting the location and technology of such facilities, and taking responsibility for operation and maintenance. (Berna, 2006)

5.5.1. Evidences

The School Sanitation and Hygiene Education (SSHE) campaign, a joint project of UNICEF and the IRC International Water and Sanitation Centre, the Water Supply and Sanitation Collaborative Council (WSSCC) and others, aims to provide water and sanitary facilities in schools to improve health of all pupils and encourage girls to attend school. Research and surveys suggest that separate facilities need to be provided for girls and boys, if girls are not to be discouraged from school attendance. The project began in February 2000 in Burkina Faso, Colombia, Nepal, Nicaragua, Viet Nam and Zambia. With an emphasis on local participation, SSHE provides low-cost teaching aids, inexpensive, community developed technology and life-skills hygiene education to primary schools. (GWTF, 2006)

In Mozambique, a similar project supported the construction of latrines for boys, girls and teachers, and hand-washing facilities for hygiene practice. Not only have these initiatives provided safer, healthier learning environments, they have also encouraged girls' education. Whereas older girls used to drop out of school for lack of privacy, they are now remaining in school to complete their basic schooling. The improved hygienic conditions have given girls back their books and their dignity. In Bangladesh, a similar school sanitation project with

separate facilities for boys and girls helped boost girls' school attendance 11 % per year, on average, from 1992 to 1999. (UNICEF, 2003)

In eight slums in the Tiruchirapalli district of Tamil Nadu State, India, latrines constructed by the municipal corporation had all become unserviceable due to poor maintenance. The women reported that the poor maintenance of the latrines caused faecal worms to generate and reproduce, and they could be found near the water taps, and even inside the walls of their houses. Poor sanitation and contaminated water affected all families and increased their medical expenses. Male community leaders did not take any steps to provide improved facilities. Finally, the people joined forces with Gramalaya, an NGO working on water and sanitation projects. The project design called for the installation of drinking water facilities and individual toilets, as well as community mobilization, with a focus on gender mainstreaming. WaterAid covered the equipment and installation costs, while Gramalaya covered the capacity building and community mobilization components. The government provided the land sites, electricity, water supply, and loans to community members. The community benefits from improved water and sanitation facilities, better health and increased resources for community development, and the women have gained self-confidence. (Berna, 2006)

5.6.0. The Issue of Capacity-building for Better Management of Sanitation

When looking closely at capacity building in water supply and sanitation, it becomes clear that most of the training is aimed at water resources and water supply specialists, with very few programmes in developing countries aimed at expertise in social development, sanitation or hygiene education. Building capacity means bringing together more resources, more people (both women and men) and more skills. Water and sanitation policies and programmes must be linked to different demands and needs of women and men, and to the broader goals of poverty alleviation and sustainable development. (Berna, 2006)

To ensure sustainability, capacity building has to continue beyond project implementation, with a gradual scaling down to those responsible for operation and maintenance. Development organizations need to ensure that funding is available for follow-up training after completion of infrastructure. The cost effectiveness and positive impact of a gender-sensitive approach in the water and sanitation area have been widely demonstrated. Targeting women for training as the main role models and 'teachers' within the household is a cost-effective way of raising awareness and skills. (World Bank, 1996)

5.6.1. Evidences

Linking water to other sectors in the design of water, sanitation and hygiene education programmes ensures that the needs and aspiration of all groups are considered. In Uganda, a school sanitation and hygiene programme was shared between the ministries of water and education, both of which were headed by women. Working together, the ministers are devising affirmative action programmes to encourage girls to get a better technical education and professional background. (UNICEF, 2003)

Supporting training of female technicians and other staff facilitates the achievement of the targets for improving access to safe water and sanitation. For example, in the Mantsonyane district in Lesotho, the village water committee elects a 'Water Minder', who is given the tools for the maintenance of the water system and the latrines. A maintenance fund is collected from villagers and administered by the water committee. Up to 90% of the water minders are women. (World Bank, 1996) Villagers tend to elect women because they have wide experience with water and sanitation, are more often available on the spot, and are most directly involved in matters of family health and hygiene.

Women have shown their initiative in taking charge of the maintenance of communal water facilities. In Malawi, water tap committees composed mainly of women use the pipeline routes as paths and report leakages to the village caretaker. Such local strategies can creatively be chosen to develop low-cost sustainable community-based systems to maintain project facilities. (World Bank, 1996)

A Community Water Supply and Sanitation programme in the Eastern Development Region of Nepal has involved a women- led sanitation team composed of 44 female participants who are responsible for 23 tap-stands in 160 households in a small village in the Jhapa district. The coordinator of the sanitation team runs an adult literacy class in her community, and manages the manufacture of rings and platforms required for constructing latrines through a revolving fund. The programme recognizes and ensures women's participation through institutionalization of their roles in planning, site and design selection, sanitation promotion, monitoring and evaluation. (Mahapatra, 1996)

Community-based Socio-Economic Units have been implementing local water and sanitation projects in Kerala state in India since 1988 through community participation, from planning to monitoring. To meet the shortage of skilled masons for the construction of low-cost twin-pit latrines, the Jeevapoorna Women Masons Society (JEEWOMS) was formed and trained women in skills such as cement-block making, reinforcing steel work and constructing latrines. By the late 1990s, JEEWOMS was training women in house construction, and some trainees became trainers. Seeing this success, more of Kerala's district governments started to train women in masonry as a main plank of their women's empowerment initiatives. (Mathew, 1998)

The Watersheds and Gender project in El Salvador is another example of how women learned new skills through participation and involvement. The project has promoted women as leaders, and trained them as community promoters and managers of small-scale companies. As a result, women have acquired technical agricultural knowledge and are now performing tasks that were previously considered suitable only for men. (Agua Project Report, 2002)

5.7.0. The Issue of Participation and Equity for Women in Water and Sanitation Management

Water management must be democratic and transparent and represent the needs of the people, especially women, who are the primary users (collectors) of water throughout the world. Actions must be taken towards reducing the proportion of people, particularly women, without sustainable access to safe drinking water and sanitary means of excreta disposal. Safe water implies protection of water sources as well as proper transport, storage and care of water and sanitation facilities. Institutional support from the communities, development agencies and government policies should provide a framework for water and sanitation improvements, including infrastructure and services, transfer of technology and capacity-building that meet the needs of both women and men. It has been found that projects/schemes in which women and men have an equal say have a better chance for success and sustainability because they address the needs of both. (World Bank, 1996) Women and men need access to information about technology, design and financing, as well as access to credit, land, legal institutions, and the ability to participate effectively in decision making.

However, the 'water world' has been almost solidly male. Careers and training in water management tend to be dominated by men. The gender distribution of participants at international water symposia and conferences shows a marked discrepancy between the number

of female and male participants. Only 10 women out of 115 persons attended the Consultative Group meeting of the Global Water Partnership (GWP). The World Water Council has 32 board members, of whom only 3 are women; the International Water Quality Association has no women on the board. These statistics are representative of the gender breakdown of decision makers in most leading organizations in the 'water world'. A notable exception to the rule was at the November 2004 meeting of the African Ministerial Council on Water (AMCOW), held in Entebbe, Uganda where four female ministers participated actively, and one (from Uganda) was elected Chair of the Council. (Athukorala, 2003).

Efforts by women to break into the 'water world' may, however, stigmatize them for treading in men's territories. In addition, in order to participate effectively in water management, women may have to overcome specific social barriers that restrict their participation in community-based forums or public consultations that can influence policies on water. While it may be hard to imagine a change in orientation of water policy in many countries in the near future, affirmative action policies and gender-biased laws in South Africa have proved to be a successful means of empowering women. (World Bank, 1996) Sanitation and hygiene require social marketing if they are to become desirable and prestigious. This is an area in which governments can deploy private sector skills through many public channels of communication. Those who provide hygiene education must also find ways to confront the gender equality issue that can also limit the effectiveness of water, sanitation and hygiene promotion efforts. Usually it is men who make the decisions over how surplus money or effort will be used. But it is women who have a greater need for private sanitation and who are responsible for water, sanitation and hygiene.

5.7.1. Evidences

In some United Nations projects in West Africa, it was stipulated that at least two women be involved in the local water committees. The aim was to give women more voice in the management of water projects that directly influenced their communities. In some cases, the women involved in the committees were often relegated to such roles as cleaning the pumps or keeping the animals and the children away from wells. While the data on inclusion of women may have looked good on paper, it was not always effective in practice. . (Gender and Water Alliance, 2003)

On the other hand, in South Africa the participation of women has increased at all levels in water management due to affirmative action measures to encourage women's participation, including

‘women in water’ awards and a bursary for young women to take up careers in the water sector. The principle of non-sexism was enshrined in South Africa’s 1994 constitution, and a quota system for women’s participation cut across all sectors. South African laws are ‘gender-biased’, i.e., the government can only procure materials and services from companies where at least 30% of the jobs are held by women. Such ‘enforced’ participation gave women confidence to emancipate themselves. (UNICEF, 2003) The empowerment of women has proved to be essential to alleviating poverty and delivering basic services in South Africa.

Uganda has had an affirmative action programme since 1997. This mandates that all administrative levels from cabinet down to village should include at least 30% women. With time, women have found their voices and have now been trained to locate water sources in the village, decide on the location of facilities and to repair pumps. The incidence of breakdown has decreased considerably. Women have also participated in businesses: in rural areas, setting up shops to store spares parts for boreholes and in urban areas, managing water systems. (GWTF, 2006) In water user associations, women are often responsible for the finances.

In Trinidad and Tobago most of the community water projects have been started and run by women, and these projects have been working very well, according to the Water Development Division of the Ministry of Food Production and Maritime Resources. In Cameroon, a women’s group started to build a company and generated enough income to build a water system. Women now chair the neighbourhood water committees. (World Bank, 1996)

The WASH campaign, organized by the Water Supply and Sanitation Collaborative Council (WSSCC), is bringing its message of Water, Sanitation and Hygiene for all to women and men in over 40 countries. The Council includes UN organizations, NGOs, bilateral donors, institutions and the private sector. A new initiative called “African Ministerial Initiative on WASH” (AMIWASH) aims to assist African countries to achieve the MDGs in water and sanitation. Leading this effort is the new AMCOW Chair, Maria Mutagamba, Minister of Water of Uganda. The initiative includes the formation of a Group of Women Leaders to champion the role of women in decision- making, capacity building, educating children on sanitation and hygiene, and mobilizing political will around other priorities such as the linkages between water, sanitation, hygiene and HIV/AIDS. The efforts of AMIWASH and AMCOW to develop national roadmaps towards the MDGs are being brought to the attention of the Commission on Sustainable Development’s 13th session and the Millennium Declaration review in 2005. (WSSCC, 2004)

One of the WASH campaign's pilot projects is located in the Tondo slum area of Manila (Philippines), and has the support of the Municipal government, the Ports Authority, a women's cooperative and others. It includes rainwater catchments, sanitation and wastewater disposal facilities. The Teacher Trainer Coordinators are all women; they teach and spread the WASH messages to the residents of the slum, especially the children they teach. (GWTF, 2006) The project uses a locally-made soap developed by a female inventor.

In Ukraine, cleaning railway oil tanks and the city's inadequate sewage system caused overflows of sewage into houses and onto the streets. When women approached the local authority they were denied funds to solve the problem. With the help of an environmental NGO, women met with residents, launched a political campaign and filed a legal suit against the local authority. As a result, the government allocated resources to finish construction of a sewage pump, financed environmental works, and closed the hazardous oil- tank cleaning facility. (Khosla, 2002)

Other examples demonstrate the efficiency of projects where women play a pivotal role on all project levels. For instance, women in the town of La Serena in Colombia wanted to improve the quality of water in the Canaveralajo River, which was highly contaminated. In 1995 the women struggled to secure leadership positions on the action board. The board was run by men and the women had to impose themselves to participate. Once the women proved themselves capable and were in a leadership position, a treatment plant was constructed. Since then there have been many improvements. For example, diarrhoea and other children's skin diseases have been reduced, and the town was spared in a cholera epidemic. (IRC, 2004)

But men often have to be encouraged to enable the women to participate. In Hoto village, Baluchistan (Pakistan), where women follow a strict form of purdah, a participatory action research team went to help the village improve its water management in 1994. For a year the men would not give permission to the action team to meet the women of the village. Eventually, the women were able to participate in a joint meeting, and put up a proposal to build a new water tank on unused land, which would provide water to the non-functioning public standpipes. The women's solution, which was far more cost-effective, was adopted over the men's proposal. Moreover, after this initial success, women became active participants in decision-making, and significant changes have been made in their lives through hygiene education. Most significant has been the demand for education for their daughters. In 1998, a new girls' school was opened in Hoto. Traditional leaders have been impressed by the result of the project. The same approach is now taken in other villages. (Van Wijk-Sijbesma, 1998).

5.8.0. Protection of the Resource Base: Indigenous Perspective

In Agenda 21 (para 26.5), the international community and Governments were called on to draw on the active participation of indigenous people and their communities and to incorporate their values, views and knowledge, including the unique contribution of indigenous women, in resource management and other policies and programmes that may affect them. Further, international development agencies and Governments were requested to commit financial and other resources to education and training for indigenous communities to develop their capacities to achieve sustainable self-development, and to contribute to and participate in sustainable and equitable development at the national level. Particular attention is to be given to strengthening the role of indigenous women. (Branco and Almeida, 2002).

Indigenous peoples remain particularly vulnerable to water shortages and water quality problems as a result of a history of dispossession and marginalization. Yet indigenous peoples have extensive traditional knowledge regarding water sources and conservation. Water sources on indigenous lands are often considered a sacred element, and indigenous women may be the holders of “water knowledge”. Indigenous people possess traditional knowledge and skills concerning the sensing/locating of water and its conservation. (UNICEF, 2003) Their traditional land management skills often provide the most effective method of water resource management in their settlement areas.

However, due to their lack of sovereignty over natural resources, indigenous people are seriously affected by their uncompensated and unsustainable loss of water to farming and other industries. In the worst cases, governments have closed water sources in an effort to forcibly relocate indigenous people from their traditional territories.

5.8.1. Evidences

In the Witjira National Park in Australia, pastoralists have already caused serious deterioration of the ‘mound springs’ in the Great Artesian Basin. Some of them could be restored by using traditional methods and skills of indigenous people. In another case, the Gana and Gwi tribes in South Africa lived in the Central Kalahari Game Reserve, until government efforts to relocate them resulted in the destruction of their water borehole in 2002. (Ah Chee, 2002). In other instances, indigenous peoples are not provided with clean safe drinking water to the same level of other nationals in a given country.

Pollution and contamination drastically affect indigenous people. For example, many settlements in the Altai Republic of Siberia obtain drinking water from streams, rivers, and lakes which are contaminated by elevated levels of nitrogen, faecal-coliform bacteria and other pollutants. Poor drinking water quality remains the leading cause of health problems for young children in the Republic. Drinking water quality and sanitation have often been identified as a priority in economic development of the Altai Republic in the Russian Federation. (Calhoon et al, 2004)

In some cases, women are taking the lead in their communities to protect water resources. For example, in northeastern Brazil, the Rural Women Workers' Movement has mobilized women to revitalize a small local river in the water scarce area. This involves community education, i.e., teaching local people not to dump their sewage into the river, in addition to planting native species of trees along the river banks. Women activists are undertaking this project without government support, hoping that, if they are able to demonstrate success, the government will support other similar efforts. (Branco and Almeida, 2002).

5.9.0. The Issue of Resource Mobilization

Improving access to water and sanitation and changing hygiene behaviours have large benefits to society as a whole (through improvements in health, education and the economy in general), which justify continued public sector support. While some money will come from external support agencies, the volume of such assistance is not likely to grow fast enough to meet water and sanitation needs around the world. Governments will have to continue to be primarily responsible for raising and using public funds (from general revenue, cross subsidization, user fees, and borrowing) for water resources and sanitation infrastructure needs. (Van Wijk-Sijbesma,1998). However, in many cases communities themselves have been involved in initiating and financing local projects.

Formal and informal women's organizations and networks can play important and stimulating roles in mobilizing resources for sustainable and equitable water and land management projects. But women in developing countries often lack access to facilities such as computers and internet to distribute their ideas and apply for funds. Instructing women in project management and fund raising may empower them to launch new projects and to contribute to poverty alleviation independently. Financing may also be forthcoming from local private companies or entrepreneurs who could be encouraged through government incentive programmes. However,

as women in general have limited access to credit, such incentive programmes should be available to them, perhaps in the form of micro-credit. (World Bank, 1996)

Households can make a contribution in kind in the form of digging the toilet pit or construction of rainwater catchments (where there are able-bodied members). More attention is needed for better intra-household sharing of cash and labour contributions for household water supply and sanitation between men and women. Payment of fees to cover recurrent costs for operation and maintenance of facilities should be adapted to local circumstances, for instance, clustered around harvest time, taking into account competing demands for money at certain times of year. (UNICEF, 2003)

5.9.1. Evidences

The role of women in constructing and maintaining water and sanitation facilities varies from fundraising to active work on construction, preventive maintenance and repairs to paying for water with labour. For instance, Swayam Shikshan Prayog in India has facilitated the formation of over 1,000 women's savings and credit groups which have mobilized their own savings to provide loans for one another. Women started organizing to address development issues such as water supply in their settlements. (Swayam Shikshan Prayog, 2002)

In several United Nations water projects in Africa, it has been found that women are the most effective managers where water has been used for income generation and where the women have control over income earned from their small-scale enterprises. Women's cooperatives connected to water points in Mauritania, for example, have become very dynamic where women are really empowered to take a more active and prominent role in water management through capacity building and provision of credit. (GWTF, 2006) Their participation leads to a more efficient use of water and better cost recovery to keep the system functioning.

Women in Lesotho have a tradition of saving small amounts of money each month for important purposes. Such traditional sources of investment could be used for water and sanitation facilities if supplemented by seed money from NGOs or other sources. In Uganda the Ministry of Water is trying to mobilize women to manage stand-posts and collect fees for their work. (World Bank, 1996) It is also encouraging area managers to take over some of the private utilities, and the women have been doing well in the tendering process.

5.10.0. Privatization, pricing and the right to water

A very controversial issue at the international level is privatization of water services versus the right to water. Water for basic needs has been identified primarily as a public good and a human right - and not as a commodity to be traded in the open market. As a public good, it is felt that water must be managed for social needs and environmental sustainability, rather than for profit. This does not imply that the government should supply water free to the population. It does imply that shifting responsibility from governments to large private corporations is problematic, as the profit motive may supersede attention to human needs and rights. Large private companies providing public services may remain largely unaccountable to the people they are supposed to benefit. Governments do have a responsibility to ensure that water is provided to meet basic human needs and to maintain ecosystem integrity, whether through pricing policies, general taxation, borrowing from banks or international assistance. (GWTF, 2006)

Beyond this, however, it is generally accepted that users would have to pay an appropriate price for water. Sustainable cost recovery could include targeted subsidies for the poor and demand management to discourage waste. Realistic tariff policies could include increasing block rates, which charge consumers more per unit as their consumption increases, in order to encourage conservation of the resource. Different rates can be applied for urban and rural consumers, agriculture and industry, all in consultation with major users. Conservation pricing would reduce the need for exploiting new sources of water, such as desalination. However, water pricing policies may have different implications for women and men. There is often a difference between willingness and ability to pay. Even though poor women may place a high priority on accessible, clean water, they may be forced to use contaminated water that is free rather than clean water, which they cannot afford. (WSSCC, 2004) This of course impacts the health of the community, and may result in much higher costs in health care.

Moreover, these unmet needs for clean water will not be reflected in demand for water where it is only measured by the amount purchased. The assessment of demand for water and sanitation may be determined only through consultation with male members in the community, even where it is the women who are responsible for raising the funds to meet the demand. As much of the investment in water and sanitation over the last decade has been at the household level, the small-scale private provider should be supported in constructing sound sanitation facilities. (GWTF, 2006) There are a number of examples of small businesses involving women that are supplying water points and latrine facilities at the community level. Local entrepreneurs will

continue to prove essential to reaching the millions who are yet to be served, both in rural and urban areas.

5.10.1. Evidences

As a majority of the world's poor, women are significantly affected when water services are privatized. When the price of water increases, the burden on women as caregivers and household and economic providers also increases. In Orange Farm, South Africa, a township of 500,000 people, the local water supplier told residents that it would provide sewer and sanitation systems for every household that paid a fixed fee in 2002. The company began to install pre-paid water meters. In protest residents, mainly women, took to the streets. A massive campaign was launched and the Orange Farm Water Crisis Committee was born, which advocates that the state should provide basic services. The women feared a cholera outbreak, similar to what happened in Alexandra and KwaZulu Natal in 2000 and 2001, when higher user fees caused people unable to pay to consume contaminated water. Women also worry that the elderly and sick people, many with HIV, and their large families will not be able to survive on the free six kilolitres of water per day allocated to each person, making water unaffordable. (Naidoo, 2003)

The consequences of privatization of water services in Chochabamba, Bolivia and Conakry, Guinea, were particularly difficult for the local populations. The increasing water prices have had a serious negative impact on the lives of displaced women, girls and boys. In Colombia and the Philippines communities started to use contaminated water again when water service was suspended due to non-payment. Such water put them at risk of serious illness. (Rivera-Santander, 2004).

In Argentina, rapidly increasing water prices following privatization of services in Buenos Aires – and the cost of service extensions – had to be borne disproportionately by the urban poor. Non-payment for water and sanitation is as high as 30 % and service cut-offs is common, with women and children bearing the brunt of health and safety consequences. (Loftus and McDonald, 2001).

5.11.0. The Issue of Water resources and conflicts

Water is the source of life, but as such it can also be a source of competing demand, leading to conflict. During the 20th Century, world population tripled, while world demand for water increased six- fold. At the international level, trans-boundary water issues have always caused heated debate, and in fact a number of prominent people have said that the wars of the 21st

Century will be fought over water. Upstream and downstream users have argued over their share of water since time immemorial. (GWTF, 2006)

Water resources have rarely, if ever, been the sole source of violent conflict or war. But with the high numbers of international water courses which are shared between countries, water and its use may be a cause of tension and may strain relations between countries. Water remains therefore a security concern for many countries. (Van Wijk-Sijbesma, 1998).

Although water may give rise to armed conflict, freshwater can be, due to its essential nature, a powerful incentive for co-operation. Water as a potential cause of conflict and water as an agent of co-operation can be seen as two sides of the same coin. (UNESCO, 2002) Research has shown much more historical evidence of water as a catalyst for cooperation, rather than conflict. A number of examples of workable treaties on water can be cited, even between states such as India and Pakistan, and Israel and Jordan, which may be in conflict over other matters. Rivers provide us the basis for concrete ideas on sharing and cooperation over a resource that no person can live without. As water is essential to every aspect of life – health, human rights, environment, economy, welfare, politics and culture – it is well beyond the scope of any individual country or sector to deal with it unilaterally. The link between conflict prevention, peace building and natural resources management therefore deserves closer attention. Women, who know best about the vital nature of clean water and safe sanitation, play a crucial role in peace building actions through water resources management and cooperation.

Due to its fundamental importance, water is often an issue during armed conflicts and can become a target during wars. Flood-control dikes may be destroyed in order to flood areas threatened by an adversary and water supplies and wells may be deliberately contaminated to harm the opponent. (UNESCO, 2002)

In addition, water scarcity and insufficient sanitation frequently accelerate in armed conflicts. The civilian population – above all women and children – is the first to suffer from the disruption of water supply, and often thirst has proved to be more deadly than guns. People affected by natural and man-made disasters are more likely to become ill and die from diseases related to inadequate sanitation and water supplies than from any other single cause. (UNICEF,2003). Minimum standards are urgently needed for post-disaster and emergency sanitation services.

When water is scarce, women and girls pay dearly. They may have to travel longer distances to obtain water, and conditions are more dangerous. Conflicts that exacerbate water scarcity hence lead to a double hardship for women: the negative impacts of lack of water are compounded by the well-documented abuses against women's fundamental human rights that occur during wartime. (Van Wijk-Sijbesma, 1998).

Women are disproportionately affected by natural disasters, such as floods and earthquakes, as a result of gender inequalities regarding political and economic status, human rights, education and health. Women have high death rates in disasters, as they often do not receive warnings or other information about hazards and risks. Their mobility in disasters may be restricted or affected due to cultural and social constraints. Gender inequality can complicate and extend the time for women's recovery, for example, if women do not receive timely care for trauma experienced in disasters. During the floods in Mozambique in 2000, with clean water in short supply, many women were forced to resort to using floodwater for cooking, thereby increasing the risk of disease outbreak. (World Bank, 1996)

In Bangladesh, rural women are usually affected in negative ways by floods. In early 2004, the Centre for Environmental and Geographic Information Services (CEGIS), together with other national agencies, initiated a project on flood vulnerability, risk reduction and preparedness through a community-based information system in a flood-prone zone, which included gender mainstreaming in the flood-risk programme. The objective was to identify best practices regarding flood preparedness, risk reduction and information dissemination, especially to women at home. It was found that floods have less of an impact on men than on women, as men control resources and can leave their homes and communities to look for work. As a result of the study, new forms of communicating flood information to women at home were tested. Flood warnings were prepared using the local language and different media, including posters, flag systems, drums and broadcasts from mosques. These enabled illiterate women to access information needed for evacuating cattle, storing crops and food supplies and organizing boats for evacuation. The warning systems provided considerably improved preparedness during floods in 2004. (Fakhruddin, 2006)

5.12.0. Conclusion:

At the end of this chapter, it may be concluded that huge number of evidences across the globe show us about the positive effects that can be seen when women's involvement and interests are

central to the planning and implementation of sanitation initiatives. The examples come from a wide range of sources and locations around the world, but the fundamental impact is always the same, the intervention is often more successful and sustainable and the process of women's empowerment is strengthened, resulting in many and varied improvements to the quality of life of the women affected. The key messages derived from this chapter strongly indicate that the benefits are felt not just by the women and their families but that they also have an impact on the wider community. Evidence by itself will not bring about change. Actions are needed at different levels and by different stakeholders in order to make more substantial improvements in the sector and in the lives of millions of women and girls around the World.

REFERENCES

- Agua Project Report (2002). El Salvador: AGUA Project Evaluation August-September 2002, Retrieved from: <http://www.ardwater.com/agua.htm> (accessed 12-11-2012)
- Ah Chee, Dean (2002). Indigenous People's Connection with Kwatye (Water) in the Great Artesian Basin, *Environment South Australia*, Vol 9(1), pp. 13.
- Asian Development Bank (ADB). (2003). *Case Studies, Water for All*. Manila: ADB
- Athukorala, K. (2003). Cited in Rathgeber, E.: Dry Taps. Gender and Poverty in Water Resource Management. Rome: Food and Agriculture Organization of the United Nations.
- Berna, I. V. (2006). *India: From Alienation to an Empowered Community - Applying a Gender Mainstreaming Approach to a Sanitation Project*. In: Office of the Special Adviser on Gender Issues and Advancement of Women (Eds.) *Gender, water and sanitation case studies on best practices*. New York: United Nations.
- Blackden, C.M. and Bhanu, C. (1999). 'Gender, Growth and Poverty Reduction. Special Program of Assistance for Africa 1998, Status Report on Poverty'. *World Bank, Technical Paper No. 428*. Washington, D.C.: World Bank
- Branco, A. M. and Almeida, W. (2002). Women, Mobilization and the Revitalization of Water Resources: the Case of Northeastern Brazil. Paper presented to the Forum on Water in the Americas in the 21st century. Mexico City.
- Calhoon, A., Griswold, W., Ivie, J. and C. Annett. (2004). *Water Monitoring Project Links Indigenous Students from Kansas and Altai, ISAR: Resource for Environmental Activists*. Retrieved from: <http://www.isar.org/isar/archive/GT/GT14griswold.html> (accessed 23-02-2013).
- Deda, P. and Rubian, R. (2004). Women and Biodiversity: The Long Journey from Users to Policy-Makers. *Natural Resources Forum*, Vol. 28(3), pp. 201-204.
- Devarajan, S., Miller, M.J. and E.V. Swanson. (2002). *Goals for Development: History, Prospects and Costs*. Washington DC: World Bank
- Fakhruddin, S.H.M. (2006). Bangladesh: Gender Mainstreaming Processes in Community-based Flood Risk Management. In, Office of the Special Adviser on Gender Issues and Advancement of Women (Eds.), *Gender, water and sanitation case studies on best practices*. New York: United Nations.
- Food and Agricultural Organization (FAO) (2003). *The Feminization of Agriculture*. Rome: FAO
- Food and Agricultural Organization of the United Nations (FAO), (1995). *Gender and Food security in Agriculture*. Rome: FAO

- Gender and Water Alliance (2003). *The Gender and Water Development Report 2003: Gender Perspectives on Policies in the Water Sector*. Retrieved from: <http://www.genderandwateralliance.org/reports/GWA%20Annual%20Report.pdf> (accessed 12-12-2012)
- Interagency Task Force on Gender and Water (GWTF) (2006). *A Gender Perspective on Water Resources and Sanitation*. New York: United Nations
- International Water and Sanitation Centre. (IRC) (2004). *La Sirena: Women taking leading positions*. Delft, the Netherlands: IRC
- Khosla, P. (2002). *MAMA-86 and the Drinking Water Campaign in the Ukraine*. Dieren, the Netherlands: Gender and Water Alliance.
- Loftus, A., and McDonald, D.A. (2001). Of liquid brems: A Political Ecology of Water Privatization in Buenos Aires. *Environment & Urbanization*, Vol. 13(2), pp. 12.
- Mahapatra, K. (1996). Towards Empowerment: Women Mobilizers in the Community Water Supply and Sanitation Programme in Nepal. *Waterfront*, Vol. 9, pp. 12-13
- Makiko, W. (2004). *Self Employed Women's Workers*. New Delhi: SEWA.
- Mathew, T. (1998). New Skills, New Lives: Kerala's Women Masons. *Waterlines*, Vol. 17(1), pp. 22-24.
- Naidoo, P. (2003). South Africa: The Struggle for Water, The Struggle for Life. In: WEDO and Public Citizen (Eds.). *Diverting the Flow, A Resource Guide to Gender, Rights and Water Privatization*. USA: Women's Environment & Development Organization (WEDO) and Public Citizen
- Nokes, C. and Bundy, D.A.P. (1993). Compliance and absenteeism in school children: implications for helminth control. *Transactions of the Royal Society of Tropical Medicine and Hygiene*, Vol. 87, pp. 148-152
- Regmi, S.C., Fawcett, B. (1999). Integrating Gender Needs into Drinking Water Projects in Nepal. *Gender and Development*, Vol. 7(3), pp. 62-72.
- Rivera-Santander, M.A. (2004). *Women and Water Privatization, Women's Human Rights*. Retrieved From: <http://www.whrnet.org/docs/issue-water.html> (accessed 23-04-2012)
- Sass, J. (2002). *Women, Men and Environmental Change: The Gender Dimensions of Environmental Policies and Programs*. Washington D.C.: Population Reference Bureau.
- Swayam Shikshan Prayog (2002). *Experiences in post-disaster reconstruction in Maharashtra and Gujarat*. New Delhi: Swayam Shikshan Prayog

- The Washington Post (2004, 22 November). *Impact of Safe Water, Sanitation on World's Poor*. Retrieved From http://www.washingtonpost.com/wp-dyn/articles/A2401-2004Nov21_2.html (accessed 23-09-2012)
- UNESCO (2002). *From Potential Conflict to Co-operation Potential: Water for Peace*. Paris: UNESCO
- UNICEF (2003). *Sanitation for All*. Retrieved: http://www.unicef.org/infobycountry/mozambique_2231.html (accessed 15-02-2013)
- United Nations Population Fund (UNFPA) (2002). *Water: A Critical Resource*. Retrieved from: http://www.unfpa.org/issues/factsheets/pdfs/linking_water.pdf (accessed 13-09-2012)
- Van Wijk-Sijbesma, C. (1998). *Gender in Water Resources Management, Water Supply and Sanitation: Roles and Realities Revisited*. Delft, the Netherlands: IRC
- Water Supply and Sanitation Collaborative Council (WSSCC) (2004). *Draft concept paper on AMIWASH, WSSCC/AMCOW*. Geneva: WSSCC
- World Bank. (2004). *The World Bank Group's Program for Water Supply and Sanitation*. Washington DC: World Bank
- World Bank (2003). *Implementation Completion Report on a Loan in the Amount of US\$ 10 Million Equivalent to the Kingdom of Morocco for a Rural Water Supply and Sanitation Project, Report No: 25917*. Washington DC: World Bank
- World Bank (1996). *Toolkit on Gender in Water and Sanitation*. Washington D.C.: World Bank
- World Health Organization (WHO) (1997). *Strengthening interventions to reduce helminth infections: an entry point for the development of health-promoting schools*. Geneva: WHO.
- WSSCC (2006). *WASH Evidence Report: For Her Its a Big Issue*. Geneva: WSSCC
- World Water Vision, WWC and CME, (2000). *Mainstreaming Gender in Water Resources Management: Why and How*, Background Paper for the World Vision Process, Retrieved from : http://www.iiav.nl/nl/ic/water/water_doc.pdf (accessed 24-12-2012)