# The Gender and Water Development Report 2003:

## Gender Perspectives on Policies in the Water Sector

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**Gender and Water Alliance**
2003


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# Foreword

What do we mean by "The Water Crisis"? For the engineers, scientists and politicians who now use the phrase regularly to support plans for better conservation and management of water resources, the crisis means that demands for more and more water for industry, food production, power generation, drinking water and hygiene are threatening to outstrip renewable supplies and damage natural ecosystems. This serious problem demands urgent action. Integrated water resources management (IWRM) is a vital ingredient in the solutions to this macro water crisis.

But other facets to the water crisis also cry out for attention. For the women and girls of villages in developing countries who must fetch and carry every litre of water that their families use for drinking, cooking, bathing and subsistence horticulture, the problem is closer to home. Their work burden means that mothers have less time and energy for reproductive care or productive work and that daughters miss school and perpetuate the low social status of women in society.

The water crisis at the micro level varies for rich and poor, for men and women, for old and young. That is not surprising; it is true of many aspects of life. What matters is that the "solutions" to the water crisis should not favour one group over another. Unfortunately, as this report shows only too well, that is not always the case. If only the well meaning NGO that helped villagers to install pour-flush latrines to improve their sanitation and hygiene had first asked the women about the extra two litres of water they would have to carry for every flush. On an altogether larger scale, the flood protection schemes with dams, dykes and channels that prevent the annual deposition of fertile silt on flooded fields penalize the poorer men and women farmers at the same time as they benefit the rich.

For these reasons and many more (social justice, human rights, economic efficiency, sustainability, ..), the water sector has accepted the need for an inclusive partnership approach to its strategies for combating the water crisis. Despite being the primary stakeholders in domestic water management, providers of labour for agriculture and users of common water, women have historically had only very minor roles in water resource planning and management. The Gender and Water Alliance, GWA, was created to help to rectify that imbalance. Its mission is to do so not simply by pushing for greater inclusion of women in every aspect of IWRM. As

important as that is, the crucial aspect of GWA's mandate is the optimum involvement of all sections of society, men and women, rich and poor, in decisions about how to sustain our precious water resources.

This report is a first step in that process. It looks at how the fine rhetoric on gender mainstreaming that won favour in the Hague is being translated into policy by governments and donors two years later. GWA members have looked critically at changes in water legislation, policies and programmes around the world, to assess whether they respond to the gender messages. The results are patchy. Yes, there are clear indications that governments have accepted the need for gender perspectives; yes, the word gender is appearing increasingly in sector strategies; and yes, there are a few countries where the acceptance is being converted into concrete action. At the same time, there are some misdirected responses: for example policies that may increase women's involvement only at the expense of also increasing their already oppressive workloads.

We can also be positive. Gender mainstreaming in the water sector now has a momentum. There is more knowledge about the questions and about some of the answers, and more expertise and growing cooperation in addressing and solving problems. Through this report, GWA is serving notice that it will push for more and keep a close eye on the speed of reform. At the same time, we commend those who are taking positive action to mainstream gender approaches in their water programmes, and we pledge to offer encouragement and practical support to any agencies seeking to follow suit.

*Jennifer Francis, Executive Secretary, Gender and Water Alliance.*

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# Executive Summary

Sustainable water management and gender equity are mutually supporting and interdependent. The analyses of four major water sectors presented in this report provide strong arguments for the contentions that:

1. Involving men and women in influential roles at all levels can hasten the achievement of sustainability in the management of scarce water resources.
2. Managing water in an integrated and sustainable way can contribute significantly to better gender equity, by improving the access of women and men to water and water-related services to meet their essential needs.

These are not new insights. Indeed, they are the fundamental principles that led to the establishment of the Gender and Water Alliance in June 2000. This report is about the progress that governments and external support agencies have been making in applying these principles when framing their policies and legislative frameworks and reforming their water institutions.

Judgements have been made by identifying the dominant water management issues in four sectors: *Water for Nature* (Chapter 2); *Sanitation for People* (Chapter 3); *Water for People* (Chapter 4) and *Water for Food* (Chapter 5). By assessing the gender implications of the key issues, the authors have identified ways in which gender-sensitive approaches could contribute to addressing them. They have then reviewed trends in policies, legal frameworks and institutions in different countries, to evaluate whether they recognise and take advantage of the synergy between gender and water. Several do, and they stand as commendable examples for the many that do not. There are plenty of pointers in the *Case Studies* (Chapter 6) to help other countries and agencies to introduce gender-sensitive approaches, as well as some warnings about changes that may actually be making things worse.

An oft-recurring issue is the interdependence of the sectors. The cry for an integrated water resources management (IWRM) approach comes frequently, and here too, there is a clear need to address the male-female divide in decision-making and policy formulation in IWRM.

In reviewing the key sector issues, the authors were handicapped by a lack of reliable disaggregated data on outputs and impacts. There are very few statistics

that separate the benefits or costs of different sector activities according to the sex or social grouping of the intended beneficiaries. So, while, for example, it is possible to say that many tariff subsidies favour the rich rather than the poor, the facts and figures to monitor changes are generally missing. All agencies are urged to facilitate future monitoring and policy formulation by collecting disaggregated data that will make it easier to judge the effects of investments on rich and poor women and men.

## Water for Nature

Water for Nature has an identity crisis. There is clear recognition of the need to allocate water for agriculture, industry, and for household use. Institutions dealing with these sectors therefore get priority in the development and management of water resources. Water for Nature is a residual category and the needs of water for maintaining environmental quality and sustaining ecosystems often go unrecognised. South Africa's introduction of an "Environmental Reserve" is an innovative step recommended to others.

Institutionally too, Water for Nature is poorly represented in the corridors of power. As a result, wetlands, floodplains and coastal ecosystems are in danger of irreversible degradation. When that happens, there is a gender disparity in the consequences. It is poor families who draw most heavily on "common property" resources like forests, rangelands, water bodies and inshore fishing grounds. Women are usually the ones responsible for providing food and water for the household and suffer disproportionately when common resources are degraded. There are examples from India, where civil society institutions help to mediate with the state to protect marginalized communities and so mitigate the increased burdens on women of environmental degradation.

Even well intentioned investments to combat floods and droughts can be gender blind. By damming rivers and channelling floodwaters, engineers can prevent the seasonal silt deposition that is the lifeblood of subsistence farmers, mainly women. A gender analysis of Bangladesh's Flood Action Plan highlighted that women bore the greatest burdens from floods and that involving more women in decisions on mitigation methods would lead to different and more equitable solutions. The point has been noted by government and donors, and some corrective measures have been taken.

The Water for Nature Chapter identifies the need for a gender perspective to respect the different effects on women and men of flood coping mechanisms, drought mitigation, desertification, mangrove forest management, fisheries, dam construction and water quality protection. Its plea is for a livelihood approach to water management with a focus on tackling poverty and recognising the gender disparities in water rights. This logically leads to the same demand that emerges from all sectors for integrated water resources management with full participation of both sexes at all levels.

A review of existing policies and trends finds a significant emphasis on water rights (male dominated) but few examples of explicit gender considerations. Notable

exceptions come from Latin America and South Africa. Costa Rica and Colombia are commended for land reform laws that improve significantly women's entitlement to land (and hence water), and their representation on local and regional management committees. South African legislation has separated water allocations from land ownership, thus breaking the cycle of male "ownership" of land conveying male-dominated rights to water.

Overall, the progress in introducing gender perspectives in the Water for Nature sector is seen as disappointing and there is a clear need for increased advocacy, using the good examples identified in this report.

## Sanitation for People

In 2002, sanitation became top of the world agenda for sustainable development. The awful coverage statistics, showing 40 percent of the global population without any form of hygienic sanitation, led world leaders meeting in Johannesburg to demand action by their governments. The target to reduce by half the proportion of people without satisfactory sanitation services by the year 2015 gives a big impulse to the sanitation cause. In doing so, it also opens the door for gender mainstreaming in the sanitation sector, and through sanitation into the remainder of the water sector.

Sanitation programmes offer a natural entry point for gender approaches. Coping with sanitation inadequacies adds enormously to women's domestic burdens as well as robbing them and their children of health and dignity. Sanitation professionals and field workers have the tools and the experience to apply gender approaches in their programmes. What they need is the awareness and the commitment of local agencies responsible for sanitation to tackle the huge challenges involved in reaching their leaders' targets.

The challenges are formidable. Promoting improved sanitation and hygiene behaviour requires special skills in participatory approaches that build on men's and women's own perceptions of the benefits. Historically, sanitation institutions have been weak and subordinate to the more prestigious drinking water sector. Based on the World Summit targets, national institutional frameworks and capacity development programmes need to be strengthened, to provide an infrastructure that can plan and implement sustainable sanitation improvements at an accelerated pace. South Africa is setting an example and other countries are recognising the merits of gender-based approaches, but the pace of change is slow and there is a clear need for guidance on the required institutional reforms.

Integrated water resources management (IWRM) benefits everyone and environmental sanitation is a crucial part of IWRM, but there is also a case for separate sanitation strategies. This is partly because of the need to build on the Johannesburg momentum, but also because the main focus areas for tackling the sanitation backlog require their own specialised approaches. One such focus area is school sanitation and hygiene education (SSHE). It is not hard to see why schools should be a priority for improved sanitation. Providing adequate and safe latrines for boys and girls would produce multiple benefits in terms of child health, girls' education,

household hygiene and basic social development. Yet the fact is that sanitation coverage in schools is even worse than that for the population as a whole. The principles for designing school latrines that will be effectively used by boys and girls are available. Still missing are the strategies and the skilled staff to put them into practice. The urban population explosion presents another major sanitation challenge. Expensive waterborne sewerage and wastewater treatment plants are not an option for the unserved millions and their future families in low-income settlements around major cities. Low-cost technologies do exist, but again the challenge is the availability of staff skilled in both the technology and the participatory processes needed to implement improvement programmes.

Overall, this review has highlighted the golden opportunity for synergistic advances in sanitation improvements and gender mainstreaming, but with most countries starting from a very low base in each element. Government departments, NGOs and donors are urged to embark on awareness raising programmes and develop new tools for building gender concerns into recruitment, training and implementation practices. All countries are encouraged to learn from the positive experiences documented in the Case Studies, to ensure that their sanitation policies, legislation and institutions take full advantage of the benefits of gender-sensitive approaches.

### Water for People

Sanitation's traditional companion, the drinking water supply sector, has incorporated gender concerns in its basic sector concepts for several decades. Increasingly, the sector is finding that, even though water for domestic use has an evident priority, as competition grows for every drop of freshwater, the need for pollution control, conservation and demand management grows with it. Effective IWRM is an urgent need as more and more countries face water stress. That in turn means that the reasonably well-developed gender approaches of the community water supply sector need adapting and extending to suit the more complex institutional structures of IWRM.

A major concern of the water for people sector is the achievement of sustainable supplies of affordable water for everyone. A great deal of work has gone into developing participatory planning processes, water pricing systems and local credit arrangements that enable the poorest sections of the community to obtain a basic level of service at an affordable price. Gender perspectives are critical in reaching the most appropriate solution for each community. The trend to community-managed schemes with women and men sharing in decisions, tasks and responsibilities has been well established, though this review did find evidence that a disproportionate share of sector investment still goes into large schemes serving whole cities or multiple villages. The larger schemes offer less opportunity for direct participation by users in planning decisions. Particularly where the private sector takes over responsibility for city supplies, safeguarding the interests of low-income communities needs special attention. It is, however, vital, as all the health benefits of an improved water supply can be lost if more than a quarter of the people do not have access to it. Section 4.2.2 lists the kind of solutions that can bring affordable supplies to the poorest sections of a city. In each case, the roles of women and men need to be carefully appraised.

In assessing how far gender considerations have penetrated into national water sector policies, the GWA members concerned found some good progress. Documents that were totally blind to gender were in the minority, ". . . although there are still too many". They found too a recognisable shift from policies concerned with the advancement of women to those encompassing gender as a whole (the relative positions, participation and influence of women and men). On the negative side, gender still does not penetrate deeply into policies and legislation. More work is needed to carry desirable principles through into implementation. The review showed that there is gender expertise available in many countries and regions which leads to the recommendation that there should be a pooling of expertise for policy dialogues and the development of model legislation.

## Water for Food

Irrigated agriculture accounts for 75 percent of the world's freshwater consumption. The report is critical of the sector's relative failure to address the needs of poor and disadvantaged groups. It also blames poor water management for environmental degradation that also penalises the weakest members of society by destroying the common resources that sustain their livelihoods.

The critical areas of gender disparity in the agriculture sector are identified as:

Land tenure, in which men and women have different experiences and expectations regarding inheritance of land and the social reality of their claim to communal property.

Access to water in which women have low expectation and influence.

Participation in which men and women have different expectations and experience, juggle different responsibilities, and respond to different time schedules, social networks and meeting places.

Resource control that reinforces stereotypical roles and social norms, by directing technical and financial control to male farmers.

Capacity and skill development influenced by established social roles and reinforced by gender-insensitive educational and economic policies and established civil society structures.

Marketing and commercial linkages that follow well-established, male-dominated paths.

Irrigation Management Transfer (IMT) should help to address some of these issues. It gives responsibility for local water management to farmers and rural communities. That should produce more participatory and equitable water distribution. It is hampered though by distribution systems that depend on central management and by inadequate budgets that do not allow for the true costs of participation.

The review of current sector policies found little evidence of gender concerns. Only South Africa shows positive action to mainstream gender in its water for food policy. "Affirmative action is going to be needed if the rhetoric of international

meetings is to become reality in national policies and institutions," the report concludes. Suggestions for that action include:

- Budgets for gender mainstreaming and significant advocacy must be part of the policies of governments, international agencies and donors
- Extension training should include gender issues and more women should be employed in extension services
- Progress monitoring should be through gender-disaggregated data, so that the value of gender-sensitive policies will start to be appreciated
- Advocacy for water-sector gender mainstreaming should target institutions outside the water sector, particularly in education and community development.

## Overall conclusions

It has been very informative to analyse the penetration of gender-sensitive approaches into the four sectors of water resources management. One thing is particularly clear: the rhetoric and pledges of international gatherings can be very helpful in establishing fine global concepts, but putting those principles into practice takes a lot more than a signature on a conference declaration. Thanks to the efforts of many committed men and women, there is now global acceptance that the water sector as a whole will benefit enormously from policies, legislation and institutional arrangements that ensure the full and equitable involvement of men and women in water resources management. It is also now evident that the next step – mainstreaming gender approaches in water policy – is going to need a lot more effort.

What is happening in South Africa is exciting (see the Case Study in Chapter 6). It has happened because the government committed quickly to the international wisdom in both water and gender. It brought in experts and conducted its own research to adapt the global concepts to the nation's needs. Now it is leading the field and pioneering its own versions of the "Environmental Reserve", and "free" basic sanitation and water services for the very poor.

Other countries (Zambia, Bangladesh, Uganda, ..) are demonstrating commitments to the gender and water link, but facing problems in carrying the principles through the institutional and legislative chains.

The Water for People sector has moved furthest, because it started earliest. Though progress there is far from uniform, the good examples provide experiences that may cross to other sectors. Certainly some cross-fertilisation is necessary. The analysis of the Water for Food sector is damning and Water for Nature little better. Both can benefit from the Water for People Case Studies, and also from the pool of experts that now exists. There is already cross-fertilisation between the water supply and sanitation sectors and that will help to continue the momentum that has been given to sanitation by the World Summit on Sustainable Development.

This report has been primarily concerned with assessing the trends in gender mainstreaming at policy and institutional levels. It has inevitably touched too on the

parallel desirable trend towards Integrated Water Resources Management. That too is moving slower than its proponents would like and facing similar institutional and legislative constraints. This analysis of individual sector issues has reinforced the belief that IWRM is a vital part of solving the water crisis, and that IWRM and gender mainstreaming can be mutually supportive in changing policies, legislation and institutions.

GWA is pledged to assist countries in bringing about those changes and will look in its 2004 report at how gender approaches are being carried forward into water programmes. Action is urgent. Water scarcity, pollution and retarded development are the growing pressures. The penalties for inaction are devastating. Act now.

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Chapter 1

# Introduction

Gender mainstreaming was established as a global strategy for the promotion of gender equality in the Platform for Action from the fourth World Conference on Women held in Beijing in 1995. According to the United Nations Economic and Social Council, gender mainstreaming is: *"… the process of assessing the implications for women and men of any planned action, including legislation, policies or programmes, in all areas and at all levels. It is a strategy for making women's as well as men's concerns and experiences, an integral dimension of the design, implementation, monitoring and evaluation of policies and programmes in all spheres so that women and men benefit equally".* (UN-ECOSOC, 1995)

In the water sector, gender mainstreaming goes further. It is the appropriate *active involvement* of women and men in the decision-making process that is the defining element. Governments and donors have been urged to incorporate gender approaches in their water sector planning, and have pledged to do so. It is the purpose of this report to assess how well those pledges are being converted into actions.

## Principles of a Gender Approach

Attention to gender is essential to sound development practice and at the heart of economic and social progress. Development results cannot be optimised and sustained without explicit attention to the different needs and interests of women and men. If the realities and voices of half of the population are not fully recognized, sustainable development will not be achieved.

Gender balance requires that women's views, interests and needs shape the development agenda as much as men's, and that the development agenda supports progress toward more equal relations between women and men. Within the water sector, gender influences the ways in which burdens, benefits and responsibilities in water, sanitation and hygiene projects and services are divided between women and men of different classes, age groups, socio-economic status, ethnicity, caste and religion. As a basis of water resources development and management, a gender sensitive approach seeks to analyse:

- How do women and men use water resources and for what purposes?
- How are contributions (labour, time, payments and contributions in kind) to the development and management of water resources divided between women and men, rich and poor?
- Who makes the decisions at various levels?
- Who benefits from projects and programme resources, such as knowledge, jobs and training?
- Who benefits from water resources development and has control over these benefits?
- Who carries the costs and disbenefits of a project or programme?
- Do women and men from different age, wealth, religious and ethnic groups benefit equitably?

1.

In the field, a gender approach in the water sector strives for a more balanced division between women and men in the following areas:

- access to information
- physical work
- contributions in time and cash
- decision making
- access to and control of resources and benefits

The impact of gender role recognition on water resource policy can be viewed in two fundamental ways. First, policy relating to the sustainable management of resources relies on a broad base of stakeholder participation and consultation. The diverse gender roles of men and women in the management and control of water resources require that they are viewed as separate stakeholder groups. Second, the development of water resource management policy can impact upon men and women in different ways. Gender-sensitive water resource policy will address the equality of access to the potential benefits of water resource development from the perspective of both men and women. As such, gender-sensitive policy development is a tool by which the interests of marginalised members of society can be incorporated into a sustainable approach to water resource management.

**Statistics on Gender and Water**

Of the 10 lowest ranked countries in the Gender-Related Development Index, 8 of these countries have less than 50 percent total (urban and rural) sanitation cover with 4 falling below 20 percent total cover. A similar association can be made between these 10 countries and water supply, with 7 of the 10 countries providing less than 60 percent total (urban and rural) adequate water supply cover. Whilst inadequate information is available to confirm a causal link, it is worth noting that gender development can be utilised as an indicator of overall developmental status in the water supply sector.

(UNDP HDR 2002 WHO/UNICEF GWSSA 2000 - see endtables of selected gender and water indicators)

## Form of this report

The impulse for gender mainstreaming in IWRM came from the Second World Water Forum and Ministerial Conference held in The Hague in March 2000. The Forum saw the launch of a "Vision" for the water sector, with three prime components: Water and Nature; Water for People; and Water for Food and Rural Development. Each vision projected the sector forward 25 years and set out action programmes to achieve sustainable progress towards a water-sufficient world. In assessing the progress in gender mainstreaming, it has been convenient to retain the division of the sector into the same three components. However, in the case of "Water for People", the issue of sanitation and hygiene promotion has become such a global priority that it has been treated separately in GWA's analysis of the gender perspective.

So, the main Chapters of this report are:
Chapter 2: Water for Nature

Chapter 3: Sanitation for People

Chapter 4: Water for People

Chapter 5: Water for Food

In each case, GWA members have examined a selection of policy documents, legal frameworks and institutional arrangements related to the specific sector. These have been assessed for gender sensitivity and conclusions have been drawn about how gender mainstreaming could be improved/accelerated and the benefits that would flow.

Each chapter begins with a digest of the key issues in the sector. The primary gender concerns in the sectors are linked to these key issues, and it is apparent in each case that there is scope for greater benefits and more equitable sharing of those benefits, if gender perspectives are improved and extended.

An analysis of the selected documents follows, assessing how far the gender messages have penetrated into sector policies. From the analyses and the examples, GWA has then sought to make recommendations for accelerating and improving gender approaches in policies for each sector.

A number of gender-based issues are common to all sectors. These include rights of access, ownership, and institutional limitations embedded in policies and legal frameworks, highlighting a strong need to mainstream gender issues. So, while it is convenient to analyse gender issues in water for food, domestic supply, sanitation and nature individually, there is a strong interdependency too. Management of water for food, domestic supply and sanitation are all clearly impacted by environmental degradation related to loss of water for nature. Insufficient water for natural vegetation and ecosystems can have an adverse effect on water quality and quantity, impacting on supplies of water for domestic and agricultural purposes as well as increasing the severity and occurrence of floods and droughts. So, work to combat gender inequities at a community level may be undermined by broader issues of water resource management, such as water allocation policy, where gender considerations were not identified. Likewise the effective management of water for domestic supplies and/or sanitation will influence its availability for irrigation or nature.

In Chapter 6, the different sectors are combined through a series of Case Studies, mainly based on the water policies of selected countries.

This first report lays the foundation for further appraisals by GWA of the extent to which gender perspectives are being applied in the implementation of water programmes, and, later, on the impact of these approaches on the effectiveness and sustainability of national water resources management. ■

Chapter 2

# Water for Nature



## Introduction

With continuous competition for available water and the contaminating impact of economic development, nature is a constant loser. Although it is the effective functioning of ecosystems that safeguards the quality and quantity of our freshwater, our use and abuse of that water has been progressively destroying the wetlands, the fish species, the upland forests and the estuarial habitats that make nature our most powerful ally. It is expected that by 2025, almost two-thirds of the world's population is likely to experience some type of water stress, and for over a billion of them the shortage will be severe and socially disruptive. Wetland, floodplain, and coastal ecosystems may not be able to sustain additional withdrawals and loadings of polluted return flows without irreversible degradation.

Mismanagement of water resources and narrow sectoral approaches to water development are causing loss of freshwater and coastal biodiversity. Local communities suffer as a result of diversions of water, channelisation, diking of floodplains, wetland drainage, dams, and agricultural pollution discharges. This has profound effects on people depending on fisheries and wetlands. It is estimated that between six and seven million hectares of irrigated land is going out of production each year from soil erosion, water logging and salinisation. Municipal and industrial wastewater discharges contaminate surface waters with highly damaging pollutants. Rivers have become convenient sewers for untreated wastes in major cities throughout the developing world.

### Statistics on Water for Nature

The simplest approach to estimating the volume of water available for nature within a given country is to subtract annual freshwater withdrawals from the total available resource. The assumption is that the residual water is available for nature. In 32 countries, representing some 1.8 billion people worldwide, annual freshwater withdrawals exceed 25 percent of total water resources available. In 13 of these countries, representing 360 million people, annual freshwater extraction exceeds 50 percent of total available water resources. Of the countries that do not desalinate or recycle to a substantial degree, figures as high as 60-80 percent extraction are recorded (e.g. Pakistan, Egypt, Tunisia). This is primarily due to large-scale water storage and irrigation activities in semi arid to arid climates. It should be noted with regard to these figures that although most of the withdrawn water may reenter the natural hydrologic system, in the case of industrial, municipal and some agricultural withdrawals the return flows may be too degraded in quality. Figures of 120-1055 percent annual freshwater extraction in a number of Middle Eastern nations are as a result of substantive contributions from desalination plants and highly organised recycling programs.

(WB, WDI 2002, WRI, UN FAO – see endtables of selected gender and water indicators)

Loss of land productivity and degraded ecosystems have enormous long term social and economic consequences. Unsustainable and wasteful use of irriga-

tion water is a particularly significant problem. Inadequate drainage deprives the downstream water environments of needed water, while water tables rise in irrigated areas. Eroded topsoil fills reservoirs, canals, and rivers, exacerbates flood damage, and leads to reduced hydropower production and irrigation potential. The impacts weigh heaviest on women, because as providers of water and food to their families, they suffer disproportionately when common resources like water yield less and less each year.

It is a depressing picture, but there are signs of hope. Increased environmental awareness among the public, spurred on by forceful advocacy from committed professionals, has led to a new approach gaining favour in some political circles. Part of the vision for a sustainable future, first proposed at the Second World Water Forum in The Hague in March 2000, is the mobilisation and empowerment of people to conserve and restore ecosystems and to share in the resulting benefits. It is an enticing prospect with formidable challenges, and it has significant gender implications. There are many differences in the way that men and women benefit from the exploitation of natural ecosystems. When there is competition, it is the poor and the disenfranchised, particularly the women, who lose out. It is going to be vitally important that policies and strategies for participatory ecosystem management respect gender differences and promote gender equity.

## Key issues in the Water for Nature Area

The balance between preserving nature (both land and water) and using it for human needs is a very delicate one with no easy solutions. The key issues in the water for nature area are therefore quite complicated:

- How does one satisfy water demand for agricultural, industrial, and municipal uses, while still maintaining minimum flows in water bodies to sustain healthy ecosystems?

- How can the minimum flows for ecological health be maintained and protected from further loss?

- How can the ecosystems supported by seas, rivers, lakes, underground water and other water bodies, be maintained and protected from further degradation?

- How can this be done in a way that allows the growing population of the world to continue to feed itself?

- How can this be done in an equitable way?

- How can women receive both equitable benefits and entitlements from the products of water and land, and how can they best participate in preserving and maintaining water for nature?

Some of the factors that have militated against sound water-for-nature approaches and strategies have to do with the ways we have thought about water and planned for its use. The following sections briefly describe current predominant ways of approaching water exploitation. They show scant consideration for maintaining natural basins, catchments and flows. They also show that in dealing with our natural environment we have not focused enough on how the responsibilities and tasks are divided between men and women.

### *Isolationist thinking and sectoral approaches*

Though water professionals and international donors press constantly for integrated water resources management (IWRM), reform is slow. In most developing countries, water needs are still evaluated in an isolated sector-by-sector manner. Fragmentation of the institutions dealing with water resources at country level has contributed to this segmented approach to water allocation. The needs of the "water for nature" sector have been subservient to the needs of "water for food" and "water for people". These other sectors are seen as crucial for revenue generation, economic growth and production. Hence institutions dealing with them command greater authority and higher priority in the sharing of available water. Water for nature is typically a residual category in policy thinking, with the result that the water demand for environmental quality and ecological integrity goes unmet. There is little analysis of the amount of water that needs to be discharged to the sea for proper drainage, meeting

the needs of aquatic life, mangroves and protection of wetlands, etc.

There are some welcome new exceptions to this neglect. The South African water policy (see Case Study in Chapter 6) enunciates the concept of an 'Environmental Reserve' to protect ecosystems. Though there are difficulties in catchments where water is already over allocated without due consideration for environmental quality, innovative approaches are being tried out for managing water demand and curtailing historic allocations. A lot of work has gone into methodologies for calculating the Environmental Reserve, and other countries can learn from the South African experience. From the gender perspective, guaranteeing water for conservation of aquatic ecosystems will have a major impact on the lives of women, in terms of improving their access to resources linked with water availability e.g., forestry, agriculture, aquatic fish species etc.

### *Infrastructure and Engineering Lessons*

With the benefit of hindsight, it is easy to demonstrate flawed thinking and ruinous consequences in some of the massive water infrastructure projects of the past. The long-term environmental consequences of these donor-funded investments were not always properly understood. In the colonial period, the British made huge investments in irrigation infrastructure in the Indian sub-continent but made hardly any provision for drainage. In fact, many of the "distributaries did not follow the watersheds and interfered considerably with natural drainage lines" (Buckley RB, 1905). As a result, water logging and salinity represent a serious threat to agriculture in South Asia. The diversion of water from the Aral sea for the growth of cotton, the investments in huge embankments for flood protection in Bangladesh, the destruction of fragile ecosystems like mangrove forests, the problems of sedimentation and its affects on soil fertility are other examples of the detrimental impact of technological options that do not fully assess the impact on the environment or people. These lessons have been learnt the hard way, but their legacy also has to be dealt with.

Today's projects need to be planned and implemented in partnership with the communities they are intended to serve, and using approaches that respect the needs of nature and the differing needs and views of rich and poor men and women.

### *"Entitlement" to Water and Land Resources*

Combating poverty is a dominant theme of development policy in all developing countries these days. Water policy too has to encompass poverty alleviation as a primary goal. The poor, especially those in non-urban settings, tend to rely more on "common property" resources like forests, rangelands, water bodies and inshore fishing grounds, to which everyone (or at least defined communities) have entitlement and access. Across the world, poor families draw heavily from these common resources for fuel, water and fodder. In the drylands of India, landless people derive a fifth of their annual income from the natural products of common areas (UNDP, 2001). At the same time, by overusing these resources and adopting practices that may not be very sustainable, the users can also contribute to the degradation.

Gender disparities distort access to common environmental assets, and militate against equitable ownership of and access to land and water resources. Given that women continue to be responsible for much of the food production, collection and provision for household consumption, their limited access obstructs food and water security for the family. The risk of economic loss when ecosystems such as wetlands, floodplains and coastal areas are degraded has serious consequences for those depending upon them for free services, especially the poor. Civil society institutions have sometimes helped to mediate with the State to protect marginalized communities. The Chipko Movement and the Narmada Bachao Andolan are examples of these initiatives in India.

## Addressing the Issues

While the policy, legal frameworks and institutions dealing with water for nature take a segmented view of the management and allocation of water, the people who are directly dependent on natural systems take a much more holistic view. They look at water from the perspective of preserving their livelihood systems, which are often fashioned with a more inte-

grated and relational understanding of the environment around them. Thus the manner in which state institutions manage water is different from the way the people manage and experience water-related issues and hazards.

This incongruence can lead to conflict between the people and the state, especially when it comes to gender issues. The Flood Action Plan in Bangladesh (see Case Study in Chapter 6) is an example. Although a belated gender analysis revealed several special burdens for women in coping with floods, there was considerable resistance from bureaucrats and some donors over the introduction of social equity considerations into what was seen as a purely technical problem.



### *How a gender perspective could help*

A gender perspective in the water for nature sector would give an appreciation of the manner in which men and women share roles and responsibilities regarding the use and management of natural resources. Regulatory mechanisms that incorporated a gender perspective would help to mediate the interests of the disenfranchised and the marginalised communities and more effectively negotiate sustainable use of natural resources, particularly water. That would lead to institutions that had a different structure both in terms of their staffing pattern and their implementation strategies. Organisations with a gender-sensitive approach would have mechanisms for local participation in the planning, management and use of water resources in an integrated manner. Public participation enables informed and innovative decision-making and helps in fostering and building citizenship support for joint disaster mitigation, as just one example.

Table 1 lists some of the key hazards and areas of environmental concern that are central to the Water for Nature sector, and a brief statement of key gender issues to consider in the development of policies and legal frameworks.

## Review of existing policies and trends

This section is concerned with how gender perspectives have been integrated into water policy formulation by international conventions, multilateral donors, national governments and civil society organisations. Each has its mode of operation, which may enable or inhibit effective incorporation of gender into policy formulation and implementation. Table 2 summarises the modes of operation and the avenues for greater integration of gender in the working of these different institutions. The table outlines how different institutions typically deal with different environmental aspects in their policy instruments.

### *International background*

Historically, the thrust of most water policies has been on water rights or allocations and their distribution among competing users. Women generally do not own land and where they do, their ownership is circumscribed by traditions and customs that place control primarily in the hands of men. Consequently, land is one of the critical factors influencing access to water by the two sexes. The study of gender, land and water rights in Latin America summarised in the Case Study in Chapter 6 illustrates how more enlightened thinking can enhance women's access to land and water resources (as has happened in Colombia and Costa Rica), for the benefit of both sexes.

Impetus for change in the policy, legal and institutional framework for water for nature in developing countries can come from both internal and external sources. One common thread in terms of the development of policy has been a growing understanding that key stakeholders need to be consulted and considered in the development of policy for nature. The concern with incorporating gender issues was generally shaped in the 1980s as a result of donor funding of environmental and natural resource management programmes. Donors and national governments were undoubtedly influenced by the powerful voices of the international women's movement and by the growing strength of indigenous women's groups at national and local levels. This led to an articulation of gender issues in high profile international meetings and conferences. International conventions and protocols have contributed to the process of countries moving further in the process of development of policy on some of the issues. In particular, the development of National Plans of Action in accordance with international agreements has helped to draw attention to women's issues. While there is an increased understanding that

**Table 1. Elements of a gender perspective by issue area for water for nature**

| Hazards/Area | Key gender issues |
|---|---|
| Floods | ■ Recognition of and attention to gender differences in vulnerability to floods and coping mechanisms.<br>■ Formulation of flood response and mitigation measures in a manner that is gender sensitive and recognizes that men and women have different roles and responsibilities and different types of vulnerability. |
| Droughts | ■ Recognition of and attention to gender differences in vulnerability to droughts and coping mechanisms.<br>■ Formulation of drought relief, recovery and mitigation mechanisms sensitive to women's and men's different needs, roles and vulnerabilities. |
| Desertification | Given the gender division of labour in most arid and semi-arid environments, any anti-desertification measures should draw upon local knowledge about the environment as well as take care not to accentuate existing gender inequities.[1] |
| Mangrove Forests | ■ Recognition of gender based extractive dependence on mangrove forests.<br>■ Appropriate representation of gender interests in mangrove forests' management and preservation, land tenure and concession rights. |
| Fisheries | ■ Attention to commercial vs. small scale and subsistence fishing and the differential accrual of benefits from either activity based on gender.<br>■ Recognition of the needs of women and men, boys and girls for access to fishing equipment and permits. |
| Construction of Dams | ■ Attention to how livelihood systems and productive activities will be disrupted as a result of dam construction and how they could be compensated for in the resettlement plans, in consultation with different stakeholders.<br>■ Assessment of how the benefits to be derived from the dam will accrue to both men and women |
| Water Quality | Given the typical gender roles of procuring water, livelihoods, and caring, the two sexes may have very different stakes in water quality. Both men and women's voices should be heard. |

[1] In the Tihama in Yemen, tree species were selected without consultation with the local people and planted on sites that did not offer adequate protection. Furthermore, the selected species were not only highly water intensive in a water scarce area but the nesting of birds in the trees proved to be a menace for local cereal crops. Women responsible for plantation on the marginal lands were most aware of these problems and a dialogue with them at project inception would have helped to avoid these problems.

**Table 2. How do existing policy instruments deal with water for nature issues?**

| Level | Mode of Operation | Typical Focus | Potential Pathways for Gender Mainstreaming |
|---|---|---|---|
| International Conventions | Consensus Building and Negotiation | Environmental Quality; Human Rights | ■ Targeted advocacy and lobbying from national to international scale.<br>■ Networking of national and international gender related civil society groups.<br>■ Incorporation of gender disaggregated performance indicators in international conventions.<br>■ Provision of gender disaggregated data to treaty negotiators. |
| Multilateral Agencies | Funding | Poverty; Water Pricing; | ■ Increased funding for diversifying the approach to water management beyond pricing.<br>■ greater sensitivity to 'non-productive' gender specific uses of water.<br>■ Incorporation of community participation approaches to management of natural resources. |
| National Government | Legislation | Water Rights | ■ Democratisation.<br>■ Increased stakeholder participation.<br>■ Civil society mobilisation. |
| Civil Society | Participation Advocacy | Equity | Social mobilisation and creation of opportunities for increased stakeholder participation. |

women 'play an essential role in the management of natural resources' (World Bank 1991), the incorporation of gender perspectives in existing policy and legal frameworks is largely absent even today.

The 1995 Beijing Declaration and Platform for Action recognised that environmental degradation and disasters often have a more direct impact on women than on men. Global actors were urged to develop and implement gender-sensitive laws, policies and programmes on land-use, environmental management and integrated water resources management, and to include gender analysis and methods of mapping hazards and vulnerabilities. Other important environmental treaties and conventions include The Dublin Declaration, Agenda 21, and the Rome Declaration on World Food Security. These international conventions take great pains to place women as one of the central concerns with regard to water, environment and development. However, Agenda 21 as well as others fails to capture the complexity and the relational nature of gender issues in the water sector.

The focus of multilateral agencies like the World Bank, which views environmental resources through the lens of neo-liberal economics (Jackson 1998), is for greater

commodification of environmental resources, particularly water. In this view lack of appropriate valuation of water leads to its waste, which causes inequities and environmental degradation. The remedy is that appropriate pricing of water, which may reflect its true economic value, will lead to greater efficiency and therefore greater availability for its environmental functions. The institutionalisation of property rights, decentralisation, and participatory water management are the bedrocks of efficient water use for environmental quality in this view. The gender question is addressed by emphasizing the role of women as one of the main stakeholders who should have the requisite influence in managing water resources. The strategy is problematic on a number of counts. First, most women in the third world constitute the poorest segments of society and so are inherently disadvantaged when it comes to paying the full economic price of water. Second, in many societies, cultural patriarchy inhibits women's effective participation through formal institutions in water resources management (World Water Council, 1999).

### *National policy trends*

A review of the water policy documents of more than 20 countries (listed in the Bibliography) for this report has shown that there is as yet very superficial treatment of the issue of gender. Only two countries (South Africa and Bangladesh) specifically mention gender. Even there, the documents miss the fact that a gender approach should incorporate analysis of the roles and responsibilities of *women and men* in their communities and so entails a proper consideration of livelihood systems. On the positive side, the water policies of both countries talk about gender equity and acknowledge the important role that women play in the sector. In the case of South Africa (see Case Study in Chapter 6), the principles are being carried forward into water legislation. The National Water Act requires the redress of past imbalances based on race and gender, and requires gender representation in institutions, as well as gender considerations in allocation of water, etc. The South African legislation has also separated water allocations from land ownership, thus breaking the cycle of male "ownership" of land conveying male-dominated rights to water (the examples in Colombia and Costa Rica were referred to earlier).

These examples apart, few, if any, regulatory mechanisms specifically seek to protect the rights of men and women in the manner in which water resources are used and allocated. The institutions that deal with water are still characterised by centralised decision-making from which women are largely absent. However, most water sector institutions have started recognizing the importance of including stakeholders and have adopted participatory approaches to water management. This provides a window of opportunity to include gender perspectives in water management in the nature sector.

A gender approach focuses on participation by all not just on the inclusion of women. Nor are women always helpless victims of environmental degradation or social forces. They often respond and adapt in creative ways to externally or internally driven environmental stress (see the Case Study on Women and Oil in the Niger Delta in Chapter 6). The challenge is how to nurture and support that creativity.

## The way forward

Few policies to date adequately address gender issues. The incorporation of a gender perspective will help in making water policies more balanced in addressing the different demands for water. The current water crisis necessitates finding a balance between using water and conserving aquatic ecosystems, while maintaining a living environment for a growing population. Balance can only be possible where government bodies responsible for water establish an effective policy and legal framework to allocate and manage water resources in ways responsive to national, social and economic needs and to the long-term sustainability of the available water resources. Any "water for nature" policy that focuses on the conservation and regeneration of water resources, without due regard to the livelihoods of the men and women who depend on these resources, will continue to result in poverty and in accelerated feminisation of poverty. By the same token, water development policies that focus on economic growth can ultimately destroy local water-based livelihoods. An effective strategy tackling simultaneously the problem of poverty and water resource degradation should begin by focusing on the experiences and needs of poor women and

men. The objectives of defining and regulating environmental entitlements and providing sustainable livelihoods for all should integrate the issues of water resources management, development and poverty eradication.

A gender perspective that instils a better understanding of livelihood systems and calls for community participation also fosters integrated water resource management at the community level. There is a need for a concerted attempt to include gender perspectives in existing policy documents and water codes and for greater advocacy for the incorporation of gender perspectives in the water codes of different countries. This will help to change the tone of the existing water polices with their overarching focus on water rights.



The experience of countries that focus on water rights has shown that water rights are generally appropriated by the more powerful and do not lead to a proper distribution and use of water resources. Women's ownership and rights of access to environmental assets is already seriously curtailed by local norms (and in some parts of the world by law as well), even while they carry the burden of providing household food and water supplies. The incorporation of gender perspectives will help to tackle these issues more effectively. The inclusion of women in the government bodies that frame policies and laws to do with water for nature, environment, agriculture and related areas is one important step that should help in highlighting the specific gender issues, defining the impacts on women and building a support structure that will enable women to participate in and benefit from water for nature initiatives. It is too simplistic to argue that more women automatically means better gender perspectives. There are gender-blind women, just as there are many gender-sensitive men. The fact remains that there are so few women in the water corridors of power today that affirmative action must be taken if gender concerns are to be taken seriously.

A critical area too is the translation of an overall water policy or water code into the legislative and regulatory framework. This will help to ensure that the spirit of the water code is respected. An approach that mainstreams gender in a policy of integrated water resource management will help to give greater prominence to some of the key issues in the water for nature sector. ■

Chapter 3

# Sanitation for people

## Introduction

It has become axiomatic in the water sector that sanitation has to go hand-in-hand with water supply and hygiene education if real progress is to be made in improving the health and wellbeing of the poor. In this chapter we look specifically at sanitation, a sub sector in which gender considerations are critically important. By sanitation we mean the safe management of human excreta, including both the "hardware" (latrines, sewers, etc.) and the "software" (regulation, hygiene promotion, …) needed to reduce faecal-oral disease transmission. There is a wider concept of "environmental sanitation" covering the control of all factors in the physical environment that may have a deleterious impact on human health and wellbeing. This normally includes pollution control, drainage, solid waste management and vector control. Whilst environmental sanitation policies and legislation are considered in this analysis, the main focus is the effects on people's livelihoods and health policy trends relating to the improvement of household and neighbourhood sanitation systems.

In the 25 years since the UN Water Conference in Mar del Plata pledged water and sanitation for all by 1990, sanitation sector professionals have seen "lack of political commitment" as a major constraint to progress. The 2002 World Summit on Sustainable Development in Johannesburg has elevated sanitation to an unprecedented level of political priority. By agreeing a target and demanding plans to reduce by half the proportion of people who lack hygienic sanitation facilities by the year 2015, the world leaders have brought sanitation into the media spotlight and forced their health, water and overseas development ministries to respond. There are signs of increasing interest from some politicians now to raise the commitment to sanitation improvements in their countries. The challenge remains how to widen and build on this momentum, and to translate national commitments down to local levels. This means building more and more political support at local government level and in municipalities and focusing on the other constraints hindering the target of serving the unserved. It will not be easy.

**Statistics on Sanitation for People**

Figures are available for total sanitation coverage at a country level, however it is worth considering the diversity of coverage in a rural and urban context. In urban areas, 8 countries, representing 60 million people, have less than 50 percent adequate sanitation. Figures range from as low as 12 percent and 14 percent urban cover in Rwanda and The Republic of Congo respectively, to the 100 percent coverage in the countries of the north. In rural areas, 52 countries, representing 3.5 billion people, have less than 50 percent adequate rural sanitation coverage. Of these, 12 countries, representing 140 million people, have less than 10 percent rural sanitation coverage. Again figures range from as low as 1 percent and 4 percent coverage in Eritrea and The Korean Republic respectively to countries with full coverage.

(WHO/UNICEF GWSSA 2000 – see endtables of selected gender and water indicators)

At the turn of the century, according to WHO and UNICEF's Global Water Supply and Sanitation Assessment 2000 Report, some 2.4 billion people had no access to any form of sanitary means of excreta disposal. This is a major cause of the 4 billion cases of diarrhoea reported each year between 1990 and 2000, and an annual toll of 2.2 million deaths. Most of those deaths are infants and young children, which makes their prevention an important gender concern. Sanitation is one of the issues that graphically demonstrates the problems caused by gender inequality in human society. As the traditional water bearers and custodians of family health, women shoulder a huge burden in coping with the lack of basic sanitation services. Their lack of facilities, their dirty hands, their poor hygiene behaviours all contribute to the poor health and indignities that they and their families suffer. Yet societal barriers continually restrict their involvement in the improvement programmes intended to alleviate their situation.

To its credit, the water and sanitation sector has long recognised the need for women to participate more fully in the planning and implementation of community programmes to improve basic sanitation. Over the years, GWA members and others have been active in evolving guidelines and strategies which stress gender perspectives, and which aim to enable women's fuller participation through more equitable household burden sharing and better community-level planning processes.

The rhetoric has been good, the action sometimes less evident. Progress in gender mainstreaming varies among countries and in different sectors within a country. The Johannesburg Declaration provides a golden opportunity for GWA and others to influence national strategies and donor policies in the concerted drive to achieve the sanitation targets.

## Key sanitation issues and gender implications

### *Health or convenience: a marketing dilemma*

Evidence shows that provision of adequate sanitation services, safe water supply, and hygiene education is an effective health intervention. It reduces the mortality caused by diarrhoeal diseases by an average of 65 percent and the related morbidity by 26 percent. Inadequate sanitation, hygiene and water results not only in more sickness and death, but also in higher health costs, lower worker productivity and lower school enrolment and lower retention rates amongst girls. It also contravenes the rights of all people to live in dignity (WHO/UNICEF, 2000). Notably, improved sanitation makes a vital contribution to a sustainable family livelihood, especially for the poor and vulnerable. Better sanitary conditions provide real benefits to women, in the form of greater privacy, convenience, safety and dignity and safe hygiene practices in the family. This means a potential release of women's time and energy, much of which is invested in care of the family.

Despite these apparent benefits, *demand* for improved sanitation from poor women and men appears to be a relatively low priority compared with other livelihood needs. For sanitation promoters, a key challenge is that those lacking good sanitation facilities are rarely persuaded that potential health benefits provide sufficient incentive for investment. Convenience, privacy, status and peer pressure are the areas social marketers find more persuasive in motivating communities towards improved sanitation and hygiene.

### *Costs of inaction*

Contaminated household environments and risky hygiene practices account for almost 30 percent of the total burden of diseases in developing countries. Prüss et al (2001) estimated that 5.7% of the global burden of disease was attributable to water, sanitation and hygiene, which is similar to the estimate of 5.5% for the year 2000 (WHO, 2002). The lack of good water supply, sanitation and hygiene has particular impact on diarrhoeal disease incidence (up to 88% of diarrhoea incidence in developing countries) which account overall for 6.3% of the integrated health measure now used, disability adjusted life years (DALYs). Experience has shown that investment in improvement in water supply, sanitation and hygiene would substantially reduce this health burden in a cost-effective way.

In one WHO defined sub-region of Africa (AFR-D), the time gains achieved by halving the population without

access to safe water and by improving sanitation is estimated at 44.1 hours per year per capita (WHO, 2002).

As well as the serious health consequences, the figures represent large economic losses and negative publicity for countries and governments. The cholera epidemic in Latin American cities with deteriorated water supply and hygiene conditions spurred into action politicians and administrators who had thought the disease long overcome. The cholera epidemic in Peru, which lasted for 15 months in 1991-1992, cost the country $200 million in lost lives, decreased production, exports and tourism (Suarez R. and B. Bradford, 1993). Payment (1997) estimates the annual cost of gastro-intestinal disease in the USA may be as high US$900 million, whilst noting costs in developing countries would be higher.

**Imbalanced investment**

The current low level of sanitation coverage (only 60 percent of the global population has access to any sort of improved sanitation) is partly explained by the low level of investment in sanitation compared with water supply. Of the total annual investment in the water supply and sanitation (WSS) sector, approximately US$16 billion, only one fifth seems to be directly toward sanitation (WHO/UNICEF, 2000). The true figure is hard to estimate because few countries or donors disaggregate the data on water and sanitation investments. To demonstrate the new sanitation priorities, governments and donors will need both improved statistics and a better balance between sanitation and water investments.

In the past, a high proportion of WSS investment has gone towards improving water supply. The evidence however indicates that investment is required in sanitation and hygiene behaviour change, if health benefits are to accrue. Reviews by Esrey et al (1985; 1991) indicate that median reductions in diarrhoeal disease incidence are greater from interventions in sanitation than in water supply, although the range of reduction was significant for all interventions, ranging from no impact to 48% reduction (sanitation) to 100% reduction (water availability). Subsequent reviews of the impact of hand-washing and household water treatment show very significant reductions in diarrhoeal disease in the absence of engineering interventions (Huttley et al, 1997; Sobsey, 2002). Howard and Bartram (2002) note that this demonstrates the importance of understanding local disease patterns when designing improvement interventions. Hygiene and sanitation improvements contribute significantly to reductions in incidence of other diseases, such as ascariasis and trachoma.

Funds for behavioural aspects form only a very small percentage of investments, despite the fact that human behaviour and specifically addressing gender dynamics is one of the key determinants for any impact on public health.

***Institutional weakness***

In spite of its importance to the health and economics of the nation, sanitation often lacks an institutional home. Frequently it is merged into a WSS sector where the glamour jobs and investment priorities go to water supply. As a result, little support is accorded to sanitation and minimal investment committed to it. From our country examples[2], for instance, water and sanitation issues in Zambia and Zimbabwe are combined and guided by water and sanitation policies. Both recommend an integrated approach, but in neither case is sanitation given due attention. Detailed institutional, financial, implementation and operation and maintenance arrangements are presented for water, but that is not the case for sanitation, and gender concerns are virtually ignored. The competing and conflicting roles and responsibilities among the subsectors further complicate this, with no clear regulatory framework in place to guide the sector.

In contrast, where the institutional arrangements have been clearly defined, more commitment is evident. For instance, South Africa, which separates sanitation from water, has a clear policy focused on the provision of sanitation facilities and services. The policy aims to provide all South Africans with a basic minimum level of sanitation by 2010. The necessary institutional, implementation and financial means to achieve this goal are clearly set out in the policy,

[2] Sanitation policies reviewed included those of Ghana, India, Nigeria, South Africa, Zambia and Zimbabwe.

though, as we will see, a lot still needs to be done in ensuring that the different gender interests are addressed in service provision.

The main challenge in institutional sustainability is how to promote an integrated multi-sectoral approach to sanitation and hygiene promotion. This requires building good relationships between public authorities, the private sector and civil society. It is equally important that the gender dynamics of rich and poor women and men are taken into consideration in the delivery of sanitation services.

**Constraints on investment in sanitation in Ghana**

In Ghana, a major institutional gap is the fragmentation of responsibilities for urban, rural/small towns and schools and unclear coordination strategies between stakeholder institutions involved in sanitation. Of particular concern is the weak links that have existed between the Community Water and Sanitation Agency (CWSA) and the Ministry of Local Government and the decentralized local governance institutions (Metropolitan, Municipal, and District Assemblies). Lack of a coordinated approach on strategies and financing arrangements has discouraged investment in sanitation in the rural areas and small towns. Consequently sanitation has not featured as a priority area in most District Assembly planning.

3.

### *Urban growth*

Urban sanitation has become a huge and growing challenge, due to the shift in urban/rural population balances. Over the next few decades almost all the world's population growth will be in urban areas in developing countries, leading to increased informal and unplanned settlements. In 2000, 47 percent of the world's population were urban dwellers, as opposed to 43.5 percent in 1990[3]. The African urban population is expected to more than double over the next 25 years whilst the urban populations of Asia, Latin America and the Caribbean are expected to increase by almost 50 percent over the same period (WHO/UNICEF. 2000).

[3] The population data and projections presented, are those of the United Nations Department of Economic and Social Affairs, Population Division

Rural sanitation coverage in developing countries lags far behind urban coverage and it is a big area of concern. The added urgency in the urban environment stems from the fact that the urban poor live in crowded slums and informal settlements where sanitation facilities are particularly important for public health and personal dignity. But these are the very areas in cities where facilities are often inadequate or non-existent.

**Poor access to urban sanitation in Ghana**

Only about 40 percent of Ghana's urban population has access to some form of adequate household sanitation; 15 percent of households still use bucket latrines, a system that is currently banned by legislation. About 40 percent rely on public facilities, while 5 percent use open defecation. The most prevalent form of household sanitation is on-site facilities. Only two towns – Tema and Akosombo - are fully sewered.

Urban problems tend to be more complex and involve many issues beyond the conventional design aspects of WSS systems. These challenges have gender implications too. As was noted in the Water for Nature chapter, some of the most vulnerable people lack legal title to the land they occupy and have little or no political voice or community organization. Most poor urban dwellers, unlike their rural counterparts, must pay cash for their sanitation and water services and hence can afford only wholly inadequate facilities. Although in many places water vendors have responded to the demand for water and have a vital role, they operate with minimal regulation on either price or quality and often charge exorbitant unit prices for what may be untreated water. So, water for basic hygiene is a costly commodity. Few agencies have responded to the needs of the urban poor for safe excreta disposal facilities.

### *School sanitation and hygiene education (SSHE)*

Of all children between the ages of five and fourteen in the world, 87 percent live in developing countries. For these children, the risk of death is now fourteen times higher than for children of the same age groups in industrialized countries. That risk can be reduced enor-

mously when they stay in a healthy school environment and get used to practising good hygiene both in and out of school (WHO, 1995).

In many countries, schools have become unsafe places where diseases are transmitted rapidly due to poor sanitation environments. Poor sanitation in schools impairs children's growth and development, limits school attendance and retention of students and negatively affects students' ability to concentrate and learn. About 40 percent of the world's 400 million school-age children are infested with intestinal worms. About 1 in 10 school-age African girls do not attend school during menstruation or drop out at puberty because of the lack of clean and private sanitation facilities.

**School children suffer from poor sanitation facilities**

A survey carried out in India among school children, revealed that about half of the ailments found are related to unsanitary conditions and lack of personal hygiene (UNICEF and IRC 1998). A study in Senegal of over 5000 schools showed that 53 percent had no water supply and 46 percent had no sanitation facilities. Only half of the schools had separate facilities for girls and boys (République du Sénegal and UNICEF, 2002).

Schools provide an excellent opportunity to create lifelong changes in behaviour. Childhood is the best time for children to learn hygiene behaviours. Children are future parents and what they learn is likely to be applied in the rest of their lives. Children often have important roles taking care of younger brothers and sisters and, depending on the culture, they can also question and influence existing practices in the household.

Improved sanitation and water supply in schools directly benefit girls' education. It is already harder for girls to attend and finish school. The presence of sanitation facilities that can be kept clean, offer privacy and, for older girls, are separate from those for boys, help parents to send girls to school rather than stopping their education when they reach puberty. When facilities are planned, the preferences of both boys and girls should be taken into account. Urinals may be constructed for boys and more latrines for girls than for boys with provision of sanitary napkins. A crucial gender issue relates to incidences of rape in and around school sanitation facilities. South Africa has initiated a research project, in partnership with other African countries, to develop designs and access guidelines for school sanitation facilities that will be safe from the threat of rape.

Building new sanitation and water facilities is not enough. It is critical that these facilities are properly used and maintained. Simply giving hygiene lessons in class will not necessarily change children's hygiene behaviour. Good organization of cleaning and maintenance of the WSS facilities is of utmost importance. Badly maintained sanitation facilities often cause an even bigger health risk than scattered defecation.

**Sanitation goals to improve primary education**

Growing recognition of the importance of quality primary education has inspired UNICEF, WHO, UNESCO and the World Bank to create a partnership to Focus Resources on Effective School Health (FRESH). The issues addressed in FRESH are water and sanitation facilities in all schools, life-skills-based health and hygiene education, the establishment of school policies for health promotion, and the establishment of school nutrition and health services. Meanwhile Vision 21, which is part of the action plan of the Second World Water Forum, has set specific school hygiene and sanitation goals. These goals are that by 2015, 80 percent of primary school children are being educated about hygiene and all schools are equipped with facilities for sanitation and hand washing.

SSHE programmes also provide good opportunities to practice gender equality in health knowledge and the division of tasks. Much can still be done in this respect. The examples cited here will be no surprise to many schools. A school survey in Senegal brought out that the boys cleaned the schoolyard and the girls the toilets. Because cleaning was done only once a week, the latrines were very dirty. The girls explained

that this was why they did not use them and why their mothers warned them not to urinate at school. To avoid urination, they tried not to drink during school time. In Mexico, when asked why the girls were cleaning the toilets and the boys were playing basketball, the teachers said, "Boys don't clean toilets in Mexico" (UNICEF, 2002).

There are many actors who have roles to play in SSHE. Government is the most important actor – specifically the Ministries of Education, Health, Community Development and Water or Public Works. However, it is also possible to work more closely with the private sector, from local crafts persons such as masons, potters and soap makers to large companies who can support programmes with finance, research and development (e.g. on child-friendly latrines, taking into account the various gender needs for girls and boys and the physically disadvantaged) and special market programmes, e.g. for school soap and disinfectants.



**Creative hygiene lessons**

School curricula can increase the impact of hygiene education by encouraging creative learning methods and tools. Many lessons on health and hygiene in class still focus on creating knowledge that is abstract and academic. SSHE lessons typically cover the range of water and sanitation related diseases, their routes of transmission, their symptoms, their treatment and the ways and means of prevention. More creative learning methods link this academic knowledge with the children's own environment, their values and practices in school, home and community. Children learn for example to determine what the most prevalent infectious diseases are locally and how their own conditions and practices make these infections spread. They learn to apply this knowledge by making, for example, drawings of their home compounds with good and bad practices in sanitation and in storing and drawing drinking water. The teacher then uses the drawings as a basis for health and hygiene education as well as for arithmetic, e.g. by helping the children to count the number of good and bad practices. The drawings also help to start a class discussion that stimulates the children to identify and understand why these conditions and practices exist.

Unfortunately there are no global statistics on the presence of water supply and sanitation in primary or other (nursery and secondary) schools. However, emerging data from studies show that in many developing countries access to water and sanitation facilities in schools is lower than the overall coverage figures for water supply and sanitation (UNICEF 2002). Global information is also missing about the presence of hygiene education in the school curricula. Even less is known about whether and to what extent school hygiene education programmes are effective and whether water supply and sanitation facilities are used and maintained. The challenging target in the sector today is how to achieve, by 2015, sanitation and hygiene conditions in schools that allow all children to go to school in an environment that is safe and healthy. How, by that time, can all children not only learn, but also practice hygiene in school, from nursery to secondary school? And how can all school-age girls and boys participate in a meaningful way in the development, implementation and sustainability of school hygiene education and sanitation programmes?

### *Infrastructure and Technology Choice*

Historically, when investing in sanitation improvements, decision-makers have favoured complex high-cost sewerage and drainage. This is partly due to the tendency for the direct transfer of technologies from developed to developing countries, and partly to the view that people should have the same high service levels provided in developed countries. Service levels appropriate to developed countries, with economies and household incomes strong enough to bear the high capital and recurrent costs, are rarely appropriate in developing countries. Water scarcity adds to the problem. Waterborne sewerage uses a great deal of valuable water and magnifies the volume of wastewater to be treated.

For the vast majority of the 2.4 billion unserved people and their future families trunk sewers and centralised sewage treatment plants are not a viable option. It may be that low-income urban communities can be connected to central schemes subsidised from charges to better-off communities, but in the meantime they need local systems that can alleviate the squalor and lack of hygienic sanitation that threatens their lives. The aim is to adapt solutions to both the

strength of the economy and the needs of the people with an overriding concern that they should be amenable to affordable management and maintenance, which will generally need to be the responsibility of the users themselves.

Because sanitation is primarily a private or household activity, motivating greater latrine usage requires promotion and marketing techniques that offer householders a choice of systems for a range of costs. The focus here should be on social marketing, where the marketer is concerned with the correct use and sustainability, rather than commercial marketing aimed at selling the product. There are other affordable alternatives to latrines. Dry sanitation options require careful operation but may enable excreta to be both removed from the infection cycle and used as a resource that can contribute to sustainable livelihoods.

Failure to account for the needs of each member of the household when designing installations has been the downfall of many a sanitation project (Allély et al, 2002). Even mothers who are aware that their children's faeces are dangerous often do not let them use latrines because there is a risk of falling in. The PNSBC programme in Mozambique began promoting the unreinforced domed slab partly on the basis that children could not fall down into the pit because of the key shaped squat hole. At the insistence of villagers in Sri Lanka programmes, special children's latrines were built near the kitchens where mothers could train their children in their use (Fernando, 1982). In Ghana a survey of rural sanitation sought the views of children by interviewing those between the ages of seven and eleven (Wright et al, 1978).

### Gender issues in latrine design

In situations without a piped water supply system, installing a manual-flush latrine implies extra burdens on the women in the household. There will be greater quantities of water to buy, to carry, or to draw, since the latrines work with a small amount of water thrown into the siphon after each use (up to 2 litres). Women will also be concerned about watching children carefully or giving them strict instructions, since no solid waste which might block the flow in the siphon can be put down this kind of latrine. A simple pit latrine may be a better solution.

Cultural practices and constraints also need to be taken into consideration when planning for sanitation. Apart from personal preferences, some customs are controlled by religious or social norms/taboos For instance, women in an El Salvador project were not willing to use latrines designed by male engineers because a gap at the bottom of the door exposed their feet, offending their notions of privacy (Moser and Peake, 1987).

Poor building materials or bad designs can mean that latrines are difficult to maintain and can become a source of infection. Women and children, who generally clean latrines, are at greatest risk of contamination. The example below illustrates how often the various gender groups have divergent interests, which need to be taken into consideration while planning for sanitation services.

### Divergent Gender Interests

When invited to state the three main things they found wrong with their sanitation installation for excreta disposal, respondents from Guinea and Burkina Faso capital city surveys complained above all about smells and flies. But importantly, more women than men mentioned these sources of discomfort, while their husbands, who didn't actually have to do the work, complained that they did not find enough water in the toilet to wash after defecating. Women complained more than men about privacy and many of them said they avoid using the latrines for that reason.

Experiments conducted in Nigeria, Kenya and Zambia suggest that the success or failure of sharing collective sanitation blocks depends mainly on the extent to which there is agreement about who should use them, under what conditions, what is to be done if neighbouring users have no installations and how to prevent the unauthorized use. The other gender dynamic of this is that women from minority groups have no access to the latrines because they simply have no right to use shared installations. This phenomenon has been observed in India, Sudan and Egypt. Widely reported problems with communal latrines also include the high incidence of attacks on women using them and the difficulty of ensuring they are kept clean and hygienic. *(D. Allély et al 2000)*

It is quite clear that women play a significant part in family decisions to improve sanitation systems. They are the ones directly tracking the day-to-day problems caused by the evacuation of household wastewater. They are the ones who generally have to keep the toilets clean. They are the ones to face the brunt of their neighbours' complaints and offensive remarks about wastewater flowing in the street and smelling bad. They therefore put significant pressure on their husbands to improve sanitation installations. Many women who have incomes pay for improvements out of their own pockets.*(D.Allély et al. 2002, citing experience of Couret et al. 1995).*

## Policy and regulatory overview of the sub sector

3.

Gender and sanitation policy documents from six countries – Ghana, India, Nigeria, South Africa, Zambia and Zimbabwe have been reviewed, with a more detailed appraisal made of the last three countries.

### *National gender policies*

South Africa, Zambia and Zimbabwe rank 88, 129 and 107 respectively in the global Gender related Development Index (UNDP, 2002) This reflects the low status given to gender with respect to access, control and ownership of economic resources and decision-making positions. The rankings indicate that more work needs to be done to ensure that gender imbalances are adequately addressed.

At national level, all three countries have gender policies with a goal of achieving gender equality and equity in all sectors and at all levels. All organizations and institutions in the respective countries are expected to mainstream gender in their policies and implementation strategies and activities. The Zambian national gender policy addresses sanitation in specific terms; the South African and Zimbabwean policies do not. Zimbabwe's gender policy has comprehensive strategies for water supply but sanitation is not mentioned, and in the South African one a passing reference is made to water services. Zambia's gender policy identifies key problems in the sanitation sector. It states that the government should promote and encourage the involvement of women in the decision making processes in the provision of water and sanitation facilities, promote partnerships between women and men in the provision of water and sanitation and ensure the use of gender-friendly technologies in water supply and sanitation.

### *Sanitation sector policies*

There are highly encouraging efforts being made to mainstream gender in sanitation programmes in all three countries. Current sector policies are being supplemented with specific strategies to reflect gender aspects. As they stand, the Zambian Water Supply and Sanitation Policy (1997) and the Zimbabwean Master Plan for Integrated Rural Water and Sanitation Programme (1985) do not mention gender at all. The two policies refer to *communities*, without specifying the roles of women and men in the provision of sanitation services. South Africa's White Paper on Household Sanitation (2001), which is a further development of the 1996 National Sanitation Policy, does not address gender in specific terms, but refers to the need for sanitation services that take into consideration the needs of women, girls, the elderly and the physically challenged. However, all three countries are currently implementing programmes for gender mainstreaming in the water and sanitation sector, including training programmes aimed at a variety of levels.

In Zambia, the *Mainstreaming Gender in Water and Sanitation Strategy (2000)* recommends the formulation, adoption and implementation of internal gender policies by organisations and institutions that are involved in the provision and promotion of sanitation, and use of gender-sensitive participatory approaches in needs assessments.

Zimbabwe has adopted the *Sustainability Strategy for the National Rural Water Supply and Sanitation Programme*. It recommends measures to enhance women's participation in rural sanitation programmes, including traditionally male-dominated chores such as latrine building.

A programme called *Gender Mainstreaming in South Africa (GEMSA)* aims to build up the National Community Water and Sanitation Training Institute (NCWSTI) into a resource centre for water and sanitation with a mandate to mainstream gender in the sector. The Department of Water Affairs and Forestry (DWAF) is

also looking at the possibility of developing a national gender policy for the water and sanitation sector and recently (2001) sub-contracted *Gender Links* to undertake a literature review on the issue.

Nigeria's Federal Ministry of Water Resources published a National Water Supply Policy in 2000. The policy is specifically targeted at water supply and sanitation; there is no separate national sanitation policy. It does not mention gender and has been categorised as gender insensitive.

In India, a national policy document has been developed by the Department of Drinking Water Supply (2001) of the Ministry of Rural Development. The policy is aimed at the *Central Rural Sanitation Programme to enhance "Total Sanitation Campaign"*. It explicitly states that specific sanitation facilities may be constructed for women within the central rural sanitation programme and it commits up to 6 percent of the total project costs to be used *"for the construction of Sanitary Complex for Women"*. Concerning school sanitation, the Indian policy points out that *"Separate toilets for girls and boys are to be made, which can be treated as two separate units and each unit will be entitled to Central Subsidy up to Rs. 12000/- each"*. Concerning maintenance, the policy states: *"It is essential to train the community,* ***particularly all the members of the family*** *(emphasis added) in the proper upkeep and maintenance of the sanitation facilities"*. This implies that male family members must be trained on hygienic use and maintenance, and not just women and girls. So it is taking a true gender perspective.

In Ghana, a national environmental sanitation policy was formulated by the Ministry of Local Government in May 1999. The policy is clearly targeted at the local government structures, to assist them to set up bylaws to regulate all aspects of environmental sanitation. It does not mention gender. The roles of men and women are not specified – only the responsibilities of individual households, communities and community-based organisations are mentioned. The document indicates that sanitation is a public good, and is therefore the responsibility of all citizens, communities, private sector enterprises, NGOs and institutions of government.

### *Legal Instruments*

The purpose of a legal framework is to transform policy intentions into legally binding and enforceable clauses. South Africa, Zambia and Zimbabwe have made significant progress in revising or repealing old laws in line with international gender conventions, though not in translating into law national gender policies that guide the provision of sanitation. While the need for gender mainstreaming in all institutions is emphasised at national level, no legal provisions have been put in place to ensure gender considerations in the recruitment and general practices of sanitation agencies. Community participation in sanitation programmes and devolution of power to the lowest level is advocated at the national level, yet community-based organisations such as women's clubs are not legally recognised in most cases.

In Zimbabwe, due to the centralised nature of the Central Rates Fund, simple breakdowns in sanitation facilities in small urban areas scattered throughout the country, have to be referred to the head office in Harare, which administers these areas. The legal and institutional arrangements are also such that local authority workers are accountable only to higher officers and not to the poor women and men that they serve. The Urban Councils Act and the bylaws, which set service standards, do not mention gender at all. All urban councils are expected to provide urban dwellers with flush toilets. Pit latrines of any description are not allowed for household use, which means that the needs of poor women and men and their ability to pay for the recommended services were not considered when service standards were set.

In South Africa, a policy of Free Basic Water has already been implemented to take into account the needs of poor households, and a policy on Free Basic Sanitation is under discussion. The ability of poor households to pay for services is taken into account in the provision of services. in some instances bylaws to ensure sanitary environments, such as rules about disposal of hazardous waste are not enforced, thereby exposing the poor women and men who scavenge on dumpsites. This is an extremely complex issue –South Africa is trying to phase out scavenging on dumpsites, but, at the same time, recognises that to do so removes a sole source of income for some people. In

other circumstances, failure of local authorities to enforce bylaws has led to situations where people build houses without latrine facilities. Women who spend most of their time at home are the worst affected in such cases, because they do not have any means of relieving themselves.

In South Africa, households in urban areas are entitled to a housing subsidy and a sanitation subsidy. These are restricted to people who are above 21 years of age, so younger families and particularly young single mothers are not entitled to the benefit. The sanitation subsidy is also difficult for rural households to access.

With its free water policy in place, free basic sanitation under development and subsidies for sanitation improvements, South Africa is a notable exception in the field of urban sanitation. Most countries are promoting full cost recovery either through the Strategic Sanitation Approach or public-private partnerships. There is a need to analyse the impacts of such approaches on different gender groups. The impacts on poor women and men of cutting water supply for non-payment of services, including sanitation services, are not fully considered when such laws are made. In South Africa, there is a clearly specified process that must be followed before services can be cut. As far as possible, 6000 litres per household per month should be provided.

Except for the noteworthy progress in South Africa, it seems that generally legal provisions are enacted without assessing their implications on gender. Gender analysis is not conducted during the formulation of legal instruments that govern the provision of sanitation services, resulting in them being gender insensitive.

### *Institutional shortcomings*

Given the importance of gender issues in sanitation, specific institutional arrangements are necessary to ensure that gender is considered as part of efficient implementation of programmes. Sanitation programmes in South Africa, Zambia and Zimbabwe are implemented by a variety of organisations. These include government ministries, NGOs, donors and community-based organisations. In all three countries, institutional arrangements are focused on facilitating the implementation of sanitation programmes and not on gender mainstreaming. A notable gap in most organisations responsible for the provision or regulation of sanitation services is the absence of internal gender policies and trained staff to guide their commitment to gender in the sector. In most instances, gender-related issues and considerations are left to Departments of Gender or Women housed in different ministries. These are under-resourced and the staff lack the necessary training to guide them in their work. The water services sector in South Africa, including DWAF, does have a particular focus on gender mainstreaming in the water supply and sanitation sectors, as evidenced by the GEMSA and GARSA programmes.

It is a helpful idea for water and sanitation committees to contain co-opted representatives of gender departments, as well as for designated water and sanitation staff members to take responsibility for promoting attention to gender issues amongst their colleagues and linking with Department of Gender staff. Respective roles and responsibilities need to be clearly stated and agreed. In Zimbabwe, gender is not addressed at national, provincial and district levels in the rural sanitation sector, despite the fact that the ministry responsible for gender is included in water and sanitation committees at all levels. This is partly because the main duty of the gender ministry is community mobilisation and ensuring community participation at project level. Its representatives therefore do not see their role as ensuring women's representation in national, provincial and district decision-making committees, or as outlining guidelines to ensure gender concerns are addressed in programming.

Although South Africa, Zambia, and Zimbabwe have made positive steps by establishing ministries responsible for gender there are as yet no clear institutional arrangements to ensure coordination and linkages between and within organisations responsible for the implementation of sanitation programmes. In addition, national sanitation policies do not have specific indicators for monitoring progress in achieving gender-related goals. Consequently no institutional arrangements are in place for monitoring and evaluating progress. This too is being put right in South Africa.

That country's White Paper on Household Basic Sanitation (2001) discusses the roles and responsibilities of all players, but no organisation was tasked to ensure that gender is mainstreamed at all levels of sanitation programming. However, at a recent workshop of the Water Services Sector Leadership Group in South Africa, which represents a wide range of the role players in water services and sanitation, DWAF was given the responsibility of ensuring that gender mainstreaming takes place and in reporting back to the WSSLG on the matter on a regular basis.

**Financing**

Financing is one of the major issues that affect sanitation provision in urban and rural areas. Though most policies delegate the financing of sanitation to local government, no strategies are instituted for monitoring their financial inputs. There is a need to create targets for sanitation that will motivate local governments to give more priority to sanitation. More research is required to understand why people are unwilling to invest in latrines and to find the right incentives. The potential of micro-credit schemes and revolving funds have to be further investigated. Subsidies and clear strategies need to be established for targeting poor women and men to ensure effective sanitation coverage. For instance, in South Africa a National Sanitation Task Team that includes representatives of local government and the sanitation programme has been given a high profile and considerable funding by National Government.

**Human Resources Development and Training**

Gender sensitivity can be most readily fostered through the training courses and materials for sanitation engineers and practitioners.. National sanitation agencies need to:

- Review and reinforce the gender component of curricula and pre-service training for artisans, ensuring that the enabling environment is created in appropriate government agencies and institutions.
- Include strategies to enforce the monitoring of gender indicators for sanitation delivery.
- Establish schemes to reinforce development and constant review of courses for practising professionals to ensure that current issues such as hygiene and sanitation promotion and gender mainstreaming are included in the curriculum.

## The way forward

Efforts to promote sanitation as a major means of sustainable development received a huge boost in September 2002 as the World Summit on Sustainable Development concluded in Johannesburg. The need to come up with concrete plans of action to reduce the 2.4 billion people that do not have adequate sanitation was one of the priorities of WSSD. The usefulness of time-bound targets to achieve this in the medium and long term was emphasized with the agreement to halve, by the year 2015, the proportion of people who do not have access to basic sanitation. It is clear too that a lot has to be done to reinforce the messages about the importance of gender mainstreaming and translate them into action. GWA members and others can help by urging and supporting governments to initiate a key list of activities:

1. While promoting an integrated approach to water services delivery, separate sanitation strategies should be designed addressing gender-sensitive hygiene promotion and sanitation improvements. This will ensure that sanitation is given the attention it deserves. Separate sanitation strategies should be prepared for rural and urban informal settlements and should include clear gender statements.

2. Legal instruments related to the provision of sanitation services should ensure that policy is translated into law. Government departments, including the gender departments, NGOs and donors should ensure that gender is addressed in the formulation process and that Acts and bylaws (such as service standards, tender guidelines, building standards and land tenure) go through gender review before they are passed.

3. Government gender departments should ensure that national sanitation policies are gender sensitive, by participating fully in the policy formulation process. Gender sensitive provision should address women's and men's practical needs, and

also seek to promote greater equality of opportunity for women and men to provide, influence and benefit from sanitation services.

4. Government departments, NGOs and donors should embark on awareness-raising programmes targeted at sanitation policy makers, emphasising the fact that sanitation is not just a household or social issue but rather a development problem that should be linked with poverty eradication. It should be recognised that poor sanitation is both a symptom and a cause of poverty and should be treated as such.

5. There is need for government departments, NGOs and donors to develop tools for gender mainstreaming at the institutional level. All institutions involved in the provision of sanitation services in both rural and urban areas should have internal gender policies. The policies should address gender in recruitment, training programmes and the general practice of the institutions. Indicators should also be developed to monitor progress towards achieving gender-related goals and staff should be supported with training in gender-related knowledge and skills.

6. Improved sanitation is a process, not a top-down decree. Affected women and men must be meaningfully consulted and involved in sanitation programme planning, implementation and follow up.

7. Participatory methods can be useful tools for encouraging involvement, developing consensus and creating commitment to action at all levels/sectors, while taking into account gender differentiated consumer preferences.

8. Policy development should be informed and monitored through sex disaggregated data and gender analytical studies identifying women's and men's different experiences, needs and constraints.

9. While efforts have been made in some countries, generally, the existing national environmental sanitation policy documents need to be reviewed and updated. The World Summit on Sustainable Development has provided an ideal opportunity to bring sanitation to the fore and provide guidelines for all potential partners on ways to achieve the 2015 targets. GWA urges and will try to support countries in ensuring an effective gender perspective in the new policy documents. The review should clearly:

- strengthen national policies in order to ensure an increased focus on sanitation, hygiene and gender issues and specify strategies for responding to gender issues;

- provide support for establishment of national targets for sanitation within the framework of the Millennium Development Goals, to provide a guide to the level of investment required to ensure delivery of sustainable sanitation services that are sensitive to gender dynamics; and

- Create an enabling environment that will stimulate sector investment and ensure that gender requirements in relation to sanitation are catered for.

Chapter 4

# Water for People

## Introduction

*From water is born all peoples of the earth*
- Mazisi Kunene, South African Poet

### Statistics on Water for People

There is a marked difference in water supply coverage in rural and urban environments. Eight countries, representing 60 million people, have less than 50 percent urban water supply coverage. There are 640 million people in the 30 countries with less than 50 percent rural water supply coverage, with 8 of these countries, representing 120 million people, having less than 25 percent coverage. Domestic water use as a percentage of annual freshwater withdrawals, which can be as low as 1 percent in Afghanistan and as high as 72 percent in Gabon, is highly dependent on the structure of the economy, agricultural demand, total resource available, annual freshwater withdrawal figures and climatic conditions.

(WHO/UNICEF GWSSA 2000 – see end-tables of selected gender and water indicators)

In the overall water sector, the sub-sector of drinking water supply has the longest tradition of paying attention to the roles of women. It has also led the way in evolving to a gender-based approach that takes account of changing social structures and their effects on the ways that women and men use and manage water.

In many cultures, women and men have traditionally held complementary roles in water management in their communities. Gender-specific management occurs particularly where water is scarce or has religious and cultural meanings. Evidence of defined gender roles in the use and management of water sources can be found in the Sudan zone of West Africa, East Africa, Nepal, South Asia, Central America and the Andes region. In Burkina Faso, for example, traditionally local women would inform their leaders when the wells needed improvement. The women leaders would inform the male leaders who in turn contacted male well diggers. The other men would clear the vegetation for the diggers and the women would cook. Leaders from both sexes set rules that regulated water uses by the various groups (van Wijk, 1998).

Integrated water resources management is not a new invention either. It has been part of indigenous systems for a long time, though on a local and not a river-basin scale. Water only became the almost exclusive domain of male technicians, politicians and local leaders with the global spread of northern-based engineering science with its notion from middle and upper class cultures that while men do tasks in public, women stay at home.

Recently, governments, water agencies and universities have rediscovered the value of addressing water management in a wider and holistic perspective, and with a team approach that involves men and women. In the drinking water sector, a large amount of qualitative data had already demonstrated that with greater,

and more equally balanced, participation of local women and men domestic water supplies are used more widely and sustained more effectively. Statistical evidence has reconfirmed these findings (Narayan, 1995; Gross et al., 2001; van Wijk et al, 2002).

This review looks at the extent to which participation and gender balance are included in drinking water policies and regulations. Policies and laws are important because they create the enabling environment for water management, authorise new insights from fieldwork and research, and may facilitate or hinder replication. They also have limitations, since implementation can seldom be imposed from the top. However, there are growing calls for agencies to be transparent and account publicly for implementation of policies and more means are becoming available to check on implementation and impact.

## Key issues

### *Gender differences in water usage*

**Use of water within households**

Water uses and demands at household level cover a wide range, and differ with sex, age and class. Women in particular use water from drinking water supplies as well as irrigation systems for a mix of domestic and economic needs. For example:

- All user groups need water for drinking and personal hygiene. Use per person varies with socio-economic levels and climate. Capacity to pay also varies between and within communities and households.

- Women are generally the ones who need water for cooking, cleaning, and clothes washing, although there are cultures when men wash their own clothes. Better off women use more water, but they/their families can also pay more.

- Women in poor households and in the rural areas need water for raising small livestock and growing vegetables, especially in the dry season. Scope of use varies with households' locations relative to water, and with ownership of, and gender divisions in, labour and land use.

- Rural men need water mostly for larger livestock, but rural women often care for the milk cattle and the young animals. Water use and payment capacities vary not only between large and small stockowners but also within households.

- Water uses for building and repair work such as brickmaking and plastering, crop and food and drinks processing, and transport are also gender-related and affect the water and land environment.

**Impact of water shortage**

For a growing number of countries, the water crisis that the world must address means a shortage of water, particularly for poor men and women. Even though humans have increased the amount of water available for use with dams and reservoirs, more than 40 percent of the world's population lives in conditions of water stress. The percentage is estimated to grow to almost 50 percent by 2025.

Droughts, over-extraction, and contamination reduce the availability of water for domestic use. In Latin America, for example, where some 70 percent of the water resources are surface water, a host of bad practices mean that streams and rivers have become unsuitable as drinking water sources without expensive treatment systems. Contributing factors are globally quite similar and include: erosion; excessive use of chemicals (fertiliser, pesticides); discharge of industrial waste, untreated sewage and wastewater; and widespread open defecation due to lack of good sanitation programmes for the poor. Another major problem is that floods contaminate drinking water sources, so that even in areas covered with water there may be no safe drinking water.

The effects of all of these are gender and class-specific. Worst affected are users of water systems in small rural communities and the poor in urban growth areas. In both types of community, women have the most direct interests in better management of freshwater as they must either accept the poor quality or walk long distances to alternative acceptable sources. Better-off women have private deep wells for irrigation that they can also use for domestic purposes, they have resources to buy safe water, domestic help to bring water from other sources or they can temporar-

ily move away. Women and girls from poor families have no alternative but to wait for external intervention or use the contaminated sources. The crisis management that governments often apply – deepening the public wells or supplying drinking water by tankers or through a pipeline with public taps – provides no long-term solution unless over-extraction and use by middle-class and better-off farmers are addressed concurrently.

Water scarcity also impacts on health in a gender-specific way. Each year, nearly two million children under five die from diarrhoeal diseases. Eye infections are particularly common in drier areas and this is an important factor in blindness from trachoma. Blindness also threatens the children's mothers as they are most frequently in contact with infected children. That is one reason why 70 percent of the world's blind are women. Washing hands at critical times and more frequent face washing are effective means of prevention. However, especially in drier areas and dry seasons, relatives with a higher authority such as mothers-in-law and fathers criticise young women and adolescent girls when they see them 'wasting' water by more frequent washing.

A new factor, with serious implications for the supply of drinking water is the growing prevalence of HIV/AIDS. In 28 countries, between 4 percent and 36 percent of the population is now infected with the virus (UNAIDS, 2000). As a result, collecting and using water becomes harder, because many women and girls must cope with competing demands of caring for the sick and doing their own work plus that of ill or deceased household members. Many of them are also infected and ill themselves. Sharing work among female family members has become harder as well. On the supply side, illness and death of agency staff and declining national economies further reduce the reliability of water services and efforts to build new systems suffer from the same constraints.

### *Improvements to water supply*

#### Multi-sectoral approach

Improving drinking water supplies does not happen in a vacuum. Water supply improvements in areas with a scarcity of freshwater need to meet both domestic and productive uses within the household. A team approach, combining social, institutional and environmental concerns is therefore more effective than engineering solutions alone.

Multi-sectoral water use benefits households, communities and national economies in three different ways. Firstly, it leads to better family hygiene and health, and so to lower private and public health costs. Secondly, it enables women to produce food for home consumption, with beneficial effects for nutrition, family health and child development. Thirdly, productive uses of water by women, and to some degree by men, save domestic expenditure (e.g. for housing) and create new, additional income. When women also control this income, most of it is used for family welfare.

However, in reality, domestic water supply projects are seldom designed for multiple and gender-specific household uses. In most countries, they are part of the social sector, which has a lower priority than the productive sector, and they have aims restricted to improved welfare and health. Water for production often comes only under the agricultural sector.

#### Flood and drought management

For poverty alleviation, a gender and class-sensitive, holistic strategy is required for flood and drought management that protects water, land and soil fertility. Too often, flood protection solves the problem of floodwater contaminating drinking water sources, but ends the process whereby each flood deposits a fertile layer of silt. In many areas, silt is crucial for poor farmers – both women and men – who, depend on it to maintain soil fertility. One straightforward, but largely missing, solution is that one organisation or cooperative body manages *all water uses* in a river basin and that its membership includes direct representatives of *all* affected groups – women as well as men. A number of other critical factors must be in place such as: political and financial resources to provide safe drinking water and adequate sanitation; sufficient resources to ensure compliance with industrial and municipal discharges; sufficient capacity to manage municipal waste water systems; etc. Representation of all affected groups, though vital, is only useful if systems are put in place to ensure that their voices can be

heard – for example, meetings must be held at times and places that make them accessible to poor women; the language must be accessible to all; traditionally disempowered groups must be empowered to express their needs and concerns and relationships of mutual dependency not be so strong that there is little or no chance that sharing of power and interests can be achieved.

**Community-based and large-scale water systems**

Small drinking water supplies are increasingly initiated and managed by user organisations and local governments. Future users and "sustainers" initiate their local project in the context of a larger rural or urban programme for decentralised water supply services. They make informed choices about the type of water supply that they want *and* can support and the type of local maintenance and management systems to keep the supply working and used by all. Strategies to ensure that poor women and men, as well as women in general, participate in and influence these decisions have led to a better gender and social equity. As noted earlier, they are also significantly related with higher sustainability and use of the services.



Large urban systems and comprehensive rural water supplies, however, remain more common (Majumdar, 1994). The choice between a single large centrally managed water supply and multiple locally managed community-based systems is not only based on physical conditions and economies of scale. Too often, it results from vested political interests and opportunities for private financial gain. End users are rarely involved in the choice between one large or multiple small water supplies, or in the combinations of technologies that will be on offer. Nor do they often participate in planning decisions on designs, maintenance and management of large water supplies. Yet it is their payments that keep these systems working and their use that is required for improved public health and wider development. Women in particular will decide whether they will actually use the water points of the new water supply.

In large communities, direct participation in planning decisions is not always possible and each group may then choose their own delegates who account back for decisions at higher levels. Working with only politically elected representatives is not a good alternative for such community decision-making, because political interests then often prevail over the interests of a reliable and equitable community water service, and women and the poor are under-represented or not represented at all. Direct representation is to be preferred because appointed representatives do not necessarily have a mandate from the groups that they represent and are not necessarily accountable to them (see, for example, the Chile Case Study in Chapter 6).

**Privatisation and urbanisation**

The formal private sector has established a place in domestic water supply, especially in the urban areas with their better opportunities for making profits. Private sector companies serve primarily middle class and higher income areas. Low-income urban areas have challenging social and physical conditions and low possibilities for cost recovery and so are of less interest to them. However, over half the urban population in the South live in low-income sections of the cities and this proportion is increasing. Supplying water to these areas is essential for enhancing development and reducing poverty. And, for better public health, a critical mass of at least 75-80 percent access to improved water supply and sanitation is needed (Esrey, 1994).

Viable solutions do exist for providing sustainable water services for the urban poor through public or private suppliers. There are examples of gender perspectives playing a helpful part in these types of solutions (van Wijk, 1998):

- Neighbourhood-managed piped systems branch off from the main water supply through master connections. Each master connection is metered and the users share the communal water bill and run the local system in a gender and poverty sensitive manner, (i.e. through mixed committees, which have been found to work better when women gain a more balanced say with men, and using weighted tariffs adjusted to actual water consumption - locally known even though connections were not metered- and exempting the very poor);

- Water companies train local women as fitters and plumbers and give households who cannot afford their own supply the opportunity of shared connections;

- Some companies bring together supply and demand for local employment by hiring local women as committed and trusted managers of water kiosks in their own settlement. At the kiosks, consumers can buy drinking water by volume year-round at stable and fair prices;

- Urban banks provide group loans to install on-site private water facilities to credit-and-saving groups, of which the majority are women's groups. There is a good repayment record for these loans when the conditions and administration of the loans are adjusted to suit the group, such as repayment in small instalments to trusted intermediaries in their own area and accepting group liability instead of individual collateral;

- Other ways of making water supply affordable to poor women and men include: block-tariffs, where the first block for primary uses is subsidised and larger consumers fall into a higher tariff; loans to pay off connection fees over ten to twenty years as part of the water tariff; collecting payments within the neighbourhood; and adjusting payment frequencies to the income patterns of the women and men (very few of the urban poor have year-round monthly incomes).

These sensitive approaches mean changes in attitude and a different mix of competences in institutions more used to dealing with large infrastructure water supply. The technical solutions and administrative systems that prevail in such institutions do not work for the urban and rural poor. The qualities central to finding viable solutions include a readiness to seek and test creative alternatives, engage social expertise and form multi-disciplinary teams with like-minded engineering professionals who have interest, experience and skills in gender and gender equity approaches, the adoption of a learning approach and sharing existing experiences.

**Organisational development and staff capacity**

For many people with an engineering education, practising gender and social equity approaches is new. Institutionalisation of the new ways of working requires active steps to be taken to build the knowledge and skills of staff. These include the development of gender policies and procedures, staff training and management encouragement and support. Organisational mandates and goals, job descriptions for engineering staff, and overall labour conditions and performance assessment systems may all need to be revised. An appropriate mix of disciplines - which often goes with better balance in numbers of male and female staff - also helps to achieve more balanced attention to social and institutional aspects of sustainability and equity.

Processes to integrate gender and social equity aspects in policies, legislation and regulations are underway in many countries. Both general legislation and more specific water-related laws and regulations are being developed that recognise differences and inequities between women and men and set out to redress the inequities. For example, a number of countries have set quotas for the proportion of elected political representatives that must be female. Although the measure does not guarantee that these women can represent the views of their electorates and will share the same interests, and many are new and inexperienced, it increases the chances of support for a gender-sensitive agenda giving priority to aspects like the improvement of poorly functioning water systems.

## Policy and regulatory overview of the subsector

In compiling this review of the extent to which gender issues are addressed in domestic water supply policy, GWA contributors analysed 71 policies, acts and regulations from 29 countries (the documents are listed in the Bibliography). Contributors distinguished documents not mentioning women at all, documents mentioning women only, and those mentioning gender or both women and men. They then identified the policy perspectives of the different documents – welfare,

Women-in-Development (WID) and Gender and Development (GAD), and their focus:

- Under a *welfare perspective*, the documents refer to roles of and benefits for women in their domestic roles only - mothers and housekeepers;

- Policies with an *anti-poverty focus to WID* stress that women also use water, time and other resources for production, e.g. in agriculture, horticulture and small enterprises;

- Policies with an *anti-poverty focus to GAD* stress the productive uses of project benefits by women and men and the differences in such uses between the sexes;

- Policies with an *efficiency/effectiveness focus of the WID type* stress the participation of women especially for programme success. Women's participation may lead to lower cost, better revenues, more effective maintenance, use, management, etc.

- An *efficiency/effectiveness focus in a GAD type* of policy stresses the importance of involving men and women, each in their own ways, for better project effectiveness, e.g. while men are chairmen for authority, women are treasurers for trustworthiness;

- Policies with an *equity focus* recognise that often the position, influence and benefits for women and girls are lower than for men and boys, while women's and girls' physical workloads are higher. The policy will aim at identifying and reducing such inequalities, preferably with measurable results. When the focus of this policy is on enhancing equalities between women and men, without going into other inequity aspects (such as caste, class, marital status), it is classified as having a *gender equity* focus.

- Policies with a comprehensive equity focus aim at reducing differences in human rights and well-being between women and men, and among women (or men) themselves. When the policies have an aim to ensure equal rights and benefits to all, irrespective of differences in wealth, social class, race, age, marital status, ethnicity, religion, etc. – they are classified as having a *gender and social equity* focus.

Because the reviewed documents are not a random selection from all sector-related policies and legal documents within a specific time period, the findings are not fully representative of the overall situation. However, they do show certain trends (Table 1). A revelation was that of the 71 relevant policies, laws and service regulations reviewed, 30 (43 percent) did not mention women or gender at all, although there would have been good reasons to do so. Many of these documents (45 percent of the 30) concerned national policies, codes and acts on drinking water supply. Nine others (31 percent) dealt with integrated water management, and the remainder with public infrastructure in general, agricultural reforms, rural development, and local government. Although the majority of documents on water recognise the special roles of women, or the differences and inequalities in roles of women and men, there are still many documents, from the mid 1990s to today, which make no reference to gender difference.

The table also gives details about the types of policies concerning women, or women and men. It shows that when policy makers are gender aware, they go beyond the domestic roles of women as users and beneficiaries. Within policies that focused on efficiency and effectiveness goals, the emphasis was mostly on what women alone could contribute and less on contributions also from men.

Of course, women themselves benefit from domestic water projects that are more effective and efficient. There are, however, also broader and more indirect benefits involved when women get equal opportunities with men to share in decision-making, training, functions, and jobs. These include greater social equality, realisation of basic human rights, enhancement of overall development, and avoidance of negative impacts from one-sided participation of women in water supply projects, such as overburdening of women and withdrawal of men. The table shows that policies that focus on more equality for women and men for reasons of efficiency and/or equal rights (26) were

**Table 3. Reviewed policies, acts and regulations on water and women/gender (N=71)**

| Region | No women /gender | Welfare | Women in Development | | Gender and Development | | Equity | | Total |
|---|---|---|---|---|---|---|---|---|---|
| | | | Anti-poverty | Efficiency/ Effectiveness | Anti-poverty | Efficiency/ Effectiveness | Gender | Gender & Social | |
| Africa | 6 | 3 | 0 | 5 | 0 | 3 | 5 | 3 | 25 |
| Asia | 12 | 1 | 1 | 10 | 1 | 4 | 1 | 1 | 31 |
| Latin America | 13 | 0 | 0 | 0 | 1 | 0 | 7 | 2 | 23 |
| Total | 31 | 4 | 1 | 15 | 2 | 7 | 13 | 6 | 79* |

** The total is more than 71 because eight documents had a mix of two types of gender policy.*

already more common than policies that simply stress women's participation for more effective services (15).

There is, however, still considerable room for improving the treatment of gender in many of the policies:

- *Translating gender analysis into action.* An analysis on gender is not always followed up in the remainder of the policy. The 1991 national water policy of Ghana, for example, contains a detailed analysis of inequalities between women and men, but fails to mention gender in the subsequent sections.

- *Using a crosscutting and internally consistent approach.* Many documents have addressed the roles of women, or the divisions between women and men eclectically in one or a few aspects. Not a single policy had a comprehensive and consistent gender focus throughout the text.

- *Recognition of a gender equity approach that includes social equity.* Not all women are the same. Poor women do not have the same needs and potentials as middle-class and upper-class women. This is also the case for men. A gender and social equity approach recognises that inequalities exist between the social groups and between women and men within these groups. As yet, few water laws and policies recognise both inequalities in combination. Those that do could address them in a more comprehensive manner. An example is the new South African water laws (see the case study in Chapter 6).

- *Eliminating the use of general and undefined social terms that hide inequalities.* Terms such as 'consumers', 'stakeholders', 'communities' and 'committees' conceal the fact that these general categories consist of women and men from different groups with different interests and capabilities. A number of policy documents include definitions of terms, but these are then limited to technical aspects and do not cover social and managerial concepts. Human statistics are not consistently disaggregated by sex, or by social development indicators.

- *More operationally formulated policies and strategies.* Country documents vary greatly in their level of precision on issues such as gender and community participation and gender and management. Mostly, they are discussed in general terms, emphasizing more participation of women, or a better gender balance in decision-making. Implications for processes and institutions, and accountability, are seldom addressed. Where policies set out principles and procedures more concretely, such as in the draft policies of Tanzania (1999) and Indonesia (2000), gender (or rather participation of women) has been addressed in a separate section.

- *Articulation of the roles, responsibilities and incentives for men.* None of the policies reviewed have extended gender analysis and approaches to men. A systematic coverage of male angles of hygiene, domestic work and use of water for male needs such as house construction and cattle, and their policy implications (hygiene promotion for men, conflict prevention and mediation) has so far been absent. The reviewed policies are also silent on the implications for men when gender balance is enhanced and they do not denote any specific advantages for men in actively supporting gender equalities.

## Gender in key sector issues

### *Access for primary water uses*

While all reviewed policies recognise access to safe water as a basic right for all, the applied standards are usually defined in terms of the number of litres per head per day for different service levels. Policies seldom define the kind of uses that a primary supply of water should cover and for which user groups. If uses other than domestic (drinking, cooking, bathing and laundry) are mentioned, it is for purposes that generally benefit men, such as watering cattle. The standard is often the same for everyone and does not reflect location in hot or more temperate zones or seasonal variations in temperatures.

The Water Code of the Philippines was one of the few policies found that explicitly defines the right of access to any water as a resource for different primary uses, irrespective of whether it is from a natural source, a drinking water supply or an irrigation scheme. Articles 14 and 33 state that any individual may draw water from any natural body without securing a water permit, and from any canal, aqueduct or reservoir of private persons, for bathing and washing, watering plants and watering or dipping domestic animals provided the water is drawn by using hand carried receptacles and without blocking the stream or damaging the canal, aqueduct or reservoir. The policy thus implicitly recognises the right of especially poor men and women to this basic resource in any kind of system. The owner (whom the code only sees as a man) may only restrict such use if it results in loss or injury to him.

Another case is the National Water Act of South Africa. Schedule 1 defines the right of access to water from water resources for a range of purposes such as domestic water use, food gardens, domestic stock watering.

### *Community based and large schemes*

Many policies mention participatory approaches for small systems managed by user committees. Where they give attention to women or gender, the emphasis is on participation of women or equality between women and men in decision-making. Few policies cover participation as a full process and few mention the roles of men.

No policies were found that address gender and poverty sensitive participatory planning and management in large schemes.

### *Social differences between groups of women*

Whilst the involvement of women in water committees is encouraged in a number of policies, the precise *role* that women should play or the *type* of women who should be involved is rarely specified. Whilst it is good to have more women on water committees, the type of representation matters a great deal too.

One section of the Indian policy calls for "prominent women" to be represented on committees. Since the meaning of prominent is not defined, such women may well belong to the local elite and pursue interests that are quite different from those of poor women. This also goes for consultation and participation of women's groups, which often represent only women from the local middle and higher classes. As a strategy for the development of the sector with the participation of the private sector, NGOs and CBOs, the policy calls for involvement of women's groups and elected women members of local bodies. So, the strategy recognises women and women's institutions as positive forces for the development activities. However, there is no mention of which types of women's groups will be involved and no indication is given of the representation of poor women.

### *Private sector*

Some policies (Bangladesh, Chile, the Philippines and Tanzania) mention the role of private enterprises in providing water in rural areas, but without referring to their relationship with or control by the communities they are to serve. Reference to accountability of the private sector to consumers was found in only one of the policies reviewed.

The Sanitation Code of the Philippines (P.D. 856) states that contracts with private parties must include performance standards with remedies for non-performance (Article 27). It does not specify to whom the sector is accountable and if, in case of accountability to user households, this involves accountability to the female as well as male heads of the households. Nor does it say whether this accountability includes compensation of the consumers/tariff payers if the private party fails to deliver the service defined in the contract. Some policies (Bangladesh, Chile, the Philippines, and Tanzania) mention the role of private enterprises in providing water in rural areas, but only the Bangladesh National Policy for Safe Water and Sanitation of 1998 mentions explicitly that an enabling environment will be created for women to play a key role in local community organisations and that these organisations will play a role in water management. The terms "key role" and "role" are not defined, but the intent is clear and commendable.

### *Urban areas*

Policies that deal with preservation of water resources for urban areas are quite new. The survey contained only two policies on urban water management.

In 2001, China issued what has been called the first industry policy in the field of infrastructure construction. This policy makes no mention of gender and does not include any gender perspective.

In contrast, the National Directorate of Water Supply and Energy of Mali has formulated a gender-specific policy for drinking water supply to the urban poor. Its resolution on the transfer of competence from the state to the communities with respect to urban water supply, of November 11, 1997, has equity between men and women as one of its objectives.

The policy describes in some detail the formation of user associations. Each association chooses either one man and one woman or two women representatives from two different households to the General Assembly of User Associations, along with two similar stand-by delegates. Groups that do not follow the policy will be sanctioned: they will have only one vote in the Assembly. A Supervisory Committee will verify the implementation of the policy and report to the General Assemblies.

### *Institutional aspects*

Few policies have so far addressed institutional issues at the programme agency level. Gender and poverty sensitive approaches require changes in staffing, staff training and management, field procedures and changes in the general institutional climate. Bangladesh and South Africa have made a start in paying attention to some of these issues. Both policies aim at redressing previous inequities, and in the circumstances, it may seem pedantic to expect more of them. However, for the benefit of others seeking to follow the Bangladesh or South Africa example, it is worth pointing out that neither policy mentions how the changes may impact men and what benefits there may be for men in supporting gender equity. Nor does an increased number of women in training and institutions by itself mean that graduates and staff, whether female or male, will practice gender and social equity principles in their work.

Objectives in the Bangladesh policy are "to bring institutional changes that will help decentralise the management of water resources and ***enhance the role of women*** in water management" and "to develop a state of knowledge and capability that will enable the country to design future water resources management plans by itself with economic efficiency, ***gender equality***, social justice and environmental awareness to facilitate achievement of the water management objectives through broad public participation" (Section 3, items d and f, emphasis added).

The South African White Paper calls human capacity building "the perhaps single most important factor in achieving wise and efficient water resources management". Lack of capacity development has been worse for women, "who have been informally excluded from the scientific and technical sectors". Emphasis must therefore be given to "training and skills development for members of disadvantaged groups, ***with a special focus on women***." (Section 7.3.1, emphasis added). The policy will also change staffing mixtures in sector agencies from predominantly technical and male to multidisciplinary, with a 1:2 ratio of female to male staff members.

In a review of current education and training for engineers in six countries in South Asia, gender and integrated water resources management emerged as the two main gaps (Saciwaters, 2002). Reviewed regulations that define the competencies of engineers, such as those in Chile, also give only technical competencies and so far have said nothing about development, social aspects, gender, and equity for the poor.

4.

### *HIV-AIDS*

As mentioned earlier, HIV-AIDS infections can be expected to have a tremendous effect on water services. Nevertheless, none of the reviewed sector policies and strategy papers have mentioned the implications or developed coping policies. The drinking water sector discussed the consequences for the first time in the 13th Regional Water and Sanitation Seminar in Nairobi in September 2001. Among the issues mentioned were the breakdown of the small private sector, too small to catch the interest of large water companies, a reduction in community participation, and increased labour mortality and lower labour productivity resulting in rising costs. Water payments drop as family incomes drop and medical costs increase. As the Director of NETWAS International said in his keynote address: "Unless mechanisms are put in place to halt the spread of AIDS, a scenario may arise where we will have few customers to provide water to, few effective service providers, few to provide labour, few experts to provide management and technical support to the sector."

Strategies decided on in Kenya have been to increase knowledge, means of prevention and care for sector workers and in South Africa to install simpler pumps (in terms of operation and repairs) with HIV/AIDS prevention messages for young women printed on the reservoirs (IRC Source Bulletin No. 22, March 2002). It is clear that these measures, important as they are, will by themselves not be sufficient to cope with the worrying effects. As both demand and the viability of higher service levels can be expected to go down, emergency scenarios might be thought of to tune down services to the reliable supply of a basic amount of safe water for each family. Good experiences exist for example in Guatemala and various parts of West and East Africa with women entrepreneurs. As kiosk holders they earn an income and provide a reliable service, sometimes with health education included, through selling safe water by the bucket, including to male vendors who deliver water at home. Sturdier handpumps, which such entrepreneurs manage under a community contract, are another option, as is the protection and upgrading of traditional water sources and water collection systems. The use and protection of such sources, whose importance as a resource for poor women, men and children may only increase, is specially mentioned in the Bangladesh and Philippine water policies, but they would benefit from adding strategies that reduce collection and allow holistic use for washing, bathing and small scale production.

## The way forward

In the last five years, considerable progress has been made in including gender and poverty issues and gender equity strategies in national water policies and regulations in the South. In this review, documents that are totally blind to gender issues were in the minority, although there are still too many. Within policies, a shift is evident from women to gender (the relative positions, participation and influence of women and men).

At the same time, the quality of the policies can be improved. This goes for gender in general as well as for combining gender with poverty perspectives. Correction of the use of gender-blind terms and defining the meaning of social concepts will put an end to the

current practice of presenting water users and providers as homogeneous entities. It is this practice that covers up social and economic differences between the groups and the women and men in them. In this practice, more attention is now also needed to the roles and positions of men and why they may be supportive of, or turn against, better gender equality in the sector. When water is also redefined as a holistic resource which has domestic, productive and environmental dimensions in design and management, it becomes logical to address these dimensions consistently in policies in all water-related (sub)sectors and from the perspective of each user group.

Governments and sector agencies are clearly motivated and willing to address gender and poverty in their policies and legal frameworks, but often lack the specific know-how. This review has shown that there is already a considerable presence of gender expertise in many countries and regions. Demand and supply can be brought together by forming regional or country review teams on gender and integrated water resources management with expertise on gender and poverty issues in the various water sub-sectors. Countries and agencies can call in such teams for assistance in policy dialogue and for linking improved policy to legislation and regulations in the sector. The teams can also meet the growing demand for expert advice on suitable contracts with the private sector that protect the rights of the disempowered to safe water and sanitation and basic resources for their livelihoods. Sharing knowledge between countries and regions through workshops, mutual reviews and other forms of cooperation can also be an excellent way of making further progress towards better water policies, legislation and regulations.

Once cooperation teams have been formed and sharing and review sessions on national policies and legal regulations have been implemented, a logical next step would be to move to the analysis of policy application at the agency level along with members of the implementation agencies.

Due to limitations in time and funds, policies of bilateral and international agencies engaged in supporting water resources management have not been included in this review. Initial investigation indicated a variety of approaches and levels of integration. It can be expected that a comparative review involving an independent North-South team can bring out policy insights and inter-agency learning in a similar manner as has happened for the policies which have been analysed in the current chapter. Such an additional analysis of donor policies would then logically follow into an analysis of policy implementation in selected support projects in the region(s) and hands-on assistance with further strengthening.

The same goes for national policies of which 71 have been analysed here. It will be important to follow analysis of the policies, with a review of their actual implementation in the field – many good policies do not get implemented for a variety of reasons. It is only by learning these reasons that they can be addressed. This chapter has shown that the expertise for such analysis is increasingly present and countries can benefit from putting it to use. ■

Chapter 5

# Water for Food

## Introduction

As a sector of water use, 'water for food' is far and away the largest user of freshwater. Irrigated agriculture provides some 40 percent of the world's food and in doing so consumes about 75 percent of its renewable freshwater resources.

**Statistics on Water for Food**

Globally, 91 countries, representing the vast majority of the world's population, utilise more than 50 percent of their total annual freshwater extraction for agricultural purposes. Figures range from as high as 99 percent of total freshwater abstraction for agricultural purposes in both Nepal and Afghanistan to 0 percent in Finland and Switzerland. In sub-Saharan Africa where availability of water is crucial for food production the figure is low, around 9%.

(WB, WDI 2002, WRI, UN FAO – see end tables of selected gender and water indicators)

The sector is under increasing pressure from competing uses, more people and higher demands for water for domestic, industrial and leisure uses. Integrated water resource management (IWRM) is vital, but slow in coming and limited in its impact up to now. Global climate change also adds to the complexity of keeping water-use systems sustainable. It has been shown that women lose out in conditions of scarcity unless gender-sensitive policies are adopted (Venkataswaran, 1995)

In assessing gender sensitivity in relation to water-for-food, other policies must be taken into account too, such as those governing access to land, access to credit and markets, and rights and access to water. Within the sector, water use for formal irrigation, informal, peri-urban or micro-irrigation, water harvesting, water for livestock, and soil-water conservation strategies must be included.

The analysis is not encouraging. Failure to address the needs of poor and disadvantaged groups threatens the sustainability of productive water projects and programmes. Typically profits are low and water management is poor and often wasteful, contributing to environmental degradation. New developments often diminish the common resources, such as rivers, or wetlands, that provide the only livelihood for very poor people. The world uses around four times as much fresh water as it did in 1940 and a huge increase in use is forecast in developing countries that are already short of water (World Bank, 2000). Poor people will suffer, and because women constitute over 70 percent of the world's poor, this will be a particular problem for them. Access to water depends on access to land, control of resources, development of capacity and social networks, all of which are more severely restricted for women than men.

Despite the creation of the Convention for the Elimination of Discrimination against Women (CEDAW) more than 20 years ago, many fundamental differences persist between the situation of men and women. In her keynote address 'Women informing change', Nidhi Tandon, Principal of Networked Intelligence for Devel-

opment, Canada, told a recent e-conference that despite official speeches and mandates, there is little evidence of fundamental change in the balance of power between women and men in relation to land and water. She went on to comment that *'because women lack control over land in communal areas, they often have no other option but to seek employment as agricultural workers under highly exploitative and insecure conditions. The male biases in labour market regulation, in property rights and inheritance laws continue to restrict and shape the activities of women.'* Articles 13, 14 and 15 of the Convention which deal with economic life, discrimination against rural women and equality before the law are particularly relevant to the use of water for food.

Against a background in which women provide the majority of agricultural labour, this chapter looks critically at a selection of national water-related policy documents from the developing world, in a bid to gauge how policy deals with gender in relation to water for food. It seeks to show how legal and institutional frameworks could better support pro-development policy if explicit reference to gender was strengthened.

## Key issues

### *Sectoral inequities*

Many water development programmes and projects have had disappointing outcomes. Poor results have arisen from policy environments that offered little support for water users and reflected a particularly parsimonious approach to poor and disadvantaged users. On the positive side though, it is increasingly being realised that policies must promote inclusion, equity, and participation.

As bottom-up processes replace top-down strategies, people's different needs must be recognised if sustainable progress in food production is to be achieved. However, gender disparity has been systematically ignored in agriculture and particularly in relation to:

**Land tenure**, in which men and women have different experiences and expectations regarding inheritance of land and the social reality of their claim to communal property.

**Access to water** in which women have low expectation and influence.

**Participation** in which men and women have different expectations and experience, juggle different responsibilities, and respond to different time schedules, social networks and meeting places.

**Resource control** that reinforces stereotypical roles and social norms, by directing technical and financial control to male farmers.

**Capacity and skill development** influenced by established social roles and reinforced by gender-insensitive educational and economic policies and established civil society structures.

**Marketing and commercial linkages** that follow well-established, male-dominated paths.

Disparities affect men and women's access to all livelihood resources. Natural resources such as land and water are not equitably distributed, nor is change in the distribution easily achieved; affirmative action is needed. Physical resources and associated infrastructure have not taken gender into account and often exclude vulnerable groups. Financial services for agricultural production are perhaps least well distributed and accessible, limiting women, youths and elderly farmers to very restrictive conditions. Human development too eludes those women and elderly people whose low school attendance and lack of literacy hampers their food production and marketing potential. The historic social construct of gender has significant influence on how people can use water to improve their livelihoods. However, relations and bargains between different individuals and different groups are dynamic and respond to changes in gender disparity in different spheres and local settings so different successful gender-mainstreaming strategies are likely to emerge. Gender issues relating to water-use in agriculture are further complicated by other concerns associated with intensification such as:

- High-value irrigated crops are vulnerable to unreliability and poor timing of water delivery. Thus management, operation and maintenance of irrigation or water harvesting systems must be within

the capacity of the agency or farmer organisation concerned, if positive, sustainable outcomes are to follow.

- Institutions and governance arrangements are the primary influence on input availability, extension advice, farm services and the level of profit. Irrigation systems particularly depend on efficient and equitable organisation of these services, otherwise performance and benefits are erratic and insufficient for long-term sustainability.
- Reliable and relevant market information, market access, and some degree of price-stability are essential ingredients for success.

Each issue has a gender-dimension, in that they pose different problems for men and women, rich and poor, old and young. A further complication arises because most formal agricultural water distribution systems rely on infrastructure designed for central management, yet governments world-wide have embarked on Irrigation Management Transfer (IMT) programmes in which farmers and rural communities become managers of water within IWRM frameworks. Transfer policies often imply management by committee, which is not a strategy well suited to business management, nor one that necessarily improves the gender mix of decision makers. Existing support mechanisms often assume male participation and are ill suited to women users.

Stakeholder participation is a pivotal precondition for establishing sustainable water systems (Ostrom 1992, Cernea 1985). Achieving participation initially depends on policies that include a budget line for it. The budget is habitually inadequate because of failure to recognise that:

- Participation is not a natural aptitude of either water sector professionals or water users. To work well and become a truly inclusive process it requires significant resources, education, clear rules and transparent practices.
- In the past, participation has been highly selective, favouring better-off and powerful water users thus concentrating experience and political power further into their hands and making change more difficult.
- Inclusive participation needs to provide opportunities to reduce inequities in access to land, control of resources, both financial and physical, and the valid aspirations of different groups of people (Venkateswaran, 1995). It can only do so by addressing real issues, using real information about resources and requirements of different groups.

### *What gender mainstreaming in the 'water for food' sector would address*

**Economic performance**

Research in South America, Africa and Asia reveals that women are good farmers (Agarwal, 1997; Merry and Baviskar, 1998). When compared with men, and matched in resources and skills, they perform well, often obtaining better results from their more conscientious labour inputs and attention to detailed management. However, their poor resource position and social inequity mean that the majority of women produce less and suffer higher production risk than men. Sector and national economies could improve dramatically if policies enabled women to contribute better. Given that women constitute the greater proportion of the poor, and that savings are low among poor people, money in the hands of poor women will be spent and will contribute significantly to the economic activity of developing countries. It is therefore a benefit to the whole of society that policies pay particular attention to poor women in the distribution of water for food. Women are central to development (Sen, 2000).

**Social and economic equity**

The social order in many countries of the world is undergoing significant and rapid change, as educational opportunities become widespread. Not everywhere is the spread even and, in some places, opportunities are constrained by the dominance of stereotypical roles. Males are encouraged to engage in technical and scientific areas whereas women are offered domestic and less challenging opportunities, thus perpetuating male decision-making in the very sectors upon which development depends. Policy must therefore consider not only the practical needs of women (which has often had the effect of strengthening existing gender-roles), but the strategic need to address inequalities between women and men, ex-

**Table 4. Features of a gender approach to water for food**

| Issue | Features of a gender-mainstreaming approach |
|---|---|
| Land Tenure | Transparent methods and clear criteria.<br>Gender-sensitive allocation of land.<br>Flexibility for individual changes in circumstances.<br>Validation of different needs and claims. |
| Participation | Regular monitoring of the quality and quantity of participation on a gender basis.<br>Establishing monitoring as an internal tool.<br>Particular attention to women's and men's participation in setting objectives and decision making.<br>Balance of rights and responsibilities. |
| Resource control | Taking account of disparity between men and women in control of labour, cash, land and factors of production and implications for water use.<br>Recognising the complexity and importance of bargains between men and women in family and productive arenas.<br>Addressing lack of resources where possible to minimise the impact on access to water for food. |
| Capacity building and skill development | Promote equity in access to information and in skill development opportunities.<br>Develop staff knowledge about, skills for and commitment to gender equitable approaches to work, through training and on-going support.<br>Develop gender equitable institutions to encourage overall equality of workload, well-being, and freedom.<br>Promote conflict resolution and conciliatory action. |
| Commercialisation and reduction in dependency | Develop policies that actively encourage interaction and information flows at all levels.<br>Promote and emphasise pro-poor strategies. |



tend women's freedoms and opportunities and their long-term contribution to national development.

Table 4 suggests some strategies that ideally would be part of gender-mainstreaming policies and relate to the key issues already identified.

An encouraging example comes from Bangladesh, where the liberalisation of rules governing the use of shallow tube wells, along with improved financial services through the Grameen Bank and BRAC, has led to a marked increase in local farmer investment in wells. Groups of women who have been able to invest in wells have benefited in skill development, income and productivity and, despite some loss of social status associated with agricultural activity, plan to increase the scope of their involvement in irrigation. Investors and labourers both benefit, but more significantly the gap between them has reduced, demonstrating a pro-poor impact. In this case the impact for poor women has also been significant, firstly through sharing in greater family wealth and secondly through the creation of non-farm rural employment.

## Policy and regulatory overview of the sub-sector

### *Policy overview*

In the past, policy relating to water for food has aimed to protect the rights of landowners to use water sources

on their land or from adjacent rivers. It has also protected the rights of those who built infrastructure to capture water at a distance from the land on which it is to be applied. In common with other policy that influences the sector, it has not given attention to women. Water laws generally favour landowners, often rich people whose ownership over generations has accrued them wealth, or people not indigenous to the region, descendants of long-gone colonists born in the country and with current rights of citizenship, or corporations and companies. Meanwhile those using communally-owned land have been neglected. The issue is complex and cannot be dealt with here, save to note that women do not feature equitably among landowners. It is only recently that the concept of individual rights to water has influenced water policy. Water policies in general favour men over women, simply by failure to refer explicitly to gender. Low adult literacy rates among women in developing countries, limit the potential for lobbying (UNESCO estimates that female literacy is 63 percent of male literacy in developing countries). The impacts of policy in other sectors, particularly education, governance, land, inheritance, labour, and agriculture are very significant to the use of water for food.

What sort of policy will effect change?:

- *Agenda 21 and the Millennium Declaration* both recognise gender as a central component of sustainable development.

- *Human rights* are at the centre of sustainable development and must be used to reduce the unfair burden of poverty on women as well as to improve sustainable development.

- In Asia, *gender, caste and class* are inexorably linked and in most cases, dealing with gender as a separate issue fails to recognise the crosscutting nature of gender disparity. A key challenge for irrigation management lies in managing conflicting interests in the face of limited resources and very varied entitlements.

- Decentralisation can offer women great opportunities if elected bodies are accountable and representative and if women's involvement is accompanied by practical interventions for their empowerment. However, decentralisation may not be enough unless gender mainstreaming receives emphasis in related sectors. The importance of gender mainstreaming in local government is crucial. In Uganda, as in a number of African countries, one third of the seats are reserved for women candidates. However, implementation of the policy can create problems that reverse the intention. The women occupying reserved seats often lack credibility in the eyes of those who consider themselves to be 'rightfully elected' and the women may find difficulty in influencing decision-making.

Apart from attention to the key issues illustrated in Table 4, policy characteristics that are expected to increase impact will include:

- explicit mention of gender issues

- links with related policy

- participation and representative systems

- capacity building and education aimed at redressing former gender inequalities

- budgets for pro-poor and gender mainstreaming

- monitoring outcomes of policy on a gender basis

### *Regional/National analysis*

The examples that follow demonstrate some progress in moving towards more gender equity. They show too that there remains a long way to go.

**Southern Latin America**

The MERCOSUR economic zone and its associates dominate Southern Latin America with a population of about 240 million people, 170 million Portuguese-speaking and the rest Spanish-speaking. There are broad similarities in cultural, social and economical situations. The high level of external debt has a great impact on the economical development causing stress on production activities, reduction of health and educational services, inequities, high levels of poverty, lack of opportunities and social exclusion. A signifi-

cant number of the population lack minimum requirements for dignity and welfare. Water availability in adequate quantity and quality is an important factor for development in the region. In South America 70 percent of the water used is for irrigation, 17 percent for domestic uses and 13 percent for industrial activities, mostly concentrated in Brazil and Argentina (Bocanegra, 2001).

The workshop on Gender Mainstreaming in Water Resources Management during the IV Inter American Dialogue on Water Resources Management, held in Foz do Iguaçu, on September 2, 2001, and sponsored by the Gender & Water Alliance (GWA) says in its declaration:

*'The participants recommended higher participation of women in the planning and holding of water-related conferences and events.'* Although it was referring to water supply and sanitation, the same plea applies in the water for food sector. Whilst some changes are in progress in public policies and there are examples of civil society initiatives increasing women's participation, in general the role of Latin American women in the management of water resources is insignificant. Most women who are closely concerned work in universities and not in the water management and decision-making process (Bocanegra, 2001).Changes are in progress in public policies encouraging participation and society initiatives, although there is some doubt as to their effective implementation to impact on the rural poor, many of whom are women, as in the case of Mexico.

On June 11, 2002, the United Nations Economic Commission for Latin America and Caribbean (ECLAC), the United Nations Development Programme, the Inter American Bank and the World Bank signed a cooperation protocol for the implementation of the Millennium Declaration's targets. This aims to accomplish certain targets by the year 2015, including:

- Poverty reduction;
- Universal basic education;
- Gender equity and women empowerment in society; and
- Strengthening mothers' health and other health and environment issues.

ECLAC has proposed applying gender indicators at regional level in follow-up and evaluation of the Regional Programme of Action for Women 1995-2001 and the Beijing Platform for Action, but it does not refer directly to water-related issues. However, the new multilateral protocol for implementation of the Millennium Summit's targets promotes the necessary changes. Water is specified as the crosscutting issue for promoting sustainable development in the region.

It is a continuing challenge to promote attention to gender issues in the water management policies of Latin America, particularly in the southern area. One significant contribution could be to urge on ECLAC a review of its proposed gender indicators to include water issues.[5]

**Sub-Saharan Africa**

Much African agriculture has to cope with water-short environments for at least part of the year. Over the decades, a hugely increased population and changes in the rural social structure as a result of colonisation, independence, urbanisation, land reform, climate change and disease have combined to produce a rapidly changing, complex production environment. Management of water for food is crucial in most countries, where agricultural production is a major contributor to gross national product. Rural people, particularly poor women, the old and the disabled, are poorly equipped to meet the challenges of change implicit in current policy and legal frameworks that devolve management to them. Their lack of skills and resources is not generally taken into account or budgeted for in policies.

African irrigated farming, livestock farming and arboriculture are typically small-scale and under-resourced. They all depend on management of water. Mechanisation is minimal and production is often far from markets. Farmers face high transaction costs and high physical risks like droughts, floods and destructive pests. In most African countries, low levels of storage infrastructure contribute to the irregular supply of water, making irrigation and farming developments dependent on seasonal and annual variations

[5] The full version of this report is available with references on the GWA CD or website

in water availability. Most human labour for agriculture, particularly in irrigated farming, is supplied by women, few of whom have land rights that entitle them to a say in policy-making decisions that relate to land and water.

**Zimbabwe**

**Q. Were you involved in deciding the design of the scheme?**

A. "Only the farmers whose fields were incorporated in the scheme were informed about the government's decision to take their dry land for irrigation purposes. Some of us just used to watch them do their work on the construction of canals but all we could do was just wonder."

*Women at Mabvute, Matshalaga (1999).*

Land allocation policy is crucial to understanding water rights or allocations. There is wide variation in these policies; from the ancient 'desai' land and water allocation systems in Eritrea and Ethiopia to the new South African water laws. For many countries the regulation and monitoring of water use is relatively new and information is scarce as a result. Equally new is the debate surrounding gender, the focus of which is on health and family planning. Gender is largely ignored in water-use policy, though the South African Case study in Chapter 6 shows huge strides forward. Many sub-Saharan African countries are already water-short and conflict between sectors may reduce the availability of water for food, as this is invariably the largest consumer of freshwater. Unlike in South Africa, policy seldom deals with reduction scenarios and in general fails to address the gender implications of possible reduction or the issue of who bears the risk. In the Nile catchment, international agreement on sharing of waters is an important issue for women of the region, particularly as it affects timing of crop production and thus food security.

**Asia**

In contrast to Africa, many Asian countries have vast freshwater resources that have historically led to irrigation-based agricultural sectors. Population expansion forces them to expand further and significantly to increase the efficiency of water use. Policies tend to focus on efficient water use and expansion of cultivation, to the neglect of equity and human rights.

Dominance of the caste system in Asia further inhibits the establishment of frameworks that enable poor people, women and disadvantaged groups to benefit from water resources for food production in an equitable way. The Case Studies from Bangladesh and Sri Lanka in Chapter 6 show that there is still a long way to go to incorporate gender perspectives in policies for water for food. The generality of the policy statements fails to rectify the disadvantages women experience in relation to water management decisions. Policy ignores existing gender inequalities in relation to resource control for use of water in food production.

Where water for food is inextricably linked to water for nature, then policy is also wanting in the way it deals with the needs of people who rely on common resources such as forests, freshwater fisheries and swamps for their food (see also the discussion on Water for Nature in Chapter 2).

## The way forward

With isolated exceptions, gender mainstreaming is happening only slowly and ineffectually in the water for food sector. Affirmative action is going to be needed if the rhetoric of international meetings is to become reality in national policies and institutions. The analysis points to some key recommendations:

**Budgets for gender-mainstreaming and significant advocacy must be part of the policies of governments, international agencies and donors.**

As the analysis shows, water policy, as it relates to the use of water for food, is largely blind to the gender roles and resources of the individuals who will use that water and fails to recognise their equal rights to sustainable water. Recently constructed policy, such as that in Bangladesh and South Africa, is more likely to take account of CEDAW but the legal frameworks that support the policies tend to be weak. Weaknesses stem from failure to mainstream attention to gender issues in the policy as a whole. Any attention to gender issues tends to be marginal, often relating

to health. The understanding that mainstreaming gender in water policy will contribute to sustainability is lacking in many developing countries, if not globally. Good research is being done and results can only be disseminated through advocacy at this stage. The long-term impact of that advocacy on integrated water resources management, agricultural planning and development of infrastructure for food production must be monitored if the case for gender-mainstreaming is to stand scrutiny.

**A key practical step is building gender issues into extension training and employing more women in extension services. This would help delivery of gender sensitive policy and alert policy makers to gender issues. Policy can explicitly require gender training at this level.**

Poor people, disadvantaged people and women still bear the risks of production to a greater extent than those at the wealthier end of the scale. This is true in both developed and less-developed countries, but the livelihoods of women are dramatically affected in the latter. In Africa, the major source of advice and communication with government for small farmers is their national extension system. These systems are largely geared to men farmers and are universally under-resourced. Resource-poor irrigators and women are known to be disadvantaged in access to extension services, but even for farmers who have good access to extension, the opportunity to influence policy is remote. Few of the people who apply water to crops in the field have direct communication with the makers of water policy. Formation of water user associations is generally more advanced in Asia and Latin America than in Africa but policy leading the process has not addressed the question of gender. The legal frameworks surrounding WUA formation should be explicit on gender and assert principles of equity and non-discrimination.

**Progress monitoring should be through gender-disaggregated data so that the value of gender-sensitive policies will be appreciated and governments will benefit.**

Policy relating to water for food could become more responsive through monitoring policy outcomes on a gender basis and learning lessons from past experience. Otherwise policy will continue to fail in its intention by over-generalisation. Positive action is needed to ensure that lessons are spelled out for future policy-makers.

**Advocacy for water sector gender-mainstreaming can have impact by targeting institutions outside the water sector, particularly in education and community development.**

National institutions that deal with water for food and formation of policy do not generally have a gender-balanced workforce. Decision-making within the organisations is male-dominated and lines of communication from ministers right down to community level depend on formal and informal male dominated, non-poor networks that exclude minorities and non-powerful groups. Informal women's networks are growing, and need strengthening so they can influence formal processes. Alerting women to water management and policy forming careers in schools and other educational institutions must be promoted.

**Mainstreaming a gender perspective in the water-for-food sector will:**

- Increase the relevance of policies for the majority of people involved in producing food by using water.
- Rectify imbalances in access to water for food that have resulted from unclear policy.
- Raise awareness of the need for horizontal policy links, with agriculture, financial and managerial services.
- Increase the equal spread of benefits from water for food.
- Contribute to sustainable development by benefiting the poorest.

Chapter 6

# Case studies and listing of reviewed documents

In their reviews of policy documents and legislation for this report, GWA members identified a number of country examples from which important lessons can be drawn. South Africa stands out as a country where a focus on gender and poverty eradication permeates all aspects of water policy. The situation in South Africa is elaborated in some detail here, as it has innovative concepts and approaches that may provide models for others to adapt and adopt. Individual experiences in other countries are seen as valuable too – some as examples to follow, some as pitfalls to avoid. In each case, comments are attributed to the GWA members who contributed them. Fuller details of the individual contributions are available from the GWA on CD or from the website: http://www.genderandwateralliance.org.

Following the Case studies is a listing of the documents reviewed for each of the sectoral analyses in Chapters 2 to 5.

## National Policy on Water and Gender

### *South Africa*

Policy development usually is a very closed and official affair with very limited opportunities for public inputs except through elected politicians. In South Africa, the process was thrown open when the end of the apartheid era also put an end to the coalition of the economic, political and intellectual elite that had held absolute power in the country. To develop a new water law, the new Government published a booklet in 1995, entitled *You and Your Water Rights*. This was followed in 1996 by *Water Law Principles, a Discussion Document.* The purpose of the booklets was to inform the public about the principles and rights of the newly drafted water law and to invite their comments. The principles were given wide publicity in several South African languages. The two publications gave rise to a series of public workshops, including nine workshops at provincial level, focus group meetings with stakeholder representative groups, international and national expert consultations, public awareness campaigns and public or invited comments on draft documents. Stakeholders involved in the consultation process ranged from organised agriculture and industry to rural community groups.

The initial discussion document said nothing about gender and the resulting White Paper, published on April 30, 1997, does not say who was involved in the consultation process. However, it is evident that the gender lobby was strong and effective, as the White Paper contains many references to poverty and gender.

Among other aspects, the paper stresses the importance of *provision of information* to women on issues of specific interest to them, such as water purification, and their *representation on water committees.* Regarding Catchment Management Agencies, though it does not yet refer to a balanced male/female membership or mention the representation of interests of *poor* women and men, the *goal* of women's representation is said to be "*ultimately in catchment management agencies*" (Section 7.2.4, emphasis added). The paper also states that "It is important that women are represented at all levels and in all spheres of water

management activities, in political, technical and managerial positions" (Section 7.3.3).

A special emphasis is laid on the equal right of the poor to water. This emphasis was actually part of the preparation process. Prior to each of the one-day provincial workshops, a special preparatory workshop took place in the vernacular language with the historically disadvantaged groups. In this way, people understood the process and what they could expect from their participation, in particular that general discussions on rights could not be mixed with requests for services. More recently such requests are noted down and followed up, or the participants are given information on whom to contact. Insistence from the Minister on 'understandable language' and a small groups procedure in drafting involving many disciplines made the text highly accessible to the common readers (De Lange, forthcoming).

Another key issue addressed is the more balanced division of work opportunities in water sector agencies for women and men, with equal payment. This point is further guaranteed by national quotas set by the government for balanced representation in government departments, and is not without its effects. At a press conference during the International Conference on Freshwater in Bonn in December 2001, one agency director reported that everyone, including himself is accountable for achieving the national quota that one third of the Departmental staff must be women. He also mentioned that non-compliance has negative implications for one's salary and career!

The Water Services Act of 1997 and especially the National Water Act of 1998 specify the need for equitable representation. The Services Act states in Article 3 (1) that for nominations of new Board Members, the selection panel that advises the Minister must "*have regard to race and gender*". The National Water Act specifies that the Minister who appoints the Board members of the Catchment Management Agencies "must do so with the object of achieving a balance among interests of water users, potential water users, local and provincial governments and environmental interest groups". According to clauses 10b and 10e, the Minister may also appoint additional members "*in order to achieve sufficient gender representation*" and "achieve representation of disadvantaged persons or communities *which have been prejudiced by past racial and gender discrimination* in relation to access to water" (Article 81 (1), emphasis added).

Water for basic human needs is defined in the Water Services Act as 25 litres per person per day within 200 m of the home. Water for productive purposes is not defined, but schedule 1 of the National Water Act allows water to be taken from water resources for domestic purposes, for food gardening and for domestic stock watering, which has implications for the design criteria and operation and management of rural water services especially. Pending issues include water sufficiency for various uses in the different geographic and climatic zones of the country and implementation of gender equity with a poverty focus in projects in the field. The Act does however provide for an "Environmental Reserve" – a development that will be closely watched by other countries interested in ways of calculating and safeguarding "water for nature".

It is early days for the new policies to show their impacts. This goes especially for gender equality in speaking out and having an influence in mixed meetings and committees and in helping communities to develop rules and regulations that account for local variations in poverty. For example, the "flat water tariffs for all" policy that many user communities initially adopted did not take into account that in households that are relatively poor, the amount of water used per person per day is considerably lower than the amounts used in the households of the more privileged. The flat tariff approach has therefore now been superseded by the Free Basic Water policy in which the first 6000 litres per household per month are to be provided free of charge. This policy has already been implemented in a large number of municipalities and the rest are in the process of developing implementation plans. The Department of Water Affairs and Forestry in South Africa has furthermore initiated a mainstreaming gender project, which includes training programmes on gender for water professionals and practitioners run by the National Community Water and Sanitation Training Institute (NCWSTI).

**Jury is still out on Water for Food in South Africa**

One mechanism that will link the catchment management agency (CMA) with the users will be Water User Associations (WUA), which are presently being registered in some areas in South Africa. In relation to water for food, these are often formed from irrigation scheme members or groups of commercial irrigators, both of which are dominated by men. Transformation and reform have tried to include women. The state, as the custodian of water resources, has the responsibility to ensure that women, at all levels, in rural, quasi-urban and urban areas, have equal access to economic activities and opportunities in relation to water. The processes involved are democratic and consultative, and include historically excluded stakeholders, like urban and rural women, and those who had no access to water. The result should be a major shift from inequality to universal access.Much of the water used for food production in South Africa is managed privately. Statistics relating the quality of management to the gender roles of the managers is not available but men dominate control of the resource in private use. Thus the role model provided, although it may be technically admirable, does not include women. Water for food, controlled by government in the recent past, is largely to be turned over to community-based organisations who will manage on behalf of the entire community. Many are destined to become WUAs answerable to CMAs but community management is not necessarily gender-sensitive, even where the numbers of men and women involved in it might give that impression. It will be important for monitoring at both levels to be gender aware and analytic.

*Based on contribution from Adam Okot*

While stressing that there is no one gender policy, and no one blueprint for all cases, Barbara Schreiner, Senior Executive Manager (Policy and Regulation) in the Department of Water Affairs and Forestry, has recently listed a number of questions for testing whether a water policy truly combines equity on gender with equity for poor women and men.

- Are the needs and problems of men and women, and of poor men and women relative to the privileged, known and addressed?
- Are the voices of men and women, and especially poor men and women, heard and do they take part in decision-making?
- Who makes the decisions?
- Who has the information on which decisions are based?
- Who does the different types of work in water supply and water projects? And who is paid for the work?
- Who bears the costs? (And how equitably?)
- Who reaps the benefits?
- Who is most at risk and made vulnerable from a lack of water?
- Who is affected negatively by macro-level policies e.g. water pricing and pricing of agricultural products?

The list provides an excellent base to monitor whether gender and social equity are incorporated in the application of the new policies, provided it is coupled with verification mechanisms and institutional power for corrective action.

### *Bangladesh*

Bangladesh is primarily an agricultural country of 129.2 million people, just under half of whom are women. With a per capita income of around US$300/annum, more than half of the population still lives in extreme poverty, measured in terms of minimal calorie intake per day. There is much pressure on the supply of nutritious food. Nation building and socio-economic development depend on women's participation in agriculture and water management.

Women in Bangladesh, like many other Asian countries, are constrained by social norms and economic poverty, leading to high rates of fertility and illiteracy and low status compared with men. They lack access to food, income and land; they are restricted by social and religious norms of seclusion and segregation; and they shoulder responsibilities as daughters, wives

and mothers. Despite this, many women are socially and economically active, albeit informally. Their legal rights under Muslim law are limited by their low economic status.

Women's rights to equality, and affirmative action, are guaranteed in the constitution of Bangladesh (Article 27). Women have equal rights with men in all spheres of the state and public life (Article 28/2); nothing shall prevent the state from making special provision in favour of women or for the advancement of any backward section of the population (Article 28/4). The constitution advances and incorporates the principle of special representation of women in local self-governing bodies such as Union Councils and Municipal Councils (Article 9), and in parliament (Article 65). Although women's equality and development are accepted in principle, initiatives are limited and progress slow (Planning Commission 1998). The National Agriculture Policy (MOA, 1999) promoted stereotypical activities for women like post-harvest operations, seed preservation, nursery business, jute stripping, vegetable cultivation, homestead gardening, floriculture, production of horticultural seeds, establishment and management of cottage industries based on local produce.

The main objective of the recent Fifth Five-Year Plan (1997-2002) was to integrate women's development into the macro framework and to reduce disparity in all sectors through the integration of women into mainstream development efforts. Developing the skills of women is expected to increase the productivity of women's labour substantially and create a new opportunity for women to earn income. No explicit link is made between poverty and water management in the gender approach. Conscious efforts have been made to facilitate women's participation in the planning and formulation of sectoral programmes/projects at all levels (union, *Upazila* (i.e., sub-district), district and national). However, the lack of a comprehensive integration of gender aspects in development planning and monitoring has hampered progress.

Bangladesh adopted a *National Policy for Safe Water and Sanitation in 1998*. As a policy principle it states, "Since women play a crucial role in water management and hygiene education at the household level, recognition of women's role will contribute to the overall development of the sector." References are also made to inequities between rich and poor in access to water and sanitation services, and the text assigns priority to underserved or unserved areas.

The current text stresses however only the traditional reproductive roles and tasks of women in household water management and hygiene education. It could be much stronger if it recognised also women's productive roles in the family and men's roles as husbands and fathers in water management and hygiene. Only then could the policy hope to change the unequal division of labour and benefits between men and women. In the Bangladesh context, different arrangements are needed for women and men, girls and boys in poor as well as middle and upper class strata to address both the sexes equally. By adding this type of analysis and statement to the text, the policy would develop a better focus on gender and social equity (Rokeya Ahmed, WATERAID).

In comparison with the 1998 *National Policy for Safe Water and Sanitation*, the 1999 *National Water Policy* of the Ministry of Water Resources is more advanced. First, its objectives explicitly include women in three places: (1) to take women's and children's needs into account when providing water for all, (2) to bring institutional changes that will help to decentralise the management of water resources and enhance the role of women in water management and (3) to make gender equity part of national knowledge building (Sections 3b, d and f). Under Public and Private Involvement, the policy mentions the specific roles and interests of women in water management. It stresses that an "enabling environment will be created for women to play a key role in local community organisations for management of water resources" but without defining or specifying the meaning of this kind of environment (Section 4.4, h).

In contrast, Sections 4.6-4.12, which deal with the different sub-sectors of water resources management, mention women only once, in the section on water supply and sanitation. Here, the reference is limited to "the special hardship for women who have to carry water over long distances, with significant impact on their health and productivity". No mention is made of

such typical gender issues as the access of women and men from the different strata to project information, local planning and management decisions, training, functions and jobs, the division of paid and unpaid work and accountability to men *and* women heads of households by contractors and service managers. In the sub-sections on water and agriculture, industry, fisheries, navigation, hydropower and the environment, the different roles of women and men and their relationships with the use and management of water and land are not addressed at all.

Another area needing strengthening is in combining gender and poverty issues. The national water policy addresses the interests of the poor in eight different places. However, it does so without differentiating for gender. Bangladeshi researchers have amply demonstrated that, among the poor, the work, interests and opportunities of women and men are different. Poor and better-off women and men differ for example in the amounts of water they use for different purposes, in their homes as well as for various kinds of production. The control over such uses may also vary considerably within the various types of households. Policy sections relating to the poor should therefore also be gender-differentiated. For example, when the Government allocates water to ensure equitable distribution as stated in Section 4.3, it will have to define to whom this water will be allocated, for which purposes and at which prices, in communities as well as households.

These observations also apply to the *National Water Management Plan*, of which a Draft copy was published in December 2001. In an innovative approach, the Bangladesh Water Resources Planning Organisation (WARPO) has initiated a public consultation process on the Internet and with organisations in Bangladesh representing civic society before the plan is finalised. WARPO has also published 17 discussion papers on various aspects of integrated water resources management, including Topic Paper 3, Social and Gender Issues. From the table of contents of these papers, it is not clear if gender issues are also considered in the other documents, which cover such issues as definitions, economics, environment, institutions, and the various subsectors of integrated water resources management.

### *Chile*

In Chile, the ground law on the environment of March 9, 1994, defines sustainable development as "a sustained *and equitable* development process that improves the lives of people" (Law no. 19.300, Article 2, emphasis added). In Article 10, it specifies that all water projects must assess impact on the "lives and customs of human groups". It does not however say *who* these people and human groups are: men or women, rich or poor? In consequence, gender differences within these groups concerning practices, needs and impacts may go unnoticed and so remain unaddressed.

The same problem, non-specification of who the users are, is visible in the proposed new revision of the Chilean Water Code. In existence since 1981, its first revision, in 1991, opened the way for large-scale privatisation. Jaime Muñoz R of the General Water Directorate (DGA) has now pleaded for a better regulation of water rights, development of specific policies for arid, semi-arid and non-arid zones, and a greater say for its users. "Water management cannot be separated from its beneficiaries, so mechanisms should be developed to ensure their participation" (Muñoz, not dated). Hopefully, this new Code will be more precise than the old one by defining also *who* the beneficiaries are, and to which benefits the law gives them equal rights, not only in terms of water and its purposes of use, but also in participation in decision-making, training, jobs and functions. Such a more precise definition might give clear and equitable rights to men as well as women in the various social classes and groups with an interest in water and its management.

At present, the law determines the mechanisms for participation of the various user groups. Extracts of the outcomes of environmental impact studies must, for example, be published in a national newspaper or in a newspaper of the concerned provincial capital. This *equal access* to information is less equal than it looks. Poor women and men generally have less access to these media than other stakeholder groups and when they do, may not as easily read, understand, and act on the information received. They also tend to be less organised and if they are, their organisations seldom have a formal status.

The law also regulates the composition of the Regional and National Environmental Committees. The system is highly hierarchical and by top-down appointments only:

> The Chilean President nominates the Executive Director of the National Committee. The director can in turn form and preside over (sub) committees with representatives from Ministries, Services and "further organisms competent to study, consult, analyse, communicate and coordinate in matters related to the environment". The Minister of the Environment can appoint a Consultative Committee consisting of two scientists proposed by the Council of Rectors of the Chilean Universities, two NGOs involved in environmental protection, two representatives of independent academic centres that work on environmental issues, two representatives of the private sector, two representatives from the trade unions and a representative of the President of the Republic. The Regional Directors for the Environment nominate technical committees and consultative councils with similar compositions (Articles 77-82).

This analysis, being a policy review, did not look whether appointments from the top have meant an incomplete or biased representation of interests. The conclusions from a study, in 2000, commissioned by the Dirección General de Aguas on gender and the future challenges on water resources do however confirm the under-representation of women in water rights and water management:

> "All government institutions dealing with water resources have a very low percentage of women at the planning and decision-making levels. In stakeholder associations, their percentage in decision-making functions is even lower because women seldom participate in this kind of organisation. A sample study on water rights showed that 16 percent of these rights belong to women. In the rural areas, the gender balance in water management is somewhat better, especially in the Indian territories. The current average percentage of women presidents in the rural zones is almost 20 percent." (María Angélica Alegría, Ingeniera Jefa Area de Evaluación de Recursos Hídricos, DGA, Chile).

The urban water and sanitation sector in Chile has been privatised since 1981. The companies work under strict economic parameters and indicators. In Santiago de Chile, the capital, the former director of the private utility EMOS, Ms. Raquel Alfaro, demonstrated that such parameters do not exclude a gender and poverty focus. Reasoning that women have the greatest interest in good water and sewerage services, and could make excellent promoters of legal connections in the *barrios* (the low income parts of the city), she introduced plumbing training for women in these areas. After training, the women became licensed installers and repairers of water and sewerage connections for EMOS, giving them a valued income. The director also started sending mobile vans to the *barrios* so that poor women, who could not pay the water tariff through the bank, could easily pay on the spot. A third step was to encourage connections through promotion programmes targeted at women and school children. Together, the three measures helped in expanding piped water supply coverage in the capital to 100 percent under a private sector approach. This initiative was based on a personal interest. With further efforts, it might however, contribute to a wider shared outlook and strategy on gender-sensitive sustainable services for the urban poor among water and sanitation utility managers in the region's private sector.

Other positive signs indicate the existence of political will to redress gender inequity in the Chilean public sector. On 28 August 2001, the Ministries of Internal Affairs, Human Settlement and the General Secretariat of the President sent a directive to all 180 Public Services in the country to introduce a gender equity approach entitled "Gender Focus". A companion document, brought out in 2002, defines the means of verification. This covers, among other things, the investigation of gender conditions, the disaggregation of user/client related information, the elaboration of plans (including work plans) to enhance gender equity in the organisation and work of the public service agencies and the establishment of a monitoring system on policy implementation. SERNAM, the National Service for Women has been charged with verification of implementation and with technical support. The service has already prepared a survey form for gender diagnostics to assist the public service agencies to

assess their gender focus (María Angélica Alegría, DGA).

### *Uganda*

The 1995 Constitution of Uganda states in Article 33 (2) that *"the state shall provide the facilities and opportunities necessary to enhance the welfare of women to enable them to realise their full potential and advancement"*. Whilst the 1995 Water Statute included no mention of women or gender, the Ministry of Natural Resources' Sectoral Gender Policy, published in the same year, did call for women's participation in community decision making in the area of water supply and sanitation. In 1997, three more policies were adopted, the National Gender Policy, the National Water Policy and the Local Government Act. The first policy guides the planning, resource allocation and implementation of development programmes at all levels and provides a framework for gender oriented sectoral policies. The National Water Policy has the full participation of women at all levels as one of its principles. It states that: "women's involvement in design, construction, operation and management of improved water supply and sanitation facilities should be supported through training activities. The key criteria are that women and men should have equal opportunities to participate fully in all aspects of community management". The Local Government Act stipulates that at least 30 percent of the representation on local councils should be women. At the time the policy was written, this percentage was 10 percent. (Contributed by Pauline Mwanuki, NETWAS International)

### *Kenya*

*The Country Strategy on Water and Sanitation Services* of Kenya's Department of Water Development dates from September 2001, but does not mention women or gender, or say anything about the users of water and sanitation services. Half a year later, in March 2002, this was redressed when the same Department published the *Country Strategy on Integrated Water Resources Management.* It contains the following important section:

> "As women play an important role in provision, management and safeguarding of water, particular attention will be placed on adequately incorporating and representing gender considerations in water resource management. The issues will be addressed from two perspectives: facilitating the participation and involvement of both sexes in water resource management; and the access (benefits) of both sexes in availability of water" *(Section V Capacity Building, Chapter 19 Sector Human Resource, Paragraph 19.1 Background)*.

The text on 'gender' focuses on access and participation for both sexes, but it would be even stronger if it also referred to the equitable division of the workload of participation, and its benefits (access to management functions, paid work and training). (Pauline Ikumi, Vincent Njuguna and Esther de Vreede, NETWAS International).

The – undated – Sessional *Paper on Gender and Development* of the Kenyan Women's Bureau stresses the links between environmental management, poverty alleviation and gender. It notes that women's domestic and agricultural roles make them the daily managers of natural resources such as water, soil, food and forests. The paper lists measures on gender and gender equity aimed at removing obstacles to women's access to productive resources and economic opportunities, shelter and safe drinking water, conserving the environment and eradicating feminisation of poverty (*Section IV. Sectoral Analysis and Policy Recommendations. Poverty and Sustainable Livelihoods).* Cooperation between the Women's Bureau and the Water Department might well bring in angles that the current policies do not yet address like the small-scale productive uses of domestic water, women's domestic as well as productive uses, and women's involvement in the management of irrigation schemes.

### *Brazil*

Brazil accounts for 20 percent of the world's reserves of fresh water. The public perspective on gender is concerned with basic human rights themes, such as citizenship, protection against violence and injuries. Poverty alleviation is a major issue, but is not clearly linked to water resources, despite international concern. Some states, such as São Paulo and Rio Grande do Sul, provide legal rules and public policies in which a gender perspective is mainstreamed.

In the specific field of water resources management, international declarations such as Dublin 1992, Paris 1997, The Hague 2000, Santa Cruz de la Sierra Principles and Chapter 18 of Agenda 21 are fundamental for Brazilian Water Management Policy. They emphasise the important role of women and the principle of equity.

The Gender & Water Alliance's 2002 e-conference on Gender Mainstreaming in Water Resources Management, called Brazil's attention to gender issues and their relation with water resources management. A notable insight of this e-conference was the lack of awareness about the potentially leading role of women in water resources management, from watershed management to the highest decision-making level.

*(Based on a contribution from Instituto Ipanema, 2002)*

### *Sri Lanka*

Education and enfranchisement have been the two major drivers in empowering women in Sri Lanka. Education changes women's view of drudgery and enables them to become promoters of development and innovation, but the impact has been reduced because they have been marginalised in most extension and training activities related to irrigation and agriculture. Meanwhile mechanisation has in particular taken away income from women for weeding and transplanting.

There are insufficient women at high levels of decision-making in state agencies for food production. Data collected by a Commonwealth study in 1999 regarding top management in the agriculture sector, showed no women in the Ministry of Agriculture, under 30 percent in the Department, under 10 percent in agrarian services and less than 20 percent in agri-exports. This is symptomatic of the state of food-related agencies. Apart from the initial thrust received through universal franchise and free education, very few pieces of legislation attempt to focus on enhancement of women's rights, especially for economic empowerment related to water. In fact, it is argued that the presence of a few very high profile women politicians detracts attention from the needs of women.

In independent Sri Lanka, the major part of the Public Investment Programme (PIP) was spent on the rehabilitation of ancient irrigation systems and launching of new systems, with a view to achieving food self sufficiency. Significant resettlement was involved and suffered the critical impact of gender-biased access to land through the Land Development Ordinance (1934). This favoured male succession, especially in favour of the eldest son. This background significantly affects the legislative changes now being contemplated in the Water for Food sector. Mechanisms which might support women's issues in general are the Women's Bureau, set up in 1978 in response to the UN Decade for Women, the Ministry of Women's Affairs, established in 1983, and the National Committee on Women appointed in 1993 to oversee the Women's Charter and its interests. So far, these institutions are marginalised in national policy making and implementation.

Two key national policies, the National Land Use Policy and the National Water Resources Policy are under preparation. The first elicited little comment whereas the second is contentious and revealed conflict between water for food and water for people, underlining the need for careful gender analysis of policy impacts. The current public debate could support gender mainstreaming, given the current majority of women in the population and the political manifesto commitment to women's concerns, if sufficient support is given to advocacy.

*Based on the contribution from Kusum Athukorola*

## Gender approaches in action

In the course of reviewing national gender and water policies and legislation, the GWA contributors also identified some specific examples of gender-related developments that may have pointers for others.

### *Gender and flood hazard in Bangladesh*

Floods are a perennial environmental challenge in Bangladesh. In response to the frightful human and material losses suffered in the flood events of the 1980s, the international community (primarily multilateral donors and Western countries) mobilised in 1989 to fund the Bangladesh Flood Action Plan (FAP). The plan comprised thirty different studies between 1989

and 1995, to give enough protection to Bangladeshi farmers to allow them to increase food production (Hanchett et al, 1998, p209-234). The entire process, which was meant to produce straightforward technical documents detailing possible engineering interventions for flood control, came under heavy criticism for its cost (more than US $155 million) and its relative neglect of issues of socially based vulnerability. The plan was supposed to have two components, flood control and flood proofing, directed towards helping local populations to survive floods with minimal disruption. In both components, technical/engineering concerns were the main focus compared with social aspects. In response to local and international criticism of the project, a gender study was added to the plan in 1991. Some of the major findings were:

- Women do indeed have a clear interest in the impact of floods on agriculture, the main sector to benefit from FAP.
- Women do bear a greater burden of coping with floods as their normal responsibilities are increased during the flood season.
- FAP needed to pay greater attention to female-headed households. There are more of them in Bangladesh than the planners knew about. They tend to be more vulnerable because of their economic, and at times social, marginalisation, but they also tend to be more disadvantaged when it comes to access to flood relief and rehabilitation, for cultural reasons.
- There is a distinct pattern of emergency borrowing and selling of assets to cope with floods in the Bangladeshi rural context. Women tend to be at greater risk of long-term flood-related economic loss than men, because of the societal devaluation of their assets e.g. jewellery and utensils compared with men's farm implements and animals.

The gender studies were largely pushed for by international consultants and donors. Their presentation in FAP-related workshops caused heated and at times acrimonious debates. Most Bangladeshi bureaucrats and some donors thought it inappropriate for FAP to intervene in such social issues as gender inequality, while others just did not see the connection between gender and water. The studies instigated debate on the topic and did manage to win some converts. They were also valuable in articulating the local people's experience with floods. The policy debate produced a few programmatic shifts, e.g. efforts at incorporating women in local water user associations and greater emphasis on participatory approaches to flood planning (most of these efforts had very limited success). The overall lesson from the case study is that there is a distinct cultural rift between national and international establishments and the local people. Women in rural Bangladesh are more vulnerable to floods. This realisation came only gradually to the technocratic culture of the Bangladeshi bureaucracy, the international donors and the consultants.

### *Gender, Land and Water in Latin America*

Carmen Deere and Magdalena Leon conducted a study of the impacts on gender of land and water rights from the land reforms of 1960s and 1970s to the neo-liberal counter reforms of the 1990s in nine countries of Latin America (Deere et al, 1998). The reforms broke up the large farms and redistributed land to rural farm workers and peasants. Despite the salutary effect on rural poverty, they served to accentuate women's economic dependency and marginalisation. The requirements that beneficiaries be heads of households (generally male), and permanent agricultural workers (again mostly male) excluded most women from land ownership. Water in Latin America is mostly tied to land ownership or legally recognised community ownership. Women thereby lost any legal claim to water and their voice in its management.

In the present-day phase of neo-liberal driven counter reforms, most countries, with the exception of Costa Rica and Colombia, have put an end to state redistribution of land and have vigorously started moving towards "parcelisation" of cooperative or communal land. The consequence is that women, who were already generally not in ownership positions and were poor anyway, lost their stake in communal land (and therefore water) as well, as a result of being disadvantaged in the land markets. Costa Rica and Colombia stand as fine examples of bucking the trend and maintaining some of the most progressive, gender-sensitive land reform policies.

The prominent themes that emerge from this case study are:

- In Colombia the existence of a national level association of rural women with local level support drew attention to the discriminatory aspects of the land reform laws and through political pressure coaxed the government into making a very progressive reform law. The law provides for transfer of land titles to couples, prioritised access of women to unused public land, special provisions for female heads of households and equal membership of peasant women groups in regional committees of the national agrarian reform agency.

- Costa Rica implemented similar reforms to Colombia with the difference that it did not have a strong rural women's association. In this case, international feminism played a pivotal role in pushing for progressive legislation. The international feminist discourse was also a factor in Colombia but there the national women's movement provided most of the impetus.

- The impact of counter reforms on women's access to land and water in other countries – Honduras, Mexico, Peru, Nicaragua, Chile, Ecuador and El-Salvador – is mixed at best. There is some evidence that women will be affected negatively, but overall it seems that the counter reforms will not improve the pattern of women's marginalisation in land ownership set by the previous period of land reforms.

One advantage of using the gender lens to understand resource use and conservation is that it reveals a wider variety of resource uses and so facilitates more accurate accounting of productivity (Meinzen-Dick et al, 1997). Property regimes and concomitant resource management regimes may give a false sense of maximizing economic and social returns, but when other uses determined by gender and other factors are taken into account the benefit- cost ratios may change altogether. The present day neo-liberal reforms in Latin America are based on a narrow concept of economic efficiency precisely because they lack an explicit gender perspective. The counter reforms have a mixed record with respect to gender.

Water rights and land rights are typically very closely linked together. The case of Latin America illustrates that sometimes interventions and policies directed towards strategic resources with important linkages to water can be pivotal in realising gains in gender equity. Both indigenous civil society and international feminist discourse have useful contributions to make in this regard.

### *Women and Oil in the Niger Delta*

The Niger Delta in Southern Nigeria is the biggest oil-producing region in Sub-Saharan Africa. Although oil exports from the region pump billions of dollars into the Nigerian economy, the actual oil extraction activities in the Niger delta have been anything but a boon to the local economy and the environment. The Nigerian military government's execution of Ken Saro-Wiwa, a Nigerian environmental activist against land and water pollution caused by international oil companies in Nigeria, brought international attention to the issue of environmental pollution in the Niger Delta (Laurie, 1999).

Eno Okoko investigated the gender aspects of environmental degradation caused by oil extraction in the Ibeno region of the Niger Delta (Okoko, 1999).

> "Oil extraction by western based multi-nationals have caused considerable environmental damage in the Niger delta ranging from serious water and soil pollution, collapse of delta fisheries, deforestation, destruction or out migration of wild life and overall drinking water scarcity. Each of the environmental impacts have had serious social and economic impacts, e.g., loss of agricultural productivity, loss of fishing and hunting opportunities, and most importantly massive male out migration. In this particular case, the women of Ibeno are not only impacted by the obvious impacts of: water pollution, firewood scarcity and impacts on public health, but also indirectly through male out migration. The male out migration has thrust the women in the role of main agriculturists in the region. The previous female domestic responsibilities have now been expanded to include agricultural productivity. As a result women are working more degraded land, with fewer labour resources and more polluted water resources. Also, in order to provide labour for

agricultural work many women in the area reported pulling their female children out of school earlier to help with agricultural work, as well as retaining high fertility rates to keep a steady supply of labour."

The following major themes emerge for gender, water and nature from the Ibeno case study:

- Water quality and environmental quality in general can have complex impacts on gender roles mediated by a multiplicity of resources, e.g., water, soil, forests, fisheries etc. and social processes, e.g., declining agricultural productivity and male out migration.

- Women are quite aware of the complex chains of causation that lead to their increased work loads and assumption of non-traditional roles. In this case for example most women do point to the international oil companies as the main culprits for their problems. But the women are also quite politic. They want to avoid conflict with the oil companies in the hope that those companies will provide investment in basic local amenities like clean drinking water, schools and hospitals.

- Women adapt in creative ways to challenges thrown up by environmentally driven threats to their livelihoods, e.g., in this particular case the women increased their reliance on forest resources in order to compensate for declining agricultural productivity.

The case study demonstrates that when looking for the interaction between gender, water and nature one must be cognisant of secondary impacts of water pollution and degradation, through which water quality and quantity issues are experienced. Secondly, livelihood is a pivotal factor in any experience of water resources and the environment. Lastly it must also be borne in mind that experience of environmental stress can also evoke creative adaptive responses, drawing upon previous gender-related experiences of the environment, e.g. in this case the cultural knowledge of botany, which facilitated women's more efficient extraction of forest resources. ■

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Annex 1.

# Commitments on Gender and Water made at Key International Conferences 1979 - 2002

**Annex 1. Commitments on Gender and Water made at Key International Conferences 1979 - 2002**

| Conference | Commitments with reference to women/gender, water, and poverty |
|---|---|
| World Summit on Sustainable Development Johannesburg, September 2002, Political Declaration and Plan of Implementation www.johannesburgsummit.org | Political Declaration<br>Principle 18: We are committed to ensure that **women**'s empowerment and emancipation and **gender** equality are integrated in all the activities encompassed within Agenda 21, the Millennium Development Goals and the Plan of Implementation of the Summit<br><br>II Poverty Eradication<br>6. (d) Promote **women**'s equal access to and full participation, on the basis of equality with men, in decision-making at all levels, mainstreaming **gender** perspectives in all policies and strategies, eliminating all forms of violence and discrimination against **women**, and improving the status, health and economic welfare of **women** and girls through full and equal access to economic opportunity, land, credit, education and health care services.<br><br>10. By 2020 achieve a significant improvement in the lives of at least 100 million slum dwellers…<br>(a) Improve access to **land and property**, to adequate shelter and to basic services for the urban and rural poor, with special attention to **female heads of households**.<br>IV. Protecting and managing the natural resource base of economic and social development 24. …achieve the millennium development goal of safe drinking **water** and basic **sanitation.**<br>(a) Mobilize international and domestic financial resources at all levels, transfer technology, promote best practice and support capacity-building for **water** and **sanitation** infrastructure and services development, ensuring that such infrastructure and services meet the needs of the poor and are **gender**-sensitive.<br>(b) Facilitate access to public information and participation, including by **women,** at all levels in support of policy and decision-making related to **water resources** management and project implementation.<br><br>VI. Health and sustainable development.<br>47. Strengthen the capacity of health-care systems to deliver basic health services to all…and to reduce **environmental health** threats, in conformity with **human rights** and fundamental freedoms and consistent with national laws and cultural and religious values…<br>(l) Transfer and disseminate…technologies for safe **water, sanitation** and waste management…taking into account country-specific conditions and **gender** equality including specific technology needs of **women**;<br><br>VIII. Sustainable Development of Africa<br>61. Achieve significantly improved sustainable agricultural productivity…<br>(b) Promote and support efforts and initiatives to secure equitable access to **land tenure** and clarify **resource rights** and responsibilities, through **land** and tenure reform processes which respect the role of law… and enable **women** producers to become decision makers and owners in the sector, including the right to inherit **land**." |
| International Conference on Freshwater, Bonn, December 2001 Ministerial Declaration and Bonn Recommendations for Action, http://www.water-2001.de/documents/conferences.asp | Ministerial Declaration: Gender<br>**Water** resources management should be based on a participatory approach. Both men and **women** should be involved and have an equal voice in managing the sustainable use of **water** resources and sharing of benefits. The role of **women** in **water** related areas needs to be strengthened and their participation broadened. |

**Annex 1. Commitments on Gender and Water made at Key International Conferences 1979-2002 continued**

| Conference | Commitments with reference to women/gender, water, and poverty |
|---|---|
| | Bonn Recommendations for Action – Action in the Field of Governance<br>3. Promote **gender** equity<br>■ **Water** management policies should distinguish between **water** users by **gender** and should allow men and **women** equitable access to **water** resources, including safe drinking **water** and **sanitation**.<br>■ **Water** resources management should be based on a participatory approach. Men and **women** should be equally involved in managing the sustainable use of **water** resources and sharing of benefits. To achieve equity, in many parts of the world the role of **women** in **water** management needs to be strengthened and their participation broadened.<br>■ **Water** experts and policy makers should be trained to work in a **gender**-inclusive manner. In many places, specific support is also needed to empower **women** to take up leadership and managerial roles in **water** resources policies and management.<br>■ **Water** policies and **water** management systems should be **gender**-sensitive. They should reflect the division of roles and labour – paid and unpaid - between men and **women** in all settings related to **water**. Data relating to **water** should be disaggregated by **gender**. |
| 2nd World Water Forum<br>The Hague,<br>March 2000,<br>Ministerial Declaration of the Hague on Water Security in the 21st Century<br>www.worldwaterforum.net/ | 3. The Main Challenges:<br>Meeting Basic Needs: to recognise that access to safe and sufficient **water** and sanitation are basic human needs and are essential to health and well-being, and to empower people, especially **women**, through a participatory process of **water** management.<br>5. The ActionsThe actions advocated here are based on integrated **water** resources management…special attention should be paid to the poor, to the roles, skills and needs of **women**…<br><br>Securing the Food Supply<br>■ The important role of **women** in food production, the storage and preparation of food and improvements to the nutritional value of food<br>■ The key role of governments in empowering communities and fostering the involvement of different stakeholders, especially **women**, in policy-development, and implementation in rural areas, thereby enhancing the transparency and accountability of institutions that are involved in the development and implementation of those policies.<br>■ The need to secure equal access for all farmers, especially **women**, to productive resources, such as **water**, land, propagating material, technology and the results of applied research.<br><br>Protecting Ecosystems<br>■ The best approach is integrated land and **water** use planning, at the basin level, within a broader ecosystem context, in which all sectors assume their responsibility, and all stakeholders, especially **women**, who bear the brunt of poor **water** management, are involved…<br><br>Managing Risks<br>■ Consultation with the public should take place at all stages. Raising public awareness is essential in taking management decisions, as is the involvement of local communities, with men and **women** on an equal footing.<br>■ **Women** and children are usually the most vulnerable to **water**-related disasters. |

**Annex 1. Commitments on Gender and Water made at Key International Conferences 1979-2002 continued**

| Conference | Commitments with reference to women/gender, water, and poverty |
|---|---|
| | Governing **Water** Wisely<br>■ The participation of all stakeholders at all levels of IWRM, with special attention to **gender** and youth.<br>■ More involvement of **women** in **water** management as important stakeholders, especially in developing countries.<br>■ The formation of an inter-ministerial committee on **gender**. The reallocation of budgets in **water** projects and representation of **women** was discussed.<br><br>Meeting the Challenge: The Ways Forward – it is recommended that:<br>■ The important role of **women** in **water** management is recognised and that an international ministerial committee to develop practical proposals for addressing **gender** concerns issues at the 3rd World Water Forum in 2003 is formed. |
| Millennium Summit<br>General Assembly 55th session, New York, September 2000, Millennium Declaration<br>www.un.org/millennium/ | Millennium Development Goal 1: Eradicate extreme poverty and hunger<br>Target 1: Halve, between 1990 and 2015, the proportion of people whose income is less than US $1/day.<br>Target 2: Halve, between 1990 and 2015, the proportion of people who suffer hunger.<br>Indicator 1: Proportion of population below US $1/day.<br>Indicator 2: Poverty gap ratio (incidence x depth of poverty).<br>Indicator 4: Prevalence of underweight children (under 5 years of age).<br><br>Millennium Development Goal 3: Promote gender equality and empower women<br>Target 3: Eliminate gender disparity in primary and secondary education preferably by 2005, and at all levels of education by 2015.<br><br>Millennium Development Goal 5: Improve Maternal Health<br><br>Millennium Development Goal 7: Ensure environmental sustainability<br>Target 10: Halve the proportion of people without sustainable access to safe drinking water |
| Beijing+5<br>23rd Special Session of the General Assembly, New York, June 2000<br>www.un.org/womenwatch/daw/followup/as2310rev1.pdf | Further actions and initiatives to implement the Beijing Declaration and Platform for Action<br><br>Actions to be taken by governments at the national level<br>72. (e) Ensure universal and equal access for **women** and men throughout thelife-cycle, to social services related to health care, including education, clean **water**and safe **sanitation**, nutrition, food security and health education programmes; |
| ICPD+5<br>21st Special Session of the General Assembly, New York, July 1999<br>www.un.org/popin/unpopcom/32ndsess/gass/215a1e.pdf | II. Population and development concerns<br>A. Population, economic development and the environment<br>18. (a) Continue to support declines in infant and child mortality rates by strengtheninginfant and child health programmes that emphasize…clean **water** sources…and improvements in household **sanitation**…<br><br>C. International migration<br>29. In planning and implementing refugee assistance activities, special attention shouldbe given to the specific needs of refugee **women**, children, and elderly refugees. Adequateand sufficient international support should be extended to meet the basic needs of refugeepopulations, including the provision of access to…**clean water, sanitation**... |

**Annex 1. Commitments on Gender and Water made at Key International Conferences 1979-2002 continued**

| Conference | Commitments with reference to women/gender, water, and poverty |
|---|---|
| Commission on Sustainable Development<br>6th session, New York, April 1998, Strategic Approaches to Freshwater Management<br>www.un.org/esa/sustdev/csd.htm | CSD 1998. Decision 6/1: Strategic Approaches to **Freshwater** Management.<br>10.(a) The CSD urges: Governments to …(x) mobilization of financial resources and mainstreaming of **gender** issues into all aspects of **water** resources management.<br>11. …Because **women** have a particular role in utilizing and conserving **water** resources on a daily basis, their knowledge and experience should be considered as a component of any sustainable **water** management programme.<br>13. …It is particularly important to broaden **women's** participation and integrate **gender** analysis in **water** planning. |
| Habitat II,<br>Istanbul, June 1996,<br>Habitat Agenda<br>www.unchs.org/unchs/english/hagenda/ | Chapter III. Commitments: D. **Gender equality**<br>46. We commit ourselves to the goal of **gender** equality in **human settlements** development.<br><br>(c) Collecting, analysing and disseminating **gender**-disaggregated data and information on human settlements issues, including statistical means that recognize and make visible the unremunerated work of **women**, for use in policy and programme planning and implementation;<br>(d) Integrating a **gender** perspective in the design and implementation of environmentally sound and sustainable resource management mechanisms, production techniques and infrastructure development in rural and urban areas;<br>(e) Formulating and strengthening policies and practices to promote the full and equal participation of **women** in human settlements planning and decision-making. |
| Fourth World Conference on Women<br>Beijing,<br>September 1995,<br>Beijing Platform of Action<br>www.un.org/womenwatch/daw/beijing/platform/ | Strategic objective K.2.<br>Integrate **gender** concerns and perspectives in policies and programmes for sustainable development<br>Actions to be taken<br>256. By Governments:<br>(f) Promote knowledge of and sponsor research on the role of **women**, particularly rural and indigenous **women**, in…**irrigation, watershed management, sanitation**……focusing particularly on indigenous **women's** knowledge and experience;<br>(k) Support the development of **women's** equal access to…**safe water**…through participatory needs assessments…and policy formulation at the local and national levels;<br>(l) Ensure that **clean water** is available and accessible to all by the year 2000 and that environmental protection and conservation plans are designed and implemented to restore polluted **water** systems and rebuild damaged **watersheds**.<br><br>Strategic objective K.3.<br>**Strengthen or establish mechanisms at the national, regional and international levels to assess the impact of development and environmental policies on women**<br>Actions to be taken<br>258. By Governments, regional and international organizations and non-governmental organizations, as appropriate:<br>(a) Provide technical assistance to women, particularly in developing countries, in the sectors of…fisheries…to ensure…the development of environmentally sound technologies and of women's entrepreneurship; |

**Annex 1. Commitments on Gender and Water made at Key International Conferences 1979-2002 continued**

| Conference | Commitments with reference to women/gender, water, and poverty |
|---|---|
| | (b) Develop **gender**-sensitive databases, information and monitoring systems and participatory action-oriented research, methodologies and policy analyses, with the collaboration of academic institutions and local **women** researchers, on the following:<br>(i) Knowledge and experience on the part of **women** concerning the management and conservation of **natural resources** for incorporation in the databases and information systems for sustainable development;<br>(ii) The impact on **women** of environmental and natural resource degradation, deriving from, inter alia…**drought, poor quality water**…**desertification**…<br>(iii) Analysis of the structural links between **gender** relations, environment and development, with special emphasis on particular sectors, such as…**fisheries**…**water resources and sanitation;** |
| World Summit for Social Development<br>Copenhagen,<br>March 1995<br>www.un.org/esa/socdev/docs/summit.pdf | C. Commitment 2<br>We commit ourselves to the goal of eradicating poverty in the world…<br>(b) …efforts should include … safe drinking water and sanitation…Special priority will be given to the needs and rights of women and children, who often bear the greatest burden of poverty, and to the needs of vulnerable and disadvantaged groups and persons;<br><br>Chapter II – Eradication of Poverty – Basis for action and objectives<br>19. … **Women** bear a disproportionate burden of poverty…Absolute poverty is a condition characterized by severe deprivation of basic human needs, including…**safe drinking water, sanitation facilities**…<br><br>21. Urban poverty is rapidly increasing…It is a growing phenomenon in all countries and regions, and often poses special problems, such as…**contaminated water and bad sanitation**…An increasing number of low-income urban households are **female**-maintained.<br><br>32. Rural poverty should be addressed by:<br>(b) Promoting fair wages and improving the conditions of agricultural labour, and increasing the access of small farmers to water…, including for women,…on the basis of equality; |
| International Conference on Population and Development<br>Cairo, September 1994<br>www.un.org/popin/icpd/conference/offeng/poa.html | Principle 2<br>Human beings are at the centre of concerns for sustainable development…They have the right to an adequate standard of living for themselves and their families, including…**water and sanitation**.<br><br>3.13. Widespread poverty remains the major challenge to development efforts. Poverty is often accompanied by …low status of **women**…All these factors contribute to high levels of fertility, morbidity and mortality…Poverty is also closely related to…to unsustainable use and inequitable distribution of such natural resources as land and **water**…<br><br>4.11. …Greater investments should be made in appropriate measures to lessen the daily burden of domestic responsibilities, the greatest share of which falls on **women**. Greater attention should be paid to the ways in which **environmental degradation** and changes in land use adversely affect the allocation of **women's** time. **Women's** domestic working environments should not adversely affect their health. |

**Annex 1. Commitments on Gender and Water made at Key International Conferences 1979-2002 continued**

| Conference | Commitments with reference to women/gender, water, and poverty |
|---|---|
| | 8.2. …large segments of many populations continue to lack access to clean **water and sanitation** facilities…Large numbers of people remain at continued risk of infectious, parasitic and **water-borne diseases**, such as tuberculosis, malaria and schistosomiasis...<br><br>8.10. All countries should give priority to measures that improve the quality of life and health by ensuring a safe and sanitary living environment for all population groups through measures aimed at…ensuring access to **clean water and sanitation**… |
| **UN Convention to Combat Desertification** in Countries Experiencing Serious Drought and/or Desertification, particularly in Africa<br>Paris, June 1994<br>http://www.unccd.int/main.php | Prologue:<br>Stressing the important role played by **women** in regions affected by **desertification** and/or **drought**, particularly in rural areas of developing countries, and the importance of ensuring the full participation of both men and **women** at all levels in programmes to combat **desertification** and mitigate the effects of **drought**…<br><br>Part II: General Provisions - Article 5<br>(d) promote awareness and facilitate the participation of local populations, particularly **women** and youth, with the support of nongovernmental organizations, in efforts to combat **desertification** and mitigate the effects of **drought**; and<br><br>Part III, Section 1: Action programmes – Article 10<br>(f) provide for effective participation at the local, national and regional levels of non-governmental organizations and local populations, both **women** and men, particularly resource users, including farmers and pastoralists and their representative organizations, in policy planning, decision-making, and implementation and review of national action programmes…<br><br>Part III, Section 3: Supporting measures – Article 19<br>Capacity building, education and public awareness<br>1. The Parties recognize the significance of capacity building – that is to say, institution building, training and development of relevant local and national capacities — in efforts to combat **desertification** and mitigate the effects of **drought**. They shall promote, as appropriate, capacity-building:<br>(a) through the full participation at all levels of local people, particularly at the local level, especially **women** and youth, with the cooperation of non-governmental and local organizations;<br><br>3. …to promote understanding of the causes and effects of **desertification** and **drought** and of the importance of meeting the objective of this Convention. To that end, they shall:<br>(e) assess educational needs in affected areas, elaborate appropriate school curricula and expand, as needed, educational and adult literacy programmes and opportunities for all, in particular for **girls and women**, on the identification, conservation and sustainable use and management of the natural resources of affected areas… |

**Annex 1. Commitments on Gender and Water made at Key International Conferences 1979-2002 continued**

| Conference | Commitments with reference to women/gender, water, and poverty |
|---|---|
| Commission on Sustainable Development<br>2nd session, New York, April 1994,<br>www.un.org/esa/sustdev/csd.htm | CSD 1994: Chapter ID; Health, Human Settlements, Freshwater.<br>The Commission recommends that countries give priority attention to the integrated management, mobilization and use of **water** resources in a holistic manner, while stressing the importance of the involvement of local communities, in particular **women**. |
| UN Conference on Environment and Development<br>Political Declaration and Agenda 21<br>Rio de Janeiro, June 1992<br>www.un.org/esa/sustdev/agenda21text.htm | Political Declaration – Principle 20<br>**Women** have a vital role in environmental management and development. Their full participation is therefore essential to achieve sustainable development.<br><br>Agenda 21<br>Chapter 3 – Combating Poverty<br>Programme area: enabling the poor to achieve sustainable livelihoods38 (p)<br>Provide the poor with access to fresh **water** and **sanitation**<br><br>Chapter 18 – Protection of the quality and supply of **freshwater** resources: application of integrated approaches to the development, management and use of **water** resources Programme Area A: Integrated **water** resources development and management<br>18.9. …To design, implement and evaluate projects and programmes that are both economically efficient and socially appropriate within clearly defined strategies, based on an approach of full public participation, including that of **women**....in **water** management policy-making and decision-making;<br>18.12. …Development of public participatory techniques and their implementation in decision-making, particularly the enhancement of the role of **women** in **water** resources planning and management;<br>18.19. The delegation of **water** resources management to the lowest appropriate level necessitates educating and training **water** management staff at all levels and ensuring that **women** participate equally in the education and training programmes. Particular emphasis has to be placed on the introduction of public participatory techniques, including enhancement of the role of **women**…<br><br>(d) Capacity-building<br>18.22. …International agencies and donors have an important role to play in providing support to developing countries in creating the required enabling environment for integrated **water** resources management. This should include, as appropriate, donor support to local levels in developing countries, including community-based institutions, non-governmental organizations and **women**'s groups.<br><br>Programme Area B. **Water** resources assessment<br>(c ) Human resource development<br>18.33 …Establishing and strengthening education and training programmes on **water**-related topics, within an environmental and developmental context, for all categories of staff involved in **water** resources assessment activities, using advanced educational technology, where appropriate, and involving both men and **women**;<br><br>(d) Capacity-building<br>18.34. …Strengthening of the managerial capabilities of **water**-user groups, including **women**…to improve **water**-use efficiency at the local level. |

| Annex 1. Commitments on Gender and Water made at Key International Conferences 1979-2002 continued | |
|---|---|
| **Conference** | **Commitments with reference to women/gender, water, and poverty** |
| | Programme Area C: Protection of **water** resources, **water** quality and aquatic ecosystems<br>(c) Human resource development<br>18.45. … establishment of … education/training courses on **water** resources protection and conservation for laboratory and field technicians, **women** and other **water**-user groups.<br><br>Programme Area D: Drinking **Water** supply and **sanitation**<br>18.48. The New Delhi Statement…Institutional reforms promoting an integrated approach and including changes in procedures, attitudes and behaviour, and the full participation of **women** at all levels in sector institutions;<br><br>Activities<br>18.50. b. People and institutions:<br>■ Human resource development at all levels, including special programmes for **women**;<br>■ National and community management:<br>ii. Encouragement of the local population, especially **women**, youth, indigenous people and local communities, in **water** management;<br><br>(c) Human resource development<br>18.53. … countries provide adequate training for **women** in the sustainable maintenance of equipment, **water** resources management and environmental sanitation.<br><br>(d) Capacity-building<br>18.54. The implementation of **water**-supply and **sanitation** programmes is a national responsibility…a high degree of community participation, involving **women**, in the conception, planning, decision-making, implementation and evaluation connected with projects for domestic **water**-supply and sanitation.<br><br>Programme Area E: **Water** and Sustainable Urban Development<br>Activities<br>18.59. f. Provision of enhanced access to sanitary services:<br>iv. Mobilization and facilitation of the active involvement of **women** in **water** management teams;<br>Means of implementation<br>(c) Human resource development<br>18.62. …Special provision should be made for mobilizing and facilitating the active participation of **women**…in **water** management teams and for supporting the development of **water** associations and **water** committees…. Special education and training programmes for **women** should be launched with regard to the protection of **water** resources and **water**-quality within urban areas.<br><br>Programme Area F: Water for Sustainable Food Production and Rural Development<br>Objectives<br>18.68. The key strategic principles for holistic and integrated environmentally sound management of **water** resources in the rural context may be set forth as follows:<br>b. Local communities must participate in all phases of **water** management, ensuring the full involvement of **women** in view of their crucial role in the practical day-to-day supply, management and use of **water**;<br>d. It is necessary to recognize and actively support the role of rural populations, with particular emphasis on **women**. |

**Annex 1. Commitments on Gender and Water made at Key International Conferences 1979-2002 continued**

| Conference | Commitments with reference to women/gender, water, and poverty |
|---|---|
| | Means of Implementation - (c) Human resource development<br>18.80. d. Train staff at all levels, including farmers, fishermen and members of local communities, with particular reference to **women**;<br><br>CHAPTER 24 – Global Action for **Women** Towards Sustainable and Equitable Development24.3. Governments should take active steps to implement the following: d. Programmes to promote the reduction of the heavy workload of **women** and **girl** children at home and outside…and to promote the provision of environmentally sound technologies which have been designed, developed and improved in consultation with **women**, accessible and clean **water**, an efficient fuel supply and adequate **sanitation** facilities |
| International Conference on Water and Environment, Dublin, January 1992, Dublin Statement and Principles on Water and Sustainable Development www.wmo.ch/web/homs/documents/english/icwedece.html | Principle 3 **Women** play a central part in the provision, management and safeguarding of **water**.<br><br>This pivotal role of **women** as providers and users of **water** and guardians of the living environment has seldom been reflected in institutional arrangements for the development and management of **water resources**. Acceptance and implementation of this principle requires positive policies to address **women's** specific needs and to equip and empower **women** to participate at all levels in **water resources** programmes, including decision-making and implementation, in ways defined by them. |
| CEDAW Convention on the Elimination of All Forms of Discrimination against Women, December 1979, www.un.org/womenwatch/daw/cedaw/ | Article 14 (2). …eliminate discrimination against **women** in rural areas in order to ensure, on a basis of equality of men and **women**, that they participate in and benefit from rural development and, in particular, shall ensure to such **women** the right:<br><br>(h) To enjoy adequate living conditions, particularly in relation to housing, **sanitation**, electricity and **water supply**, transport and communications. |

Annex 2.

# Gender and Water Indicators

## Introductory notes

The tables list 22 indicators, with each indicator classified under one of six headings:

- General
- Gender
- Water for Nature
- Sanitation for People
- Water for People
- Water for Food

Data are presented for 207 countries, presented in alphabetical order. In cases where data have not been available a ".." symbol is used. On average data are recorded for 72% of countries, for each indicator.

Four data sources were used:

UNDP (2002) Human Development Report 2002, Oxford University Press
UN FAO, Aquastats database, accessed on-line October 2002.
WHO, UNICEF, WSSCC (2000) Global Water Supply and Sanitation Assessment. WHO.
World Bank (2002) World Development Indicators 2002. World Bank, Washington DC.

In addition to data, footnotes from these sources have been copied and presented verbatim.

In some cases the data available from these sources had itself been complied from other sources. Original data sources for each indicator have been recorded.

Every attempt has been made to obtain the most recent data available. 'Year of data' has been recorded for each indicator.

In cases where two apparently similar indicators were available from two alternative sources (for example: 'Annual freshwater withdrawals, % for agriculture', World Bank, World Development Indicates, 2002 and; 'Agricultural water use , %', UN FAO AQUASTAT database, undated) the source with the more detailed background information (for example footnotes), has, on the whole, been used.

Data from the most recently available year have been presented in preference to time series data, or averages from a range of years.

In researching potential indicators for inclusion in this database, it was found that whilst many indicators dealt with the discreet issues listed above, (Gender, Water for Nature etc.), none dealt with the overlap of both Gender and Water/sanitation. This is a shortcoming that may be addressed in future work.

**Definitions of Indicators**

| # | Indicator | Definition (adapted from data source) |
|---|---|---|
| 1 | Human Development Index | HDI is a composite index measuring average achievement in three basic dimensions of human development: a long and healthy life (Life expectancy at birth); knowledge (Adult literacy rate, Gross enrolment ratio); and a decent standard of living (GDP per capita -PPP US$). |
| 2 | Population | Total population is based on the de facto definition of population, which counts all residents regardless of legal status or citizenship, except for refugees not permanently settled in the country of asylum, who are generally considered part of the population of their country of origin. |
| 3 | GDP per capita | GDP (Gross Domestic Product) is the total output of goods and services for final use produced by an economy, by both residents and non-residents, regardless of the allocation to domestic and foreign claims. It does not include deductions for depreciation of physical capital or depletion and degradation of natural resources.<br><br>PPP (Purchasing Power Parity) is a rate of exchange that accounts for price differences across countries, allowing international comparisons of real output and incomes. At the PPP US$ rate, PPP US$1 has the same purchasing power in the domestic economy as $1 has in the United States. |
| 4 | Gender-related development index | GDI is a composite index measuring average achievement in the three basic dimensions of the human development index adjusted to account for inequalities between men and women: a long and healthy life (Female life expectancy at birth, Male life expectancy at birth); knowledge (Female Gross Enrolment Ratio, Male Gross Enrolment Ratio, Female adult literacy rate, Male adult literacy rate); and a decent standard of living (Female estimated earned income, Male estimated earned income). |
| 5, 6 | Combined primary, secondary and tertiary gross enrolment ratio | Combined primary, secondary and tertiary gross enrolment ratio, records the number of students enrolled in any level(s) of education, regardless of age, as a percentage of the population of official school age for that/those level(s). Education levels are categorised as pre-primary, primary, secondary or tertiary in accordance with the International Standard Classification of Education (ISCED).<br><br>■ Primary education (ISCED level 1) provides the basic elements of education at such establishments as primary and elementary schools.<br><br>■ Secondary education (ISCED levels 2 and 3) is based on at least four years of previous instruction at the first level and provides general or specialised instruction, or both, at such institutions as middle school, secondary school, high school, teacher training school at this level and vocational or technical school.<br><br>■ Tertiary education (ISCED levels 5–7) refers to education at such institutions as universities, teachers colleges and higher-level professional schools—requiring for admission the successful completion of education at the second level. |

**Definitions of Indicators**

| # | Indicator | Definition (adapted from data source) |
|---|---|---|
| 7 | Seats in parliament held by women | Seats in parliament held by women refers to seats held by women in a lower or single house or an upper house or senate, where relevant. |
| 8 | Total freshwater resources | Freshwater resources refer to total renewable resources, broken down between internal flows of rivers and groundwater from rainfall in the country, and river flows from other countries. |
| 9, 10, 11, 12, 13 | Annual freshwater withdrawals | Annual freshwater withdrawals refer to total water withdrawal, not counting evaporation losses from storage basins. Withdrawals also include water from desalination plants in countries where they are a significant source. Withdrawal data are for single years between 1980 and 1999 unless otherwise indicated. Withdrawals can exceed 100 percent of total renewable resources where extraction from non-renewable aquifers or desalination is considerable or where there is significant water reuse. Withdrawals for agriculture and industry are total withdrawals for irrigation and livestock production and for direct industrial use (including withdrawals for cooling thermoelectric plants). Withdrawals for domestic use include drinking water, municipal use or supply, and use for public services, commercial establishments, and homes. For most countries sectoral withdrawal data are estimated for 1987. |
| 14, 15, 16, 17, 18, 19 | Water and sanitation coverage | The population with access to "improved" water supply and sanitation is considered to be covered. Types of facilities that are considered as improved water sources and improved sanitation facilities are:<br>Water supply<br>■ Household connection<br>■ Public standpipe<br>■ Borehole<br>■ Protected dug well<br>■ Protected spring<br>■ Rainwater collection<br>Sanitation<br>■ Connection to a public sewer<br>■ Connection to septic system<br>■ Pour-flush latrine<br>■ Simple pit latrine<br>■ Ventilated improved pit latrine<br><br>Types of technologies that are considered as not improved water sources and sanitation facilities are:<br>Water supply<br>■ Unprotected well<br>■ Unprotected spring<br>■ Vendor-provided water<br>■ Bottled water (Not considered "improved' because of limitations concerning the potential quantity of supplied water, not the quality)<br>■ Tanker truck provision of water Sanitation<br>■ Service or bucket latrines (where excreta are manually removed)<br>■ Public latrine<br>■ Open latrine<br><br>The coverage figures produced by technology indicators do not provide information about the quality of the water provided or about its use. Furthermore, factors such as intermittence or disinfection could not be taken into account in the coverage figures. |

| Definitions of Indicators | | |
|---|---|---|
| # | Indicator | Definition (adapted from data source) |
| 20 | Irrigated land | Irrigated land refers to areas purposely provided with water, including land irrigated by controlled flooding. Cropland refers to arable land and land used for permanent crops. |
| 21 | Irrigation potential | Definition not found. |
| 22 | Total irrigation | Definition not found. |

## Abbreviations and sources

| Acronym | Definition |
|---|---|
| GDI | Gender Development Index |
| GDP | Gross Domestic Product |
| GEM | Gender Empowerment Measure |
| ha | Hectares |
| IPU | - |
| na | Not available |
| PPP | Purchasing Power Parity |
| UN FAO | United Nations, Food and Agriculture Organisation |
| UNDP HDR | United Nations Development Programme, Human Development Report (see 'sources') |
| UNESCO | United Nations Educational, Scientific and Cultural Organisation |
| WB WDI | World Bank, World Development Indicators (see 'sources') |
| WHO/UNICEF GWSSA | World Health Organisation/United Nations Children's Fund Global Water Supply and Sanitation Assessment (see 'sources') |
| WRI | World Resources Institute |
| WSSCC | Water Supply and Sanitation Collaborative Council |

Sources

UNDP (2002) Human Development Report 2002, Oxford University Press
UN FAO, Aquastats database, accessed on-line October 2002.
WHO, UNICEF, WSSCC (2000) Global Water Supply and Sanitation Assessment. WHO.
World Bank (2002) World Development Indicators 2002. World Bank, Washington DC.

| 1. GWA Theme | General | General | General | Gender | Gender | .. | Gender | .. | Gender | .. |
|---|---|---|---|---|---|---|---|---|---|---|
| 2. GWA Indicator ID | Indicator 01 | Indicator 02 | Indicator 03 | Indicator 04 | Indicator 05 | note | Indicator 06 | note | Indicator 07 | note |
| 3. Indicator | Human Development Index | Population | GDP per capita | Gender-related development index | Combined primary, secondary and tertiary gross enrolment ratio | (1) | Combined primary, secondary and tertiary gross enrolment ratio | (1) | Seats in parliament held by women | (5) |
| 4. Sub-category | Rank | Total | PPP US$ | Rank | % Female | .. | % Male | .. | as % of total | .. |
| 5. Year of data | 2002 | 2000 | 2000 | 2002 | 1999 | .. | 1999 | .. | 2002 | .. |
| 6. Source | UNDP HDR 2002 | WB WDI 2002 | UNDP HDR 2002 | UNDP HDR 2002 | UNDP HDR 2002 | .. | UNDP HDR 2002 | .. | UNDP HDR 2002 | .. |
| 7. Original data source | UNDP | WB | WB | UNDP | UNESCO | .. | UNESCO | .. | IPU | .. |
| Afghanistan | .. | 26,550,000 | .. | .. | .. | .. | .. | .. | .. | .. |
| Albania | 92 | 3,411,000 | 3,506 | 74 | 71 | .. | 71 | .. | 5.7 | .. |
| Algeria | 106 | 30,399,250 | 5,308 | 90 | 69 | .. | 75 | .. | 4.0 | .. |
| American Samoa | .. | 65,440 | .. | .. | .. | .. | .. | .. | .. | .. |
| Andorra | .. | 67,000 | .. | .. | .. | .. | .. | .. | .. | .. |
| Angola | 161 | 13,134,000 | 2,187 | .. | 21 | .. | 25 | .. | 15.5 | .. |
| Antigua and Barbuda | 52 | 68,000 | 10,541 | .. | .. | .. | .. | .. | 8.3 | .. |
| Argentina | 34 | 37,032,000 | 12,377 | 33 | 86 | .. | 80 | .. | 31.3 | .. |
| Armenia | 76 | 3,803,000 | 2,559 | 62 | 77 | .. | 82 | .. | 3.1 | .. |
| Aruba | .. | 101,000 | .. | .. | .. | .. | .. | .. | .. | .. |
| Australia | 5 | 19,182,000 | 25,693 | 1 | 118 | (2) | 114 | (2) | 26.5 | .. |
| Austria | 15 | 8,110,240 | 26,765 | 15 | 89 | .. | 90 | .. | 25.1 | .. |
| Azerbaijan | 88 | 8,049,000 | 2,936 | .. | 72 | .. | 70 | .. | 10.5 | .. |
| Bahamas, The | 41 | 303,000 | 17,012 | 38 | 77 | .. | 72 | .. | 19.6 | .. |
| Bahrain | 39 | 691,000 | .. | 40 | 83 | .. | 77 | .. | .. | (7) |
| Bangladesh | 145 | 131,050,000 | 1,602 | 121 | 33 | .. | 41 | .. | 2.0 | .. |
| Barbados | 31 | 267,000 | 15,494 | .. | 77 | .. | 77 | .. | 20.4 | .. |
| Belarus | 56 | 10,005,000 | 7,544 | 50 | 79 | .. | 75 | .. | 18.4 | .. |
| Belgium | 4 | 10,252,000 | 27,178 | 2 | 111 | .. | 107 | (2) | 24.9 | .. |
| Belize | 58 | 240,000 | 5,606 | 58 | 72 | .. | 73 | .. | 13.5 | .. |
| Benin | 158 | 6,272,000 | 990 | 134 | 34 | .. | 57 | .. | 6.0 | .. |
| Bermuda | .. | 63,000 | .. | .. | .. | .. | .. | .. | .. | .. |
| Bhutan | 140 | 805,000 | 1,412 | .. | .. | .. | .. | .. | 9.3 | .. |
| Bolivia | 114 | 8,328,700 | 2,424 | 96 | 67 | .. | 73 | .. | 10.2 | .. |
| Bosnia and Herzegovina | .. | 3,977,000 | .. | .. | .. | .. | .. | .. | .. | .. |
| Botswana | 126 | 1,602,000 | 7,184 | 104 | 70 | .. | 70 | .. | 17.0 | .. |
| Brazil | 73 | 170,406,000 | 7,625 | 64 | 80 | .. | 79 | .. | 6.7 | .. |
| Brunei | 32 | 338,000 | .. | 31 | 77 | .. | 76 | .. | .. | (6) |
| Bulgaria | 62 | 8,166,960 | 5,710 | 53 | 76 | .. | 69 | .. | 26.2 | .. |
| Burkina Faso | 169 | 11,274,000 | 976 | 143 | 18 | .. | 28 | .. | 11.0 | .. |
| Burundi | 171 | 6,807,000 | 591 | 145 | 16 | .. | 21 | .. | 14.4 | (8) |
| Cambodia | 130 | 12,021,230 | 1,446 | 109 | 54 | .. | 71 | .. | 9.3 | .. |
| Cameroon | 135 | 14,876,000 | 1,703 | 115 | 39 | .. | 47 | .. | 5.6 | .. |
| Canada | 3 | 30,750,000 | 27,840 | 5 | 98 | .. | 96 | .. | 23.6 | .. |
| Cape Verde | 100 | 441,000 | 4,863 | 82 | 76 | .. | 79 | .. | 11.1 | .. |
| Cayman Islands | .. | 35,000 | .. | .. | .. | .. | .. | .. | .. | .. |
| Central African Republic | 165 | 3,717,000 | 1,172 | 139 | 20 | .. | 29 | .. | 7.3 | .. |
| Chad | 166 | 7,694,000 | 871 | 140 | 20 | .. | 42 | .. | 2.4 | .. |
| Channel Islands | .. | 149,000 | .. | .. | .. | .. | .. | .. | .. | .. |
| Chile | 38 | 15,211,300 | 9,417 | 39 | 77 | .. | 78 | .. | 10.1 | .. |
| China | 96 | 1,262,460,000 | 3,976 | 77 | 73 | .. | 73 | .. | 21.8 | .. |
| Colombia | 68 | 42,299,300 | 6,248 | 56 | 73 | .. | 73 | .. | 12.2 | .. |
| Comoros | 137 | 558,000 | 1,588 | 114 | 33 | .. | 38 | .. | .. | (11) |
| Congo, Dem. Rep. | 155 | 50,948,000 | .. | 131 | 26 | .. | 37 | .. | .. | (11) |
| Congo, Rep. | 136 | 3,018,000 | 825 | 113 | 56 | .. | 69 | .. | 12.0 | .. |
| Costa Rica | 43 | 3,811,000 | 8,650 | 41 | 66 | .. | 67 | .. | 19.3 | (8) |
| Cote d'Ivoire | 156 | 16,013,000 | 1,630 | 132 | 30 | .. | 46 | .. | 8.5 | .. |
| Croatia | 48 | 4,380,000 | 8,091 | 43 | 69 | .. | 68 | .. | 16.2 | .. |
| Cuba | 55 | 11,188,000 | .. | .. | 77 | .. | 76 | .. | 27.6 | .. |
| Cyprus | 26 | 757,000 | 20,824 | 26 | 70 | (4) | 67 | (4) | 10.7 | .. |
| Czech Republic | 33 | 10,273,300 | 13,991 | 32 | 70 | .. | 69 | .. | 14.2 | .. |
| Denmark | 14 | 5,336,000 | 27,627 | 13 | 101 | (2) | 94 | .. | 38.0 | .. |
| Djibouti | 149 | 632,000 | .. | .. | 18 | .. | 26 | .. | 0.0 | .. |
| Dominica | 61 | 73,000 | .. | .. | .. | .. | .. | .. | 18.8 | .. |
| Dominican Republic | 94 | 8,373,000 | 6,033 | 79 | 75 | .. | 69 | .. | 14.5 | .. |
| Ecuador | 93 | 12,646,000 | 3,203 | 80 | 74 | .. | 80 | .. | 14.6 | .. |
| Egypt, Arab Rep. | 115 | 63,976,000 | 3,635 | 99 | 72 | .. | 80 | .. | 2.4 | .. |
| El Salvador | 104 | 6,276,000 | 4,497 | 87 | 64 | .. | 63 | .. | 9.5 | .. |
| Equatorial Guinea | 111 | 457,000 | 15,073 | 93 | 59 | .. | 68 | .. | 5.0 | .. |
| Eritrea | 157 | 4,097,000 | 837 | 133 | 24 | .. | 29 | .. | 14.7 | .. |
| Estonia | 42 | 1,369,000 | 10,066 | .. | 89 | .. | 84 | .. | 17.8 | .. |
| Ethiopia | 168 | 64,298,000 | 668 | 142 | 19 | .. | 34 | .. | 7.8 | .. |
| Faeroe Islands | .. | 45,000 | .. | .. | .. | .. | .. | .. | .. | .. |
| Fiji | 72 | 811,900 | 4,668 | 65 | 83 | .. | 84 | .. | .. | .. |
| Finland | 10 | 5,177,000 | 24,996 | 8 | 108 | (2) | 99 | .. | 36.5 | .. |
| France | 12 | 58,892,000 | 24,223 | 12 | 96 | .. | 93 | .. | 10.9 | .. |
| French Polynesia | .. | 235,000 | 23,344 | .. | .. | .. | .. | .. | .. | .. |
| Gabon | 117 | 1,230,000 | 6,237 | .. | 87 | .. | 85 | .. | 11.0 | .. |
| Gambia, The | 160 | 1,303,000 | 1,649 | 136 | 37 | .. | 53 | .. | 2.0 | (8) |
| Georgia | 81 | 5,024,000 | 2,664 | .. | 71 | .. | 69 | .. | 7.2 | .. |
| Germany | 17 | 82,150,000 | 25,103 | 16 | 93 | .. | 95 | .. | 31.0 | .. |
| Ghana | 129 | 19,306,000 | 1,964 | 108 | 39 | .. | 45 | .. | 9.0 | .. |

| 1. GWA Theme | General | General | General | Gender | Gender | .. | Gender | .. | Gender | .. |
|---|---|---|---|---|---|---|---|---|---|---|
| 2. GWA Indicator ID | Indicator 01 | Indicator 02 | Indicator 03 | Indicator 04 | Indicator 05 | note | Indicator 06 | note | Indicator 07 | note |
| 3. Indicator | Human Development Index | Population | GDP per capita | Gender-related development index | Combined primary, secondary and tertiary gross enrolment ratio | (1) | Combined primary, secondary and tertiary gross enrolment ratio | (1) | Seats in parliament held by women | (5) |
| 4. Sub-category | Rank | Total | PPP US$ | Rank | % Female | .. | % Male | .. | as % of total | .. |
| 5. Year of data | 2002 | 2000 | 2000 | 2002 | 1999 | .. | 1999 | .. | 2002 | .. |
| 6. Source | UNDP HDR 2002 | WB WDI 2002 | UNDP HDR 2002 | UNDP HDR 2002 | UNDP HDR 2002 | .. | UNDP HDR 2002 | .. | UNDP HDR 2002 | .. |
| Greece | 24 | 10,560,000 | 16,501 | 25 | 81 | .. | 80 | .. | 8.7 | .. |
| Greenland | .. | 56,200 | .. | .. | .. | .. | .. | .. | .. | .. |
| Grenada | 83 | 98,000 | 7,580 | .. | .. | .. | .. | .. | 17.9 | .. |
| Guam | .. | 154,500 | .. | .. | .. | .. | .. | .. | .. | .. |
| Guatemala | 120 | 11,385,300 | 3,821 | 100 | 45 | .. | 53 | .. | 8.8 | .. |
| Guinea | 159 | 7,415,000 | 1,982 | .. | 20 | .. | 37 | .. | 8.8 | .. |
| Guinea-Bissau | 167 | 1,199,000 | 755 | 141 | 27 | .. | 47 | .. | 7.8 | .. |
| Guyana | 103 | 761,000 | 3,963 | 85 | 66 | .. | 65 | .. | 20.0 | .. |
| Haiti | 146 | 7,959,000 | 1,467 | 122 | 51 | .. | 53 | .. | 9.1 | .. |
| Honduras | 116 | 6,417,000 | 2,453 | 98 | 63 | .. | 60 | .. | 5.5 | .. |
| Hong Kong, China | 23 | 6,797,000 | 25,153 | 23 | 66 | .. | 61 | .. | .. | .. |
| Hungary | 35 | 10,022,000 | 12,416 | 35 | 83 | .. | 79 | .. | 8.3 | .. |
| Iceland | 7 | 281,000 | 29,581 | 7 | 91 | .. | 86 | .. | 34.9 | .. |
| India | 124 | 1,015,923,000 | 2,358 | 105 | 49 | .. | 62 | .. | 8.9 | .. |
| Indonesia | 110 | 210,421,000 | 3,043 | 91 | 61 | .. | 68 | .. | 8.0 | .. |
| Iran, Islamic Rep. | 98 | 63,664,000 | 5,884 | 83 | 69 | .. | 76 | .. | 3.4 | .. |
| Iraq | .. | 23,263,840 | .. | .. | .. | .. | .. | .. | .. | .. |
| Ireland | 18 | 3,794,000 | 29,866 | 17 | 93 | .. | 89 | .. | 13.7 | .. |
| Isle of Man | .. | 75,000 | .. | .. | .. | .. | .. | .. | .. | .. |
| Israel | 22 | 6,233,210 | 20,131 | 22 | 84 | .. | 82 | .. | 13.3 | .. |
| Italy | 20 | 57,690,000 | 23,626 | 20 | 87 | .. | 81 | .. | 9.1 | .. |
| Jamaica | 86 | 2,633,000 | 3,639 | 67 | 62 | .. | 63 | .. | 16.0 | .. |
| Japan | 9 | 126,870,000 | 26,755 | 11 | 81 | .. | 83 | .. | 10.0 | .. |
| Jordan | 99 | 4,886,810 | 3,966 | 84 | 57 | .. | 53 | .. | 3.3 | .. |
| Kazakhstan | 79 | 14,869,000 | 5,871 | .. | 81 | .. | 73 | .. | 11.2 | .. |
| Kenya | 134 | 30,092,000 | 1,022 | 112 | 51 | .. | 52 | .. | 3.6 | .. |
| Kiribati | .. | 90,700 | .. | .. | .. | .. | .. | .. | .. | .. |
| Korea, Dem. Rep. | .. | 22,268,000 | .. | .. | .. | .. | .. | .. | .. | .. |
| Korea, Rep. | 27 | 47,275,000 | 17,380 | 29 | 85 | .. | 95 | .. | 5.9 | .. |
| Kuwait | 45 | 1,984,400 | 15,799 | 44 | 61 | .. | 57 | .. | 0.0 | .. |
| Kyrgyz Republic | 102 | 4,915,000 | 2,711 | .. | 70 | .. | 65 | .. | 6.7 | .. |
| Lao PDR | 143 | 5,279,000 | 1,575 | 118 | 52 | .. | 65 | .. | 21.2 | (8) |
| Latvia | 53 | 2,372,000 | 7,045 | 46 | 83 | .. | 80 | .. | 17.0 | .. |
| Lebanon | 75 | 4,328,000 | 4,308 | 69 | 81 | .. | 76 | .. | 2.3 | .. |
| Lesotho | 132 | 2,035,000 | 2,031 | 111 | 65 | .. | 57 | .. | 10.7 | .. |
| Liberia | .. | 3,130,000 | .. | .. | .. | .. | .. | .. | .. | .. |
| Libya | 64 | 5,290,000 | .. | 61 | 92 | .. | 92 | .. | .. | .. |
| Liechtenstein | .. | 32,000 | .. | .. | .. | .. | .. | .. | .. | .. |
| Lithuania | 49 | 3,695,000 | 7,106 | 42 | 83 | .. | 77 | .. | 10.6 | .. |
| Luxembourg | 16 | 438,400 | 50,061 | 19 | 74 | (3) | 71 | (3) | 16.7 | .. |
| Macao, China | .. | 438,000 | 18,190 | .. | .. | .. | .. | .. | .. | .. |
| Macedonia, FYR | 65 | 2,031,000 | 5,086 | .. | 70 | .. | 70 | .. | 6.7 | .. |
| Madagascar | 147 | 15,523,000 | 840 | 123 | 43 | .. | 46 | .. | 8.0 | (8) |
| Malawi | 163 | 10,311,000 | 615 | 137 | 69 | .. | 78 | .. | 9.3 | .. |
| Malaysia | 59 | 23,270,000 | 9,068 | 54 | 67 | .. | 64 | .. | 14.5 | .. |
| Maldives | 84 | 276,000 | 4,485 | 68 | 77 | .. | 77 | .. | 6.0 | .. |
| Mali | 164 | 10,840,000 | 797 | 138 | 22 | .. | 34 | .. | 12.2 | .. |
| Malta | 30 | 390,000 | 17,273 | 30 | 79 | .. | 82 | .. | 9.2 | .. |
| Marshall Islands | .. | 52,000 | .. | .. | .. | .. | .. | .. | .. | .. |
| Mauritania | 152 | 2,665,000 | 1,677 | 127 | 37 | .. | 44 | .. | 3.0 | (8) |
| Mauritius | 67 | 1,186,140 | 10,017 | 59 | 64 | .. | 62 | .. | 5.7 | .. |
| Mayotte | .. | 145,000 | .. | .. | .. | .. | .. | .. | .. | .. |
| Mexico | 54 | 97,966,000 | 9,023 | 49 | 70 | .. | 71 | .. | 15.9 | .. |
| Micronesia, Fed. Sts. | .. | 118,100 | .. | .. | .. | .. | .. | .. | .. | .. |
| Moldova | 105 | 4,282,000 | 2,109 | 86 | 75 | .. | 70 | .. | 12.9 | .. |
| Monaco | .. | 32,000 | .. | .. | .. | .. | .. | .. | .. | .. |
| Mongolia | 113 | 2,398,000 | 1,783 | 95 | 64 | .. | 51 | .. | 10.5 | .. |
| Morocco | 123 | 28,705,000 | 3,546 | 102 | 46 | .. | 58 | .. | 0.5 | .. |
| Mozambique | 170 | 17,691,000 | 854 | 144 | 19 | .. | 26 | .. | 30.0 | .. |
| Myanmar | 127 | 47,749,000 | .. | 106 | 55 | .. | 55 | .. | .. | (10) |
| Namibia | 122 | 1,757,000 | 6,431 | 101 | 80 | .. | 77 | .. | 20.4 | .. |
| Nepal | 142 | 23,043,000 | 1,327 | 119 | 52 | .. | 67 | .. | 7.9 | (8) |
| Netherlands | 8 | 15,919,000 | 25,657 | 9 | 100 | .. | 104 | (2) | 32.9 | .. |
| Netherlands Antilles | .. | 215,000 | .. | .. | .. | .. | .. | .. | .. | .. |
| New Caledonia | .. | 212,700 | 21,820 | .. | .. | .. | .. | .. | .. | .. |
| New Zealand | 19 | 3,830,800 | 20,070 | 18 | 103 | (2) | 95 | .. | 30.8 | .. |
| Nicaragua | 118 | 5,071,000 | 2,366 | 97 | 65 | .. | 61 | .. | 20.7 | .. |
| Niger | 172 | 10,832,000 | 746 | 146 | 12 | .. | 20 | .. | 1.2 | .. |
| Nigeria | 148 | 126,910,000 | 896 | 124 | 41 | .. | 49 | .. | 3.3 | .. |
| Northern Mariana Islands | .. | 72,000 | .. | .. | .. | .. | .. | .. | .. | .. |
| Norway | 1 | 4,491,000 | 29,918 | 3 | 99 | .. | 95 | .. | 36.4 | .. |
| Oman | 78 | 2,395,000 | .. | 78 | 56 | .. | 59 | .. | .. | (6) |
| Pakistan | 138 | 138,080,000 | 1,928 | 120 | 28 | .. | 51 | .. | .. | (11) |
| Palau | .. | 19,000 | .. | .. | .. | .. | .. | .. | .. | .. |
| Panama | 57 | 2,856,000 | 6,000 | 51 | 76 | .. | 73 | .. | 9.9 | .. |

| 1. GWA Theme | General | General | General | Gender | Gender | .. | Gender | .. | Gender | .. |
|---|---|---|---|---|---|---|---|---|---|---|
| 2. GWA Indicator ID | Indicator 01 | Indicator 02 | Indicator 03 | Indicator 04 | Indicator 05 | note | Indicator 06 | note | Indicator 07 | note |
| 3. Indicator | Human Development Index | Population | GDP per capita | Gender-related development index | Combined primary, secondary and tertiary gross enrolment ratio | (1) | Combined primary, secondary and tertiary gross enrolment ratio | (1) | Seats in parliament held by women | (5) |
| 4. Sub-category | Rank | Total | PPP US$ | Rank | % Female | .. | % Male | .. | as % of total | .. |
| 5. Year of data | 2002 | 2000 | 2000 | 2002 | 1999 | .. | 1999 | .. | 2002 | .. |
| 6. Source | UNDP HDR 2002 | WB WDI 2002 | UNDP HDR 2002 | UNDP HDR 2002 | UNDP HDR 2002 | .. | UNDP HDR 2002 | .. | UNDP HDR 2002 | .. |
| Papua New Guinea | 133 | 5,130,000 | 2,280 | 110 | 35 | .. | 42 | .. | 1.8 | .. |
| Paraguay | 90 | 5,496,000 | 4,426 | 75 | 64 | .. | 64 | .. | 8.0 | .. |
| Peru | 82 | 25,661,000 | 4,799 | 73 | 79 | .. | 81 | .. | 18.3 | .. |
| Philippines | 77 | 75,580,000 | 3,971 | 63 | 84 | .. | 80 | .. | 17.2 | .. |
| Poland | 37 | 38,650,000 | 9,051 | 36 | 86 | .. | 83 | .. | 20.7 | .. |
| Portugal | 28 | 10,008,000 | 17,290 | 28 | 99 | .. | 94 | .. | 18.7 | .. |
| Puerto Rico | .. | 3,920,000 | .. | .. | .. | .. | .. | .. | .. | .. |
| Qatar | 51 | 584,890 | .. | 48 | 75 | .. | 75 | .. | .. | (6) |
| Romania | 63 | 22,435,000 | 6,423 | 55 | 70 | .. | 68 | .. | 9.3 | .. |
| Russian Federation | 60 | 145,555,000 | 8,377 | 52 | 82 | .. | 75 | .. | 6.4 | .. |
| Rwanda | 162 | 8,508,000 | 943 | 135 | 39 | .. | 41 | .. | 25.7 | .. |
| Samoa | 101 | 170,000 | .. | .. | 67 | .. | 63 | .. | 6.1 | .. |
| San Marino | .. | 27,000 | 11,367 | .. | .. | .. | .. | .. | .. | .. |
| Sao Tome and Principe | 119 | 148,000 | 1,510 | .. | .. | .. | .. | .. | 9.1 | .. |
| Saudi Arabia | 71 | 20,723,150 | .. | 72 | 60 | .. | 62 | .. | .. | (6) |
| Senegal | 154 | 9,530,000 | 490 | 130 | 31 | .. | 40 | .. | 19.2 | .. |
| Seychelles | 47 | 81,230 | 23,356 | .. | .. | .. | .. | .. | 23.5 | .. |
| Sierra Leone | 173 | 5,031,000 | 11,243 | .. | 21 | .. | 32 | .. | 8.8 | .. |
| Singapore | 25 | 4,018,000 | 17,367 | 24 | 75 | .. | 76 | .. | 11.8 | .. |
| Slovak Republic | 36 | 5,401,790 | 1,648 | 34 | 77 | .. | 74 | .. | 14.0 | .. |
| Slovenia | 29 | 1,988,000 | .. | 27 | 85 | .. | 80 | .. | 12.2 | .. |
| Solomon Islands | 121 | 447,000 | 9,401 | .. | .. | .. | .. | .. | 0.0 | .. |
| Somalia | .. | 8,778,000 | 19,472 | .. | .. | .. | .. | .. | .. | .. |
| South Africa | 107 | 42,800,990 | 3,530 | 88 | 96 | .. | 89 | .. | 29.8 | (9) |
| Spain | 21 | 39,465,000 | 12,510 | 21 | 99 | .. | 91 | .. | 26.6 | .. |
| Sri Lanka | 89 | 19,359,000 | 5,703 | 70 | 71 | .. | 68 | .. | 4.4 | .. |
| St. Kitts and Nevis | 44 | 41,000 | 5,041 | .. | .. | .. | .. | .. | 13.3 | .. |
| St. Lucia | 66 | 156,000 | .. | .. | .. | .. | .. | .. | 13.8 | .. |
| St. Vincent and the Grenadines | 91 | 115,000 | 5,555 | .. | .. | .. | .. | .. | 22.7 | .. |
| Sudan | 139 | 31,095,000 | 1,797 | 116 | 31 | .. | 36 | .. | 9.7 | .. |
| Suriname | 74 | 417,000 | 3,799 | .. | 86 | .. | 80 | .. | 17.6 | .. |
| Swaziland | 125 | 1,045,000 | 4,492 | 103 | 70 | .. | 74 | .. | 6.3 | .. |
| Sweden | 2 | 8,869,000 | 24,277 | 4 | 107 | (2) | 95 | .. | 42.7 | .. |
| Switzerland | 11 | 7,180,000 | 28,769 | 14 | 81 | .. | 87 | .. | 22.4 | .. |
| Syrian Arab Republic | 108 | 16,189,000 | 3,556 | 92 | 61 | .. | 65 | .. | 10.4 | .. |
| Tajikistan | 112 | 6,170,000 | 1,152 | 94 | 63 | .. | 72 | .. | 12.4 | .. |
| Tanzania | 151 | 33,696,000 | 523 | 126 | 32 | .. | 33 | .. | 22.3 | .. |
| Thailand | 70 | 60,728,000 | 6,402 | 60 | 61 | .. | 60 | .. | 9.6 | .. |
| Togo | 141 | 4,527,000 | 1,442 | 117 | 49 | .. | 76 | .. | 4.9 | .. |
| Tonga | .. | 100,200 | .. | .. | .. | .. | .. | .. | .. | .. |
| Trinidad and Tobago | 50 | 1,301,000 | 8,964 | 45 | 65 | .. | 65 | .. | 20.9 | (8) |
| Tunisia | 97 | 9,563,500 | 6,363 | 81 | 72 | .. | 75 | .. | 11.5 | .. |
| Turkey | 85 | 65,293,000 | 6,974 | 71 | 55 | .. | 68 | .. | 4.2 | .. |
| Turkmenistan | 87 | 5,198,940 | 3,956 | .. | 81 | .. | 81 | .. | 26.0 | .. |
| Uganda | 150 | 22,210,000 | 1,208 | 125 | 41 | .. | 49 | .. | 24.7 | .. |
| Ukraine | 80 | 49,501,000 | 3,816 | 66 | 78 | .. | 77 | .. | 7.8 | .. |
| United Arab Emirates | 46 | 2,905,080 | .. | 47 | 71 | .. | 65 | .. | 0.0 | .. |
| United Kingdom | 13 | 59,738,900 | 23,509 | 10 | 112 | (2) | 100 | .. | 17.1 | .. |
| United States | 6 | 281,550,000 | 34,142 | 6 | 99 | .. | 91 | .. | 13.8 | .. |
| Uruguay | 40 | 3,337,000 | 9,035 | 37 | 83 | .. | 76 | .. | 11.5 | .. |
| Uzbekistan | 95 | 24,752,000 | 2,441 | 76 | 74 | .. | 79 | .. | 7.2 | .. |
| Vanuatu | 131 | 197,000 | 2,802 | .. | .. | .. | .. | .. | 0.0 | .. |
| Venezuela, RB | 69 | 24,170,000 | 5,794 | 57 | 66 | .. | 64 | .. | 9.7 | .. |
| Vietnam | 109 | 78,522,700 | 1,996 | 89 | 64 | .. | 69 | .. | 26.0 | .. |
| Virgin Islands (U.S.) | .. | 121,000 | .. | .. | .. | .. | .. | .. | .. | .. |
| West Bank and Gaza | .. | 2,966,000 | .. | .. | .. | .. | .. | .. | .. | .. |
| Yemen, Rep. | 144 | 17,507,160 | 893 | 128 | 29 | .. | 72 | .. | 0.7 | .. |
| Yugoslavia, Fed. Rep. | .. | 10,637,000 | .. | .. | .. | .. | .. | .. | .. | .. |
| Zambia | 153 | 10,089,000 | 780 | 129 | 46 | .. | 52 | .. | 12.0 | .. |
| Zimbabwe | 128 | 12,627,000 | 2,635 | 107 | 63 | .. | 67 | .. | 10.0 | .. |

| 1. GWA Theme | Water for nature | .. | Water for nature | .. | Water for nature | .. | Water for nature/ Water for food | .. | Water for nature | .. | Water for nature/ Water for People | .. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2. GWA Indicator ID | Indicator 08 | note | Indicator 09 | note | Indicator 10 | note | Indicator 11 | note | Indicator 12 | note | Indicator 13 | note |
| 3. Indicator | Total freshwater resources | .. | Annual freshwater withdrawals | .. | Annual freshwater withdrawals | .. | Annual freshwater withdrawals | .. | Annual freshwater withdrawals | .. | Annual freshwater withdrawals | .. |
| 4. Sub-category | cubic metres per capita | (12) | billion cubic metres | (13) | % of total resources | (12), (13) | % for agriculture | .. | % for industry | .. | % for domestic | .. |
| 5. Year of data | 2000 | .. | Any year from 1980 to 1999 | .. | Any year from 1980 to 1999 | .. | 1987, or see footnotes | (14) | 1987, or see footnotes | (14) | 1987, or see footnotes | (14) |
| 6. Source | WB WDI 2002 | .. | WB WDI 2002 | .. | WB WDI 2002 | .. | WB WDI 2002 | .. | WB WDI 2002 | .. | WB WDI 2002 | .. |
| 7. Original data source | WRI, UN FAO | .. | WRI, UN FAO | .. | WRI, UN FAO | .. | WRI, UN FAO | .. | WRI, UN FAO | | WRI, UN FAO | .. |
| Afghanistan | 2,448 | .. | 26.1 | .. | 40.2 | .. | 99 | (15) | 0 | (15) | 1 | (15) |
| Albania | 12,489 | .. | 1.4 | .. | 3.3 | .. | 71 | .. | 0 | .. | 29 | .. |
| Algeria | 470 | .. | 4.5 | .. | 31.5 | .. | 60 | (15) | 15 | (15) | 25 | (15) |
| American Samoa | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Andorra | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Angola | 14,009 | .. | 0.5 | .. | 0.3 | .. | 76 | (15) | 10 | (15) | 14 | (15) |
| Antigua and Barbuda | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Argentina | 26,545 | .. | 28.6 | .. | 2.9 | .. | 75 | .. | 9 | .. | 16 | .. |
| Armenia | 2,787 | .. | 2.9 | .. | 27.6 | .. | 66 | .. | 4 | .. | 30 | .. |
| Aruba | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Australia | 18,351 | | 15.1 | .. | 4.3 | | 33 | .. | 2 | .. | 65 | .. |
| Austria | 10,357 | .. | 2.2 | .. | 2.7 | .. | 9 | .. | 60 | .. | 31 | .. |
| Azerbaijan | 3,615 | .. | 16.5 | .. | 56.8 | .. | 70 | .. | 25 | .. | 5 | .. |
| Bahamas, The | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Bahrain | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Bangladesh | 9,238 | .. | 14.6 | .. | 1.2 | .. | 86 | .. | 2 | .. | 12 | .. |
| Barbados | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Belarus | 5,797 | .. | 2.7 | .. | 4.7 | .. | 35 | .. | 43 | .. | 22 | .. |
| Belgium | 1,561 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Belize | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Benin | 4,114 | .. | 0.2 | .. | 0.6 | .. | 67 | (15) | 10 | (15) | 23 | (15) |
| Bermuda | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Bhutan | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Bolivia | 38,806 | .. | 1.4 | .. | 0.4 | .. | 48 | .. | 20 | .. | 32 | .. |
| Bosnia and Herzegovina | 9,429 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Botswana | 9,176 | .. | 0.1 | .. | 0.7 | .. | 48 | (15) | 20 | (15) | 32 | (15) |
| Brazil | 42,944 | .. | 54.9 | .. | 0.7 | .. | 61 | .. | 18 | .. | 21 | .. |
| Brunei | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Bulgaria | 2,228 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Burkina Faso | 1,730 | .. | 0.4 | .. | 1.9 | .. | 81 | (15) | 0 | (15) | 19 | (15) |
| Burundi | 529 | .. | 0.1 | .. | 2.8 | .. | 64 | (15) | 0 | (15) | 36 | (15) |
| Cambodia | 39,613 | .. | 0.5 | .. | 0.1 | .. | 94 | .. | 1 | .. | 5 | .. |
| Cameroon | 18,016 | .. | 0.4 | .. | 0.1 | .. | 35 | (15) | 19 | (15) | 46 | (15) |
| Canada | 90,797 | .. | 45.1 | .. | 1.6 | .. | 9 | .. | 80 | .. | 11 | .. |
| Cape Verde | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Cayman Islands | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Central African Republic | 37,934 | .. | 0.1 | .. | 0.0 | .. | 73 | (15) | 6 | (15) | 21 | (15) |
| Chad | 5,589 | .. | 0.2 | .. | 0.4 | .. | 82 | (15) | 2 | (15) | 16 | (15) |
| Channel Islands | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Chile | 61,007 | .. | 21.4 | .. | 2.2 | .. | 84 | .. | 11 | .. | 5 | .. |
| China | 2,241 | .. | 525.5 | .. | 18.6 | .. | 77 | .. | 18 | .. | 5 | .. |
| Colombia | 50,426 | .. | 8.9 | .. | 0.4 | .. | 37 | .. | 4 | .. | 59 | .. |
| Comoros | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Congo, Dem. Rep. | 24,496 | .. | 0.4 | .. | 0.0 | .. | 23 | (15) | 16 | (15) | 61 | (15) |
| Congo, Rep. | 275,646 | .. | 0.0 | .. | 0.0 | .. | 11 | (15) | 27 | (15) | 62 | (15) |
| Costa Rica | 29,494 | .. | 5.8 | .. | 5.1 | .. | 80 | .. | 7 | .. | 13 | .. |
| Cote d'Ivoire | 4,790 | .. | 0.7 | .. | 0.9 | .. | 67 | (15) | 11 | (15) | 22 | (15) |
| Croatia | 16,301 | .. | 0.1 | .. | 1.1 | .. | .. | .. | 50 | .. | 50 | .. |
| Cuba | 3,396 | .. | 5.2 | .. | 13.7 | .. | 51 | .. | 0 | .. | 49 | .. |
| Cyprus | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Czech Republic | 1,557 | .. | 2.5 | .. | 15.8 | .. | 2 | .. | 57 | .. | 41 | .. |
| Denmark | 1,124 | .. | 0.9 | .. | 14.8 | .. | 43 | .. | 27 | .. | 30 | .. |
| Djibouti | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Dominica | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Dominican Republic | 2,508 | .. | 8.3 | .. | 39.7 | .. | 89 | .. | 1 | .. | 11 | .. |
| Ecuador | 34,952 | .. | 17.0 | .. | 3.8 | .. | 82 | .. | 6 | .. | 12 | .. |
| Egypt, Arab Rep. | 1,071 | .. | 55.1 | .. | 80.4 | .. | 86 | (15) | 8 | (15) | 6 | (15) |
| El Salvador | 2,820 | .. | 0.7 | .. | 4.1 | .. | 46 | .. | 20 | .. | 34 | .. |
| Equatorial Guinea | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Eritrea | 2,148 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Estonia | 9,350 | .. | 0.2 | .. | 1.3 | .. | 5 | .. | 39 | .. | 56 | .. |
| Ethiopia | 1,711 | .. | 2.2 | .. | 2.0 | .. | 86 | (15) | 3 | (15) | 11 | (15) |
| Faeroe Islands | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Fiji | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Finland | 21,248 | .. | 2.4 | .. | 2.2 | .. | 0 | .. | 82 | .. | 17 | .. |
| France | 3,243 | .. | 40.6 | .. | 21.3 | .. | 12 | .. | 73 | .. | 15 | .. |
| French Polynesia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Gabon | 133,333 | .. | 0.1 | .. | 0.0 | .. | 6 | (15) | 22 | (15) | 72 | (15) |
| Gambia, The | 6,140 | .. | 0.0 | .. | 0.4 | .. | 91 | (15) | 2 | (15) | 7 | (15) |
| Georgia | 13,236 | .. | 3.5 | .. | 5.2 | .. | 59 | .. | 20 | .. | 21 | .. |
| Germany | 2,167 | .. | 46.3 | .. | 26.0 | .. | 0 | .. | 86 | .. | 14 | .. |
| Ghana | 2,756 | .. | 0.3 | .. | 0.6 | .. | 52 | (15) | 13 | (15) | 35 | (15) |

| 1. GWA Theme | Water for nature | .. | Water for nature | .. | Water for nature | .. | Water for nature/ Water for food | .. | Water for nature | .. | Water for nature/ Water for People | .. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2. GWA Indicator ID | Indicator 08 | note | Indicator 09 | note | Indicator 10 | note | Indicator 11 | note | Indicator 12 | note | Indicator 13 | note |
| 3. Indicator | Total freshwater resources | .. | Annual freshwater withdrawals | .. | Annual freshwater withdrawals | .. | Annual freshwater withdrawals | .. | Annual freshwater withdrawals | .. | Annual freshwater withdrawals | .. |
| 4. Sub-category | cubic metres per capita | (12) | billion cubic metres | (13) | % of total resources | (12), (13) | % for agriculture | .. | % for industry | .. | % for domestic | .. |
| 5. Year of data | 2000 | .. | Any year from 1980 to 1999 | .. | Any year from 1980 to 1999 | .. | 1987, or see footnotes | (14) | 1987, or see footnotes | (14) | 1987, or see footnotes | (14) |
| 6. Source | WB WDI 2002 | .. | WB WDI 2002 | .. | WB WDI 2002 | .. | WB WDI 2002 | .. | WB WDI 2002 | .. | WB WDI 2002 | .. |
| Greece | 6,534 | .. | 7.0 | .. | 10.2 | .. | 81 | .. | 3 | .. | 16 | .. |
| Greenland | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Grenada | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Guam | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Guatemala | 11,805 | .. | 1.2 | .. | 0.9 | .. | 74 | .. | 17 | .. | 9 | .. |
| Guinea | 30,479 | .. | 0.7 | .. | 0.3 | .. | 87 | (15) | 3 | (15) | 10 | (15) |
| Guinea-Bissau | 22,519 | .. | 0.0 | .. | 0.1 | .. | 36 | (15) | 4 | (15) | 60 | (15) |
| Guyana | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Haiti | 1,520 | .. | 1.0 | .. | 8.1 | .. | 94 | .. | 1 | .. | 5 | .. |
| Honduras | 14,976 | .. | 1.5 | .. | 1.6 | .. | 91 | .. | 5 | .. | 4 | .. |
| Hong Kong, China | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Hungary | 11,974 | .. | 6.3 | .. | 5.2 | .. | 5 | .. | 70 | .. | 14 | .. |
| Iceland | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| India | 1,878 | .. | 500.0 | .. | 26.2 | .. | 92 | .. | 3 | .. | 5 | .. |
| Indonesia | 13,487 | .. | 74.3 | .. | 2.6 | .. | 93 | .. | 1 | .. | 6 | .. |
| Iran, Islamic Rep. | 2,018 | .. | 70.0 | .. | 54.5 | .. | 92 | .. | 2 | .. | 6 | .. |
| Iraq | 4,776 | .. | 42.8 | .. | 38.5 | .. | 92 | .. | 5 | .. | 3 | .. |
| Ireland | 13,706 | .. | 1.2 | .. | 2.3 | .. | 10 | .. | 74 | .. | 16 | .. |
| Isle of Man | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Israel | 449 | .. | 1.7 | .. | 61.1 | .. | 64 | (15) | 7 | (15) | 29 | (15) |
| Italy | 2,903 | .. | 57.5 | .. | 28.6 | .. | 45 | .. | 37 | .. | 18 | .. |
| Jamaica | 3,570 | .. | 0.9 | .. | 9.6 | .. | 77 | .. | 7 | .. | 15 | .. |
| Japan | 3,389 | .. | 91.4 | .. | 21.3 | .. | 64 | .. | 17 | .. | 19 | .. |
| Jordan | 143 | .. | 1.0 | .. | 140.0 | .. | 75 | .. | 3 | .. | 22 | .. |
| Kazakhstan | 7,371 | .. | 33.7 | .. | 30.7 | .. | 81 | .. | 17 | .. | 2 | .. |
| Kenya | 1,004 | .. | 2.0 | .. | 6.8 | .. | 76 | (15) | 4 | (15) | 20 | (15) |
| Kiribati | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Korea, Dem. Rep. | 3,462 | .. | 14.2 | .. | 18.4 | .. | 73 | .. | 16 | .. | 11 | .. |
| Korea, Rep. | 1,476 | .. | 23.7 | .. | 33.9 | .. | 63 | .. | 11 | .. | 26 | .. |
| Kuwait | 0 | .. | 0.5 | .. | .. | .. | 60 | .. | 2 | .. | 37 | .. |
| Kyrgyz Republic | 9,461 | .. | 10.1 | .. | 27.1 | .. | 94 | .. | 3 | .. | 3 | .. |
| Lao PDR | 63,175 | .. | 1.0 | .. | 0.3 | .. | 82 | .. | 10 | .. | 8 | .. |
| Latvia | 14,924 | .. | 0.3 | .. | 0.8 | .. | 13 | .. | 32 | .. | 55 | .. |
| Lebanon | 1,109 | .. | 1.3 | .. | 26.9 | .. | 68 | .. | 4 | .. | 28 | .. |
| Lesotho | 2,555 | .. | 0.1 | .. | 1.0 | .. | 56 | (15) | 22 | .. | 22 | (15) |
| Liberia | 74,121 | .. | 0.1 | .. | 0.1 | .. | 60 | (15) | 13 | (15) | 27 | (15) |
| Libya | 151 | .. | 3.9 | .. | 486.3 | .. | 87 | (15) | 4 | (15) | 9 | (15) |
| Liechtenstein | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Lithuania | 6,857 | .. | 3.6 | .. | 14.9 | .. | 3 | .. | 16 | .. | 81 | .. |
| Luxembourg | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Macao, China | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Macedonia, FYR | 3,447 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Madagascar | 21,710 | .. | 19.7 | .. | 5.8 | .. | 99 | (15) | 0 | (15) | 1 | (15) |
| Malawi | 1,804 | .. | 0.9 | .. | 5.1 | .. | 86 | (15) | 3 | (15) | 10 | (15) |
| Malaysia | 24,925 | .. | 12.7 | .. | 2.2 | .. | 76 | .. | 13 | .. | 11 | .. |
| Maldives | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Mali | 9,225 | .. | 1.4 | .. | 1.4 | .. | 97 | (15) | 1 | (15) | 2 | (15) |
| Malta | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Marshall Islands | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Mauritania | 4,278 | .. | 16.3 | .. | 14.3 | .. | 92 | .. | 2 | .. | 6 | .. |
| Mauritius | 1,855 | .. | 0.4 | .. | 16.4 | .. | 77 | (15) | 7 | (15) | 16 | (15) |
| Mayotte | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Mexico | 4,675 | .. | 77.8 | .. | 17.0 | .. | 78 | .. | 5 | .. | 17 | .. |
| Micronesia, Fed. Sts. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Moldova | 2,732 | .. | 3.0 | .. | 25.3 | .. | 26 | .. | 65 | .. | 9 | .. |
| Monaco | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Mongolia | 14,512 | .. | 0.4 | .. | 1.2 | .. | 53 | .. | 27 | .. | 20 | .. |
| Morocco | 1,045 | .. | 11.1 | .. | 36.8 | .. | 92 | (15) | 3 | (15) | 5 | (15) |
| Mozambique | 11,927 | .. | 0.6 | .. | 0.3 | .. | 89 | (15) | 2 | (15) | 9 | (15) |
| Myanmar | 21,898 | .. | 4.0 | .. | 0.4 | .. | 90 | .. | 3 | .. | 7 | .. |
| Namibia | 25,896 | .. | 0.3 | .. | 0.5 | .. | 68 | (15) | 3 | (15) | 29 | (15) |
| Nepal | 9,122 | .. | 29.0 | .. | 13.8 | .. | 99 | .. | 0 | .. | 1 | .. |
| Netherlands | 5,716 | .. | 7.8 | .. | 8.6 | .. | 34 | .. | 61 | .. | 5 | .. |
| Netherlands Antilles | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| New Caledonia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| New Zealand | 85,361 | .. | 2.0 | .. | 0.6 | .. | 44 | .. | 10 | .. | 46 | .. |
| Nicaragua | 37,507 | .. | 1.3 | .. | 0.7 | .. | 84 | .. | 2 | .. | 14 | .. |
| Niger | 3,000 | .. | 0.5 | .. | 1.5 | .. | 82 | (15) | 2 | (15) | 16 | (15) |
| Nigeria | 2,206 | .. | 4.0 | .. | 1.3 | .. | 54 | (15) | 15 | (15) | 31 | (15) |
| Northern Mariana Islands | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Norway | 87,508 | .. | 2.0 | .. | 0.5 | .. | 3 | .. | 68 | .. | 27 | .. |
| Oman | 418 | .. | 1.2 | .. | 122.0 | .. | 94 | .. | 2 | .. | 5 | .. |
| Pakistan | 1,847 | .. | 155.6 | .. | 61.0 | .. | 97 | .. | 2 | .. | 2 | .. |
| Palau | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Panama | 51,611 | .. | 1.6 | .. | 1.1 | .. | 70 | .. | 2 | .. | 28 | .. |

| 1. GWA Theme | Water for nature | .. | Water for nature | .. | Water for nature | .. | Water for nature/ Water for food | .. | Water for nature | .. | Water for nature/ Water for People | .. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2. GWA Indicator ID | Indicator 08 | note | Indicator 09 | note | Indicator 10 | note | Indicator 11 | note | Indicator 12 | note | Indicator 13 | note |
| 3. Indicator | Total freshwater resources | .. | Annual freshwater withdrawals | .. | Annual freshwater withdrawals | .. | Annual freshwater withdrawals | .. | Annual freshwater withdrawals | .. | Annual freshwater withdrawals | .. |
| 4. Sub-category | cubic metres per capita | (12) | billion cubic metres | (13) | % of total resources | (12), (13) | % for agriculture | .. | % for industry | .. | % for domestic | .. |
| 5. Year of data | 2000 | .. | Any year from 1980 to 1999 | .. | Any year from 1980 to 1999 | .. | 1987, or see footnotes | (14) | 1987, or see footnotes | (14) | 1987, or see footnotes | (14) |
| 6. Source | WB WDI 2002 | .. | WB WDI 2002 | .. | WB WDI 2002 | .. | WB WDI 2002 | .. | WB WDI 2002 | .. | WB WDI 2002 | .. |
| Papua New Guinea | 156,140 | .. | 0.1 | .. | 0.0 | .. | 49 | .. | 22 | .. | 29 | .. |
| Paraguay | 17,103 | .. | 0.4 | .. | 0.5 | .. | 78 | .. | 7 | .. | 15 | .. |
| Peru | 73,653 | .. | 19.0 | .. | 1.0 | .. | 86 | .. | 7 | .. | 7 | .. |
| Philippines | 6,338 | .. | 55.4 | .. | 11.6 | .. | 88 | .. | 4 | .. | 8 | .. |
| Poland | 1,630 | .. | 12.1 | .. | 19.2 | .. | 11 | .. | 76 | .. | 13 | .. |
| Portugal | 7,194 | .. | 7.3 | .. | 10.1 | .. | 53 | .. | 40 | .. | 8 | .. |
| Puerto Rico | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Qatar | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Romania | 9,762 | .. | 0.0 | .. | 9.0 | .. | .. | .. | .. | .. | .. | .. |
| Russian Federation | 30,904 | .. | 77.1 | .. | 1.7 | .. | 20 | .. | 62 | .. | 19 | .. |
| Rwanda | 740 | .. | 0.8 | .. | 12.2 | .. | 94 | (15) | 1 | (15) | 5 | (15) |
| Samoa | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| San Marino | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Sao Tome and Principe | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Saudi Arabia | 116 | .. | 17.0 | .. | 708.3 | .. | 90 | .. | 1 | .. | 9 | .. |
| Senegal | 4,134 | .. | 1.5 | .. | 3.5 | .. | 92 | (15) | 3 | (15) | 5 | (15) |
| Seychelles | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Sierra Leone | 31,803 | .. | 0.4 | .. | 0.2 | .. | 89 | (15) | 4 | (15) | 7 | (15) |
| Singapore | .. | 0.00 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Slovak Republic | 15,365 | .. | 1.4 | .. | 1.7 | .. | .. | .. | .. | .. | .. | .. |
| Slovenia | 9,306 | .. | 0.5 | .. | 2.7 | .. | .. | .. | 50 | .. | 50 | .. |
| Solomon Islands | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Somalia | 1,789 | .. | 0.8 | .. | 5.2 | .. | 97 | (15) | 0 | (15) | 3 | (15) |
| South Africa | 1,168 | .. | 13.3 | .. | 26.6 | .. | 72 | (15) | 11 | (15) | 17 | (15) |
| Spain | 2,840 | .. | 35.5 | .. | 31.7 | .. | 62 | .. | 26 | .. | 12 | .. |
| Sri Lanka | 2,583 | .. | 9.8 | .. | 19.5 | .. | 96 | .. | 2 | .. | 2 | .. |
| St. Kitts and Nevis | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| St. Lucia | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| St. Vincent and the Grenadines | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Sudan | 4,953 | .. | 17.8 | .. | 11.6 | .. | 94 | (15) | 1 | (15) | 5 | (15) |
| Suriname | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Swaziland | 4,306 | .. | 0.7 | .. | 14.7 | .. | 96 | (15) | 2 | (15) | 2 | (15) |
| Sweden | 21,445 | .. | 2.7 | .. | 1.4 | .. | 9 | .. | 55 | .. | 36 | .. |
| Switzerland | 7,382 | .. | 2.6 | .. | 4.9 | .. | 0 | .. | 58 | .. | 42 | .. |
| Syrian Arab Republic | 2,761 | .. | 14.4 | .. | 32.2 | .. | 94 | .. | 2 | .. | 4 | .. |
| Tajikistan | 12,901 | .. | 11.9 | .. | 14.9 | .. | 92 | .. | 4 | .. | 4 | .. |
| Tanzania | 2,641 | .. | 1.2 | .. | 1.3 | .. | 89 | (15) | 2 | (15) | 9 | (15) |
| Thailand | 6,750 | .. | 33.1 | .. | 8.1 | .. | 91 | .. | 4 | .. | 5 | .. |
| Togo | 2,651 | .. | 0.1 | .. | 0.8 | .. | 25 | (15) | 13 | (15) | 62 | (15) |
| Tonga | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Trinidad and Tobago | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Tunisia | 408 | .. | 2.8 | .. | 68.7 | .. | 86 | (15) | 2 | (15) | 13 | (15) |
| Turkey | 3,118 | .. | 35.5 | .. | 17.4 | .. | 73 | (15) | 11 | (15) | 16 | (15) |
| Turkmenistan | 11,714 | .. | 23.8 | .. | 39.0 | .. | 98 | .. | 1 | .. | 1 | .. |
| Uganda | 2,972 | .. | 0.2 | .. | 0.3 | .. | 60 | .. | 8 | .. | 32 | .. |
| Ukraine | 2,820 | .. | 26.0 | .. | 18.6 | .. | 30 | .. | 52 | .. | 18 | .. |
| United Arab Emirates | 69 | .. | 2.1 | .. | 1055.0 | .. | 67 | .. | 9 | .. | 24 | .. |
| United Kingdom | 2,461 | .. | 9.3 | .. | 6.4 | .. | 3 | .. | 77 | .. | 20 | .. |
| United States | 8,801 | .. | 447.7 | .. | 18.9 | .. | 27 | (15) | 65 | (15) | 8 | (15) |
| Uruguay | 39,856 | .. | 4.2 | .. | 3.2 | .. | 91 | .. | 3 | .. | 6 | .. |
| Uzbekistan | 4,622 | .. | 58.0 | .. | 50.7 | .. | 94 | .. | 2 | .. | 4 | .. |
| Vanuatu | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Venezuela, RB | 35,002 | .. | 4.1 | .. | 0.5 | .. | 46 | .. | 10 | .. | 44 | .. |
| Vietnam | 11,350 | .. | 54.3 | .. | 6.1 | .. | 86 | .. | 10 | .. | 4 | .. |
| Virgin Islands (U.S.) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| West Bank and Gaza | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Yemen, Rep. | 234 | .. | 2.9 | .. | 71.5 | .. | 92 | .. | 1 | .. | 7 | .. |
| Yugoslavia, Fed. Rep. | 17,674 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Zambia | 11,498 | .. | 1.7 | .. | 1.5 | .. | 77 | (15) | 7 | (15) | 16 | (15) |
| Zimbabwe | 1,117 | .. | 1.2 | .. | 8.7 | .. | 79 | (15) | 7 | (15) | 14 | (15) |

| 1. GWA Theme | Sanitation for people | Sanitation for people | Sanitation for people | Water for people | Water for people | Water for people |
|---|---|---|---|---|---|---|
| 2. GWA Indicator ID | Indicator 14 | Indicator 15 | Indicator 16 | Indicator 17 | Indicator 18 | Indicator 19 |
| 3. Indicator | Sanitation coverage | Sanitation coverage | Sanitation coverage | Water supply coverage | Water supply coverage | Water supply coverage |
| 4. Sub-category | % urban sanitation coverage | % rural sanitation coverage | % total sanitation coverage | % urban water supply coverage | % rural water supply coverage | % total water supply coverage |
| 5. Year of data | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 |
| 6. Source | WHO/UNICEF GWSSA 2000 | WHO/UNICEF GWSSA 2000 | WHO/UNICEF GWSSA 2000 | WHO/UNICEF GWSSA 2000 | WHO/UNICEF GWSSA 2000 | WHO/UNICEF GWSSA 2000 |
| 7. Original data source | na | na | na | na | na | na |
| Afghanistan | 25 | 8 | 12 | 19 | 11 | 13 |
| Albania | .. | .. | .. | .. | .. | .. |
| Algeria | 90 | 47 | 73 | 98 | 88 | 94 |
| American Samoa | .. | .. | .. | 100 | 100 | 100 |
| Andorra | 100 | 100 | 100 | 100 | 100 | 100 |
| Angola | 70 | 30 | 44 | 34 | 40 | 38 |
| Antigua and Barbuda | 98 | 94 | 96 | 95 | 88 | 91 |
| Argentina | 89 | 48 | 85 | 85 | 30 | 79 |
| Armenia | .. | .. | .. | .. | .. | .. |
| Aruba | .. | .. | .. | .. | .. | 100 |
| Australia | 100 | 100 | 100 | 100 | 100 | 100 |
| Austria | 100 | 100 | 100 | 100 | 100 | 100 |
| Azerbaijan | .. | .. | .. | .. | .. | .. |
| Bahamas, The | 93 | 94 | 93 | 98 | 86 | 96 |
| Bahrain | .. | .. | .. | .. | .. | .. |
| Bangladesh | 82 | 44 | 53 | 99 | 97 | 97 |
| Barbados | 100 | 100 | 100 | 100 | 100 | 100 |
| Belarus | .. | .. | .. | 100 | 100 | 100 |
| Belgium | .. | .. | .. | .. | .. | .. |
| Belize | 59 | 21 | 42 | 83 | 69 | 76 |
| Benin | 46 | 6 | 23 | 74 | 55 | 63 |
| Bermuda | .. | .. | .. | .. | .. | .. |
| Bhutan | 65 | 70 | 69 | 86 | 60 | 62 |
| Bolivia | 82 | 38 | 66 | 93 | 55 | 79 |
| Bosnia and Herzegovina | .. | .. | .. | .. | .. | .. |
| Botswana | .. | .. | .. | 100 | .. | .. |
| Brazil | 85 | 40 | 77 | 95 | 54 | 87 |
| Brunei | .. | .. | .. | .. | .. | .. |
| Bulgaria | .. | .. | .. | .. | .. | .. |
| Burkina Faso | 88 | 16 | 29 | 84 | .. | .. |
| Burundi | 79 | .. | .. | 96 | .. | .. |
| Cambodia | 58 | 10 | 18 | 53 | 25 | 30 |
| Cameroon | 99 | 85 | 92 | 82 | 42 | 62 |
| Canada | 100 | 99 | 100 | 100 | 99 | 100 |
| Cape Verde | 95 | 32 | 71 | 64 | 89 | 74 |
| Cayman Islands | .. | .. | .. | .. | .. | .. |
| Central African Republic | 43 | 23 | 31 | 80 | 46 | 60 |
| Chad | 81 | 13 | 29 | 31 | 26 | 27 |
| Channel Islands | 100 | 100 | 100 | 100 | 100 | 100 |
| Chile | 98 | 93 | 97 | 99 | 66 | 94 |
| China | 68 | 24 | 38 | 94 | 66 | 75 |
| Colombia | 97 | 51 | 85 | 98 | 73 | 91 |
| Comoros | 98 | 98 | 98 | 98 | 95 | 96 |
| Congo, Dem. Rep. | 53 | 6 | 20 | 89 | 26 | 45 |
| Congo, Rep. | 14 | .. | .. | 71 | 17 | 51 |
| Costa Rica | 98 | 96 | 96 | 98 | 98 | 98 |
| Cote d'Ivoire | .. | .. | .. | 90 | 65 | 77 |
| Croatia | .. | .. | 100 | .. | .. | 95 |
| Cuba | 96 | 91 | 95 | 99 | 82 | 95 |
| Cyprus | 100 | 100 | 100 | 100 | 100 | 100 |
| Czech Republic | .. | .. | .. | .. | .. | .. |
| Denmark | .. | .. | .. | 100 | 100 | 100 |
| Djibouti | 99 | 50 | 91 | 100 | 100 | 100 |
| Dominica | .. | .. | .. | .. | .. | .. |
| Dominican Republic | 75 | 64 | 71 | 83 | 70 | 79 |
| Ecuador | 70 | 37 | 59 | 81 | 51 | 71 |
| Egypt, Arab Rep. | 98 | 91 | 94 | 96 | 94 | 95 |
| El Salvador | 88 | 78 | 83 | 88 | 61 | 74 |
| Equatorial Guinea | 60 | 46 | 53 | 45 | 42 | 43 |
| Eritrea | 66 | 1 | 13 | 63 | 42 | 46 |
| Estonia | 93 | .. | .. | .. | .. | .. |
| Ethiopia | 58 | 6 | 15 | 77 | 13 | 24 |
| Faeroe Islands | .. | .. | .. | .. | .. | .. |
| Fiji | 75 | 12 | 43 | 43 | 51 | 47 |
| Finland | 100 | 100 | 100 | 100 | 100 | 100 |
| France | .. | .. | .. | .. | .. | .. |
| French Polynesia | 99 | 97 | 98 | 100 | 100 | 100 |
| Gabon | 25 | 4 | 21 | 73 | 55 | 70 |
| Gambia, The | 41 | 35 | 37 | 80 | 53 | 62 |
| Georgia | .. | .. | 99 | .. | .. | 76 |
| Germany | .. | .. | .. | .. | .. | .. |
| Ghana | 62 | 64 | 63 | 87 | 49 | 64 |

| 1. GWA Theme | Sanitation for people | Sanitation for people | Sanitation for people | Water for people | Water for people | Water for people |
|---|---|---|---|---|---|---|
| 2. GWA Indicator ID | Indicator 14 | Indicator 15 | Indicator 16 | Indicator 17 | Indicator 18 | Indicator 19 |
| 3. Indicator | Sanitation coverage | Sanitation coverage | Sanitation coverage | Water supply coverage | Water supply coverage | Water supply coverage |
| 4. Sub-category | % urban sanitation coverage | % rural sanitation coverage | % total sanitation coverage | % urban water supply coverage | % rural water supply coverage | % total water supply coverage |
| 5. Year of data | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 |
| 6. Source | WHO/UNICEF GWSSA 2000 | WHO/UNICEF GWSSA 2000 | WHO/UNICEF GWSSA 2000 | WHO/UNICEF GWSSA 2000 | WHO/UNICEF GWSSA 2000 | WHO/UNICEF GWSSA 2000 |
| Greece | .. | .. | .. | .. | .. | .. |
| Greenland | .. | .. | .. | .. | .. | .. |
| Grenada | 96 | 97 | 97 | 97 | 93 | 94 |
| Guam | .. | .. | .. | .. | .. | .. |
| Guatemala | 98 | 76 | 85 | 97 | 88 | 92 |
| Guinea | 94 | 41 | 58 | 72 | 36 | 48 |
| Guinea-Bissau | 88 | 34 | 47 | 29 | 55 | 49 |
| Guyana | 97 | 81 | 87 | 98 | 91 | 94 |
| Haiti | 50 | 16 | 28 | 49 | 45 | 46 |
| Honduras | 94 | 57 | 77 | 97 | 82 | 90 |
| Hong Kong, China | .. | .. | .. | .. | .. | .. |
| Hungary | 100 | 98 | 99 | 100 | 98 | 99 |
| Iceland | .. | .. | .. | .. | .. | .. |
| India | 73 | 14 | 31 | 92 | 86 | 88 |
| Indonesia | 87 | 52 | 66 | 91 | 65 | 76 |
| Iran, Islamic Rep. | 86 | 74 | 81 | 99 | 89 | 95 |
| Iraq | 93 | 31 | 79 | 96 | 48 | 85 |
| Ireland | .. | .. | .. | .. | .. | .. |
| Isle of Man | .. | .. | .. | .. | .. | .. |
| Israel | .. | .. | .. | .. | .. | .. |
| Italy | .. | .. | .. | .. | .. | .. |
| Jamaica | 98 | 65 | 84 | 81 | 59 | 71 |
| Japan | .. | .. | .. | .. | .. | .. |
| Jordan | 100 | 98 | 99 | 100 | 84 | 96 |
| Kazakhstan | 100 | 98 | 99 | 98 | 82 | 91 |
| Kenya | 96 | 81 | 86 | 87 | 31 | 49 |
| Kiribati | 54 | 44 | 48 | 82 | 25 | 47 |
| Korea, Dem. Rep. | .. | .. | .. | .. | .. | .. |
| Korea, Rep. | 76 | 4 | 63 | 97 | 71 | 92 |
| Kuwait | .. | .. | .. | .. | .. | .. |
| Kyrgyz Republic | 100 | 100 | 100 | 98 | 66 | 77 |
| Lao PDR | 84 | 34 | 46 | 59 | 100 | 90 |
| Latvia | .. | .. | .. | .. | .. | .. |
| Lebanon | 100 | 87 | 99 | 100 | 100 | 100 |
| Lesotho | 93 | 92 | 92 | 98 | 88 | 91 |
| Liberia | .. | .. | .. | .. | .. | .. |
| Libya | 97 | 96 | 97 | 72 | 68 | 72 |
| Liechtenstein | .. | .. | .. | .. | .. | .. |
| Lithuania | .. | .. | .. | .. | .. | .. |
| Luxembourg | .. | .. | .. | .. | .. | .. |
| Macao, China | .. | .. | .. | .. | .. | .. |
| Macedonia, FYR | .. | .. | 99 | .. | .. | 99 |
| Madagascar | 70 | 30 | 42 | 85 | 31 | 47 |
| Malawi | 96 | 70 | 77 | 95 | 44 | 57 |
| Malaysia | .. | 98 | .. | .. | 94 | .. |
| Maldives | 100 | 41 | 56 | 100 | 100 | 100 |
| Mali | 93 | 58 | 69 | 74 | 61 | 65 |
| Malta | 100 | 100 | 100 | 100 | 100 | 100 |
| Marshall Islands | .. | .. | .. | .. | .. | .. |
| Mauritania | 44 | 19 | 33 | 34 | 40 | 37 |
| Mauritius | 100 | 99 | 99 | 100 | 100 | 100 |
| Mayotte | .. | .. | .. | .. | .. | .. |
| Mexico | 87 | 32 | 73 | 94 | 63 | 86 |
| Micronesia, Fed. Sts. | .. | .. | .. | .. | .. | .. |
| Moldova | 100 | .. | .. | 100 | 100 | 100 |
| Monaco | 100 | 100 | 100 | 100 | 100 | 100 |
| Mongolia | 46 | 2 | 30 | 77 | 30 | 60 |
| Morocco | 100 | 42 | 75 | 100 | 58 | 82 |
| Mozambique | 69 | 26 | 43 | 86 | 43 | 60 |
| Myanmar | 65 | 39 | 46 | 88 | 60 | 68 |
| Namibia | 96 | 17 | 41 | 100 | 67 | 77 |
| Nepal | 75 | 20 | 27 | 85 | 80 | 81 |
| Netherlands | 100 | 100 | 100 | 100 | 100 | 100 |
| Netherlands Antilles | .. | .. | .. | .. | .. | .. |
| New Caledonia | .. | .. | .. | .. | .. | .. |
| New Zealand | .. | .. | .. | 100 | .. | .. |
| Nicaragua | 96 | 68 | 84 | 95 | 59 | 79 |
| Niger | 79 | 5 | 20 | 70 | 56 | 59 |
| Nigeria | 85 | 45 | 63 | 81 | 39 | 57 |
| Northern Mariana Islands | .. | 92 | .. | .. | .. | .. |
| Norway | .. | .. | .. | 100 | 100 | 100 |
| Oman | 98 | 61 | 92 | 41 | 30 | 39 |
| Pakistan | 94 | 42 | 61 | 96 | 84 | 88 |
| Palau | 100 | 100 | 100 | 100 | 20 | 79 |
| Panama | 99 | 87 | 94 | 88 | 86 | 87 |

| 1. GWA Theme | Sanitation for people | Sanitation for people | Sanitation for people | Water for people | Water for people | Water for people |
|---|---|---|---|---|---|---|
| 2. GWA Indicator ID | Indicator 14 | Indicator 15 | Indicator 16 | Indicator 17 | Indicator 18 | Indicator 19 |
| 3. Indicator | Sanitation coverage | Sanitation coverage | Sanitation coverage | Water supply coverage | Water supply coverage | Water supply coverage |
| 4. Sub-category | % urban sanitation coverage | % rural sanitation coverage | % total sanitation coverage | % urban water supply coverage | % rural water supply coverage | % total water supply coverage |
| 5. Year of data | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 |
| 6. Source | WHO/UNICEF GWSSA 2000 | WHO/UNICEF GWSSA 2000 | WHO/UNICEF GWSSA 2000 | WHO/UNICEF GWSSA 2000 | WHO/UNICEF GWSSA 2000 | WHO/UNICEF GWSSA 2000 |
| Papua New Guinea | 92 | 80 | 82 | 88 | 32 | 42 |
| Paraguay | 95 | 95 | 95 | 95 | 58 | 79 |
| Peru | 90 | 40 | 76 | 87 | 51 | 77 |
| Philippines | 92 | 71 | 83 | 92 | 80 | 87 |
| Poland | .. | .. | .. | .. | .. | .. |
| Portugal | .. | .. | .. | .. | .. | .. |
| Puerto Rico | .. | .. | .. | .. | .. | .. |
| Qatar | .. | .. | .. | .. | .. | .. |
| Romania | 86 | 10 | 53 | 91 | 16 | 58 |
| Russian Federation | .. | .. | .. | 100 | 96 | 99 |
| Rwanda | 12 | 8 | 8 | 60 | 40 | 41 |
| Samoa | 95 | 100 | 99 | 95 | 100 | 99 |
| San Marino | .. | .. | .. | .. | .. | .. |
| Sao Tome and Principe | .. | .. | .. | .. | .. | .. |
| Saudi Arabia | 100 | 100 | 100 | 100 | 64 | 95 |
| Senegal | 94 | 48 | 70 | 92 | 65 | 78 |
| Seychelles | .. | .. | .. | .. | .. | .. |
| Sierra Leone | 23 | 31 | 28 | 23 | 31 | 28 |
| Singapore | 100 | .. | 100 | 100 | .. | 100 |
| Slovak Republic | 100 | 100 | 100 | 100 | 100 | 100 |
| Slovenia | .. | .. | .. | 100 | 100 | 100 |
| Solomon Islands | 98 | 18 | 34 | 94 | 65 | 71 |
| Somalia | .. | .. | .. | .. | .. | .. |
| South Africa | 99 | 73 | 86 | 92 | 80 | 86 |
| Spain | .. | .. | .. | .. | .. | .. |
| Sri Lanka | 91 | 83 | 83 | 91 | 80 | 83 |
| St. Kitts and Nevis | .. | .. | 96 | .. | .. | 98 |
| St. Lucia | .. | .. | .. | .. | .. | 98 |
| St. Vincent and the Grenadines | .. | .. | 96 | .. | .. | 93 |
| Sudan | 87 | 48 | 62 | 86 | 69 | 75 |
| Suriname | 100 | 34 | 83 | 94 | 96 | 95 |
| Swaziland | .. | .. | .. | .. | .. | .. |
| Sweden | 100 | 100 | 100 | 100 | 100 | 100 |
| Switzerland | 100 | 100 | 100 | 100 | 100 | 100 |
| Syrian Arab Republic | 98 | 81 | 90 | 94 | 64 | 80 |
| Tajikistan | .. | .. | .. | .. | .. | .. |
| Tanzania | 98 | 86 | 90 | 80 | 42 | 54 |
| Thailand | 97 | 96 | 96 | 89 | 77 | 80 |
| Togo | 69 | 17 | 34 | 85 | 38 | 54 |
| Tonga | .. | .. | .. | 100 | 100 | 100 |
| Trinidad and Tobago | .. | .. | 88 | .. | .. | 86 |
| Tunisia | .. | .. | .. | .. | .. | .. |
| Turkey | 98 | 70 | 91 | 82 | 84 | 83 |
| Turkmenistan | .. | .. | 100 | .. | .. | 58 |
| Uganda | 96 | 72 | 75 | 72 | 46 | 50 |
| Ukraine | .. | .. | .. | .. | .. | .. |
| United Arab Emirates | .. | .. | .. | .. | .. | .. |
| United Kingdom | 100 | 100 | 100 | 100 | 100 | 100 |
| United States | 100 | 100 | 100 | 100 | 100 | 100 |
| Uruguay | 96 | 89 | 95 | 98 | 93 | 98 |
| Uzbekistan | 100 | 100 | 100 | 96 | 78 | 85 |
| Vanuatu | 100 | 100 | 100 | 63 | 94 | 88 |
| Venezuela, RB | 75 | 69 | 74 | 88 | 58 | 84 |
| Vietnam | 86 | 70 | 73 | 81 | 50 | 56 |
| Virgin Islands (U.S.) | .. | .. | .. | .. | .. | .. |
| West Bank and Gaza | .. | .. | .. | .. | .. | .. |
| Yemen, Rep. | 87 | 31 | 45 | 85 | 64 | 69 |
| Yugoslavia, Fed. Rep. | .. | .. | .. | .. | .. | .. |
| Zambia | 99 | 64 | 78 | 88 | 48 | 64 |
| Zimbabwe | 99 | 51 | 68 | 100 | 77 | 85 |

| 1. GWA Theme | Water for food | .. | Water for food | .. | Water for food | .. |
|---|---|---|---|---|---|---|
| 2. GWA Indicator ID | Indicator 20 | note | Indicator 21 | note | Indicator 22 | note |
| 3. Indicator | Irrigated land | .. | Irrigation potential | .. | Total irrigation | (16) |
| 4. Sub-category | % of crop land | .. | ha | .. | ha | .. |
| 5. Year of data | 1999 | .. | na | .. | na | .. |
| 6. Source | WB WDI 2002 | .. | UN FAO AQUASTAT | .. | UN FAO AQUASTAT | .. |
| 7. Original data source | UN FAO | .. | na | .. | na | .. |
| Afghanistan | 29.6 | .. | .. | .. | 2,385,740 | .. |
| Albania | 48.6 | .. | .. | .. | 340,000 | .. |
| Algeria | 6.8 | .. | 730,000 | .. | 555,500 | .. |
| American Samoa | .. | .. | .. | .. | .. | .. |
| Andorra | .. | .. | .. | .. | .. | .. |
| Angola | 2.1 | .. | 6,700,000 | .. | 75,000 | .. |
| Antigua and Barbuda | .. | .. | .. | .. | 130 | .. |
| Argentina | 5.7 | .. | 6,128,178 | .. | 1,550,233 | .. |
| Armenia | 51.3 | .. | 653,651 | .. | 285,649 | .. |
| Aruba | .. | .. | .. | .. | .. | .. |
| Australia | 4.7 | .. | .. | .. | 2,400,000 | .. |
| Austria | 0.3 | .. | .. | .. | 4,000 | .. |
| Azerbaijan | 73.4 | .. | 1,720,000 | .. | 1,453,318 | .. |
| Bahamas, The | .. | .. | .. | .. | .. | .. |
| Bahrain | 83.3 | .. | 4,230 | .. | 3,165 | .. |
| Bangladesh | 47.2 | .. | 7,550,000 | .. | 3,751,045 | .. |
| Barbados | 5.9 | .. | 3,587 | .. | 1,000 | .. |
| Belarus | 1.8 | .. | .. | .. | 131,000 | .. |
| Belgium | 4.8 | .. | .. | .. | 40,000 | .. |
| Belize | 3.4 | .. | 3,000 | .. | 3,000 | .. |
| Benin | 0.6 | .. | 300,000 | .. | 10,236 | .. |
| Bermuda | .. | .. | .. | .. | .. | .. |
| Bhutan | 25.0 | .. | .. | .. | 38,734 | .. |
| Bolivia | 5.9 | .. | 2,000,000 | .. | 128,239 | .. |
| Bosnia and Herzegovina | 0.5 | .. | .. | .. | 2,000 | .. |
| Botswana | 0.3 | .. | 20,216 | .. | 1,381 | .. |
| Brazil | 4.4 | .. | 29,350,000 | .. | 2,870,204 | .. |
| Brunei | 14.3 | .. | .. | .. | 1,000 | .. |
| Bulgaria | 17.7 | .. | .. | .. | 800,000 | .. |
| Burkina Faso | 0.7 | .. | 164,460 | .. | 24,330 | .. |
| Burundi | 6.7 | .. | 185,000 | .. | 14,400 | .. |
| Cambodia | 7.1 | .. | 606,364 | .. | 269,461 | .. |
| Cameroon | 0.5 | .. | 240,000 | .. | 20,970 | .. |
| Canada | 1.6 | .. | .. | .. | 720,000 | .. |
| Cape Verde | 7.3 | .. | 2,987 | .. | 2,779 | .. |
| Cayman Islands | .. | .. | .. | .. | .. | .. |
| Central African Republic | .. | .. | 1,900,000 | .. | 135 | .. |
| Chad | 0.6 | .. | 935,000 | .. | 14,020 | .. |
| Channel Islands | .. | .. | .. | .. | .. | .. |
| Chile | 78.5 | .. | 2,500,000 | .. | 1,900,000 | .. |
| China | 39.7 | .. | .. | .. | .. | .. |
| Colombia | 19.5 | .. | 6,589,200 | .. | 900,000 | .. |
| Comoros | .. | .. | 303 | .. | 130 | .. |
| Congo, Dem. Rep. | 0.1 | .. | 4,000,000 | .. | 10,500 | .. |
| Congo, Rep. | 0.5 | .. | 40,000 | .. | 217 | .. |
| Costa Rica | 21.4 | .. | 430,000 | .. | 103,084 | .. |
| Cote d'Ivoire | 1.0 | .. | 475,000 | .. | 72,750 | .. |
| Croatia | 0.2 | .. | .. | .. | 3,000 | .. |
| Cuba | 19.5 | .. | 2,700,000 | .. | 870,317 | .. |
| Cyprus | 28.0 | .. | 36,807 | .. | 39,938 | .. |
| Czech Republic | 0.7 | .. | .. | .. | 24,000 | .. |
| Denmark | 19.4 | .. | .. | .. | 476,000 | .. |
| Djibouti | .. | .. | 1,000 | .. | 674 | .. |
| Dominica | .. | .. | .. | .. | .. | .. |
| Dominican Republic | 17.1 | .. | 710,000 | .. | 269,710 | .. |
| Ecuador | 28.8 | .. | 3,136,086 | .. | 863,370 | .. |
| Egypt, Arab Rep. | 100.0 | .. | 4,435,000 | .. | 3,246,000 | .. |
| El Salvador | 4.9 | .. | 200,000 | .. | 44,993 | .. |
| Equatorial Guinea | .. | .. | .. | .. | .. | .. |
| Eritrea | 4.4 | .. | .. | .. | 28,124 | .. |
| Estonia | 0.4 | .. | 150,000 | .. | 3,680 | .. |
| Ethiopia | 1.8 | .. | 3,637,000 | .. | 189,556 | .. |
| Faeroe Islands | .. | .. | .. | .. | .. | .. |
| Fiji | 1.1 | .. | .. | .. | 3,000 | .. |
| Finland | 2.9 | .. | .. | .. | 64,000 | .. |
| France | 10.8 | .. | .. | .. | 2,000,000 | .. |
| French Polynesia | .. | .. | .. | .. | .. | .. |
| Gabon | 3.0 | .. | 440,000 | .. | 4,450 | .. |
| Gambia, The | 1.0 | .. | 80,000 | .. | 1,670 | .. |
| Georgia | 44.2 | .. | 725,000 | .. | 469,000 | .. |
| Germany | 4.0 | .. | .. | .. | 485,000 | .. |
| Ghana | 0.2 | .. | 1,900,000 | .. | 6,374 | .. |

| 1. GWA Theme | Water for food | .. | Water for food | .. | Water for food | .. |
|---|---|---|---|---|---|---|
| 2. GWA Indicator ID | Indicator 20 | note | Indicator 21 | note | Indicator 22 | note |
| 3. Indicator | Irrigated land | .. | Irrigation potential | .. | Total irrigation | (16) |
| 4. Sub-category | % of crop land | .. | ha | .. | ha | .. |
| 5. Year of data | 1999 | .. | na | .. | na | .. |
| 6. Source | WB WDI 2002 | .. | UN FAO AQUASTAT | .. | UN FAO AQUASTAT | .. |
| Greece | 37.2 | .. | .. | .. | 1,422,000 | .. |
| Greenland | .. | .. | .. | .. | .. | .. |
| Grenada | .. | .. | .. | .. | 219 | .. |
| Guam | .. | .. | .. | .. | .. | .. |
| Guatemala | 6.8 | .. | 2,620,000 | .. | 129,803 | .. |
| Guinea | 6.4 | .. | 520,000 | .. | 92,880 | .. |
| Guinea-Bissau | 4.9 | .. | 281,290 | .. | 17,115 | .. |
| Guyana | 30.2 | .. | .. | .. | 150,134 | .. |
| Haiti | 8.2 | .. | 142,916 | .. | 91,502 | .. |
| Honduras | 4.3 | .. | 500,000 | .. | 73,210 | .. |
| Hong Kong, China | .. | .. | .. | .. | .. | .. |
| Hungary | 4.2 | .. | .. | .. | 210,000 | .. |
| Iceland | .. | .. | .. | .. | .. | .. |
| India | 34.8 | .. | 113,512,000 | .. | 50,101,000 | .. |
| Indonesia | 15.5 | .. | 10,865,000 | .. | 4,427,922 | .. |
| Iran, Islamic Rep. | 39.3 | .. | 15,000,000 | .. | 7,264,194 | .. |
| Iraq | 63.6 | .. | 5,554,000 | .. | 3,525,000 | .. |
| Ireland | .. | .. | .. | .. | .. | .. |
| Isle of Man | .. | .. | .. | .. | .. | .. |
| Israel | 45.2 | .. | .. | .. | 180,000 | .. |
| Italy | 23.6 | .. | .. | .. | 2,698,000 | .. |
| Jamaica | 9.1 | .. | 187,814 | .. | 25,214 | .. |
| Japan | 54.6 | .. | .. | .. | 3,128,079 | .. |
| Jordan | 19.4 | .. | 85,000 | .. | 64,300 | .. |
| Kazakhstan | 7.8 | .. | 3,768,500 | .. | 3,556,400 | .. |
| Kenya | 1.5 | .. | 352,400 | .. | 66,610 | .. |
| Kiribati | .. | .. | .. | .. | .. | .. |
| Korea, Dem. Rep. | 73.0 | .. | .. | .. | 1,460,000 | .. |
| Korea, Rep. | 61.0 | .. | 1,945,480 | .. | 888,795 | .. |
| Kuwait | 100.0 | .. | 25,000 | .. | 4,770 | .. |
| Kyrgyz Republic | 74.7 | .. | 2,247,300 | .. | 1,077,100 | .. |
| Lao PDR | 18.0 | .. | 600,000 | .. | 155,394 | .. |
| Latvia | 1.1 | .. | .. | .. | 20,000 | .. |
| Lebanon | 39.0 | .. | 177,500 | .. | 87,500 | .. |
| Lesotho | .. | .. | 12,500 | .. | 2,722 | .. |
| Liberia | 0.5 | .. | 600,000 | .. | 2,100 | .. |
| Libya | 21.9 | .. | 750,000 | .. | 470,000 | .. |
| Liechtenstein | .. | .. | .. | .. | .. | .. |
| Lithuania | 0.2 | .. | .. | .. | 9,247 | .. |
| Luxembourg | .. | .. | .. | .. | .. | .. |
| Macao, China | .. | .. | .. | .. | .. | .. |
| Macedonia, FYR | 8.7 | .. | .. | .. | 55,000 | .. |
| Madagascar | 35.1 | .. | 1,500,000 | .. | 1,087,000 | .. |
| Malawi | 1.4 | .. | 161,900 | .. | 28,000 | .. |
| Malaysia | 4.8 | .. | 413,700 | .. | 362,600 | .. |
| Maldives | .. | .. | .. | .. | .. | .. |
| Mali | 3.0 | .. | 560,000 | .. | 78,620 | .. |
| Malta | 22.2 | .. | 2,000 | .. | 763 | .. |
| Marshall Islands | .. | .. | .. | .. | .. | .. |
| Mauritania | 9.8 | .. | 221,000 | .. | 49,200 | .. |
| Mauritius | 18.9 | .. | - | .. | 17,500 | .. |
| Mayotte | .. | .. | .. | .. | .. | .. |
| Mexico | 23.8 | .. | 9,766,000 | .. | 6,256,032 | .. |
| Micronesia, Fed. Sts. | .. | .. | .. | .. | .. | .. |
| Moldova | 14.1 | .. | 1,500,000 | .. | 312,000 | .. |
| Monaco | .. | .. | .. | .. | .. | .. |
| Mongolia | 6.4 | .. | 518,000 | .. | 84,300 | .. |
| Morocco | 13.8 | .. | 1,653,000 | .. | 1,258,200 | .. |
| Mozambique | 3.2 | .. | 3,300,000 | .. | 106,710 | .. |
| Myanmar | 18.2 | .. | 10,500,000 | .. | 1,555,416 | .. |
| Namibia | 0.9 | .. | 45,000 | .. | 6,142 | .. |
| Nepal | 38.2 | .. | 2,177,800 | .. | 1,134,334 | .. |
| Netherlands | 59.5 | .. | .. | .. | 565,000 | .. |
| Netherlands Antilles | .. | .. | .. | .. | .. | .. |
| New Caledonia | .. | .. | .. | .. | .. | .. |
| New Zealand | 8.7 | .. | .. | .. | 285,000 | .. |
| Nicaragua | 3.2 | .. | 700,000 | .. | 61,365 | .. |
| Niger | 1.3 | .. | 270,000 | .. | 66,480 | .. |
| Nigeria | 0.8 | .. | 3,137,000 | .. | 232,821 | .. |
| Northern Mariana Islands | .. | .. | .. | .. | .. | .. |
| Norway | .. | .. | .. | .. | 127,000 | .. |
| Oman | 80.5 | .. | .. | .. | 61,550 | .. |
| Pakistan | 82.0 | .. | .. | .. | 15,729,448 | .. |
| Palau | .. | .. | .. | .. | .. | .. |
| Panama | 5.3 | .. | 186,897 | .. | 34,626 | .. |

| 1. GWA Theme | Water for food | .. | Water for food | .. | Water for food | .. |
|---|---|---|---|---|---|---|
| 2. GWA Indicator ID | Indicator 20 | note | Indicator 21 | note | Indicator 22 | note |
| 3. Indicator | Irrigated land | .. | Irrigation potential | .. | Total irrigation | (16) |
| 4. Sub-category | % of crop land | .. | ha | .. | ha | .. |
| 5. Year of data | 1999 | .. | na | .. | na | .. |
| 6. Source | WB WDI 2002 | .. | UN FAO AQUASTAT | .. | UN FAO AQUASTAT | .. |
| Papua New Guinea | .. | .. | 360,000 | .. | .. | .. |
| Paraguay | 2.9 | .. | .. | .. | 67,000 | .. |
| Peru | 28.4 | .. | 6,411,263 | .. | 1,195,228 | .. |
| Philippines | 15.4 | .. | 3,126,000 | .. | 1,550,000 | .. |
| Poland | 0.7 | .. | .. | .. | 100,000 | .. |
| Portugal | 24.0 | .. | .. | .. | 632,000 | .. |
| Puerto Rico | 49.4 | .. | .. | .. | .. | .. |
| Qatar | 61.9 | .. | .. | .. | 12,520 | .. |
| Romania | 27.2 | .. | .. | .. | 2,880,000 | .. |
| Russian Federation | 3.6 | .. | 29,000,000 | .. | 6,124,000 | .. |
| Rwanda | 0.4 | .. | 160,000 | .. | 4,000 | .. |
| Samoa | .. | .. | .. | .. | .. | .. |
| San Marino | .. | .. | .. | .. | .. | .. |
| Sao Tome and Principe | 24.4 | .. | .. | .. | 9,700 | .. |
| Saudi Arabia | 42.8 | .. | .. | .. | 1,608,000 | .. |
| Senegal | 3.1 | .. | 400,000 | .. | 71,400 | .. |
| Seychelles | .. | .. | .. | .. | .. | .. |
| Sierra Leone | 5.4 | .. | 807,000 | .. | 29,360 | .. |
| Singapore | .. | .. | .. | .. | .. | .. |
| Slovak Republic | 11.2 | .. | .. | .. | 174,000 | .. |
| Slovenia | 1.0 | .. | .. | .. | 2,000 | .. |
| Solomon Islands | .. | .. | .. | .. | .. | .. |
| Somalia | 18.8 | .. | 240,000 | .. | 200,000 | .. |
| South Africa | 8.6 | .. | 1,500,000 | .. | 1,270,000 | .. |
| Spain | 19.6 | .. | .. | .. | 3,640,000 | .. |
| Sri Lanka | 34.8 | .. | 570,000 | .. | 570,000 | .. |
| St. Kitts and Nevis | .. | .. | 200 | .. | 18 | .. |
| St. Lucia | 17.6 | .. | .. | .. | 297 | .. |
| St. Vincent and the Grenadines | 9.1 | .. | .. | .. | .. | .. |
| Sudan | 11.5 | .. | 2,784,000 | .. | 1,946,200 | .. |
| Suriname | 76.1 | .. | .. | .. | 51,180 | .. |
| Swaziland | 38.3 | .. | 90,000 | .. | 67,400 | .. |
| Sweden | .. | .. | .. | .. | 115,000 | .. |
| Switzerland | 5.7 | .. | .. | .. | 25,000 | .. |
| Syrian Arab Republic | 21.6 | .. | 1,250,000 | .. | 1,013,273 | .. |
| Tajikistan | 83.6 | .. | 755,200 | .. | 719,200 | .. |
| Tanzania | 3.3 | .. | 828,000 | .. | 150,000 | .. |
| Thailand | 26.4 | .. | 12,245,000 | .. | 5,003,724 | .. |
| Togo | 0.3 | .. | 180,000 | .. | 7,008 | .. |
| Tonga | .. | .. | .. | .. | .. | .. |
| Trinidad and Tobago | 2.5 | .. | 102,000 | .. | 3,600 | .. |
| Tunisia | 7.5 | .. | 563,000 | .. | 385,000 | .. |
| Turkey | 16.9 | .. | 8,500,000 | .. | 4,185,910 | .. |
| Turkmenistan | 106.2 | .. | 2,353,000 | .. | 1,744,100 | .. |
| Uganda | 0.1 | .. | 202,000 | .. | 9,120 | .. |
| Ukraine | 7.2 | .. | 5,500,000 | .. | 2,605,000 | .. |
| United Arab Emirates | 56.7 | .. | 66,682 | .. | 66,682 | .. |
| United Kingdom | 1.8 | .. | .. | .. | 108,000 | .. |
| United States | 12.5 | .. | .. | .. | 21,400,000 | .. |
| Uruguay | 13.8 | .. | 1,760,000 | .. | 181,200 | .. |
| Uzbekistan | 88.3 | .. | 4,915,000 | .. | 4,280,600 | .. |
| Vanuatu | .. | .. | .. | .. | .. | .. |
| Venezuela, RB | 16.5 | .. | 1,700,000 | .. | 570,219 | .. |
| Vietnam | 40.8 | .. | 6,000,000 | .. | 3,000,000 | .. |
| Virgin Islands (U.S.) | .. | .. | .. | .. | .. | .. |
| West Bank and Gaza | .. | .. | .. | .. | .. | .. |
| Yemen, Rep. | 29.4 | .. | .. | .. | 481,520 | .. |
| Yugoslavia, Fed. Rep. | .. | .. | .. | .. | 57,000 | .. |
| Zambia | 0.9 | .. | 520,000 | .. | 46,400 | .. |
| Zimbabwe | 3.5 | .. | 331,000 | .. | 116,577 | .. |

| Footnotes | | |
|---|---|---|
| Indicator | Reference | Footnote (copied from data source) |
| 5, 6 | (1) | Preliminary UNESCO estimates subject to further revision. |
| 5, 6 | (2) | For purposes of calculating the GDI a value of 100% was applied. |
| 5, 6 | (3) | The ratio is an underestimate, as many secondary and tertiary students pursue their studies in nearby countries. |
| 5, 6 | (4) | Excludes Turkish students and population |
| 7 | (5) | Data are as of 8 March 2002. Where there are lower and upper houses, data refer to the weighted average of women's shares of seats in both houses. |
| 7 | (6) | The country has never had a parliament. |
| 7 | (7) | The first legislature of Bahrain was dissolved by decree of the emir on 26 August 1975. |
| 7 | (8) | Information for the most recent elections was not available in time for publication; data are based on previous elections. |
| 7 | (9) | Calculated on the basis of the 54 permanent seats (that is, excluding the 36 special rotating appointed on an ad hoc basis). |
| 7 | (10) | The parliament elected in 1990 has never been convened nor authorised to sit, and many of its members were detained or forced into exile. |
| 7 | (11) | Parliament has been dissolved/suspended for an indefinite period. |
| 8, 9, 10, 11, 12, 13 | (12) | River flows from other countries are included when available, but river outflows are not, because of data unreliability. |
| 8, 9, 10, 11, 12, 13 | (13) | Data refer to any year from 1980 to 1999. |
| 8, 9, 10, 11, 12, 13 | (14) | Unless otherwise noted, sectoral withdrawal shares are estimated for 1987. |
| 8, 9, 10, 11, 12, 13 | (15) | Data refer to other year than 1987 (see Primary data documentation). |
| 22 | (16) | Total irrigation (full partial control are updated from FAOSTAT for those countries where no data existed) |