

RECOMMENDATION

*Water Management in Developing Countries*  
*- Policy and Priorities for EU Development*  
*Cooperation*

A Background Document for an EC Communication  
on Water and Development



The recommendation was performed by the  
Stockholm International Water Institute (SIWI).

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## Foreword

The enclosed document is background documentation for the European Commission in its process to prepare a Communication from the Commission to the Council and the Parliament on *Water and Development*. The document has been prepared by a *SIWI* team, lead by Dr Gunilla Björklund but in close cooperation with Mr André Liebaert at DG Development, EC. The report is therefor to be seen as one of the steps in a cooperative process towards the Communication and is being used and further developed by the EC/DG Development into a format that is required. Some sections have been shortened in this report. The main reason for that is that those sections include material that needs to be reworked and completed within the Commission even though an early version may have existed prepared by *SIWI*. The report includes mainly parts where *SIWI* has been able to make a major contribution and should therefor be seen as the *SIWI* contribution to the process.

Important contributions in the work have been done by Dr Jan-Olof Drangert, Linköping University and Dr Johan Rockström, IHR Delft, both members of the *SIWI*-team. Mr André Liebaert but also several members of the EC/DG Development, DG Environment, DG Research and Europeaid Office have provided valuable and constructive comments to the work, which is now further proceeded by the EC.

*SIWI* extends its thanks to Dr. Gunilla Björklund, acting as team leader, and to the contributing authors and supporting persons for their valuable assistance. *SIWI* also thanks the Swedish International Development Cooperation Agency, Sida, for providing the financial means for the work.

Ulf Ehlin  
Director

## EXECUTIVE SUMMARY

A growing population pressure on the finite water resources, as well as changes in consumption and production patterns, and trade policies due to development, urbanisation and industrialisation, are resulting in a rapidly increasing demand for water and in upstream-downstream conflicts of interest. The challenges include to meet basic water needs for human being, for the living as well as for coming generations, and for the environment, and to secure enough water of acceptable quality for agriculture, industry, energy etc. without compromising the sustainability of vital ecosystems, including such as downstream coastal areas and adjacent marine ecosystems. An integrated water resources management and compromise building is required to balance water uses to available resources and to land use and ecological services. Declining water quality and increasing water pollution exacerbates the need to address causes not just mitigate the effects, thus support should be directed towards pollution abatement and not toward curing measures. The situation is particularly acute in many developing countries.

The EC, being the world's fifth largest donor, and co-operating with its member states, has an important comparative advantage to provide vital and sustaining contributions in the water sector. This work, as a step in the process towards the EC Communication of its Water and Development policy, shows the areas where the EC is seeking political commitment for EC and partner governments to be able to adopt a strategy and policy that will guide its further work.

Water is relevant to the thematic priorities and cross-cutting issues of the EC Development Policy: It is fundamental in Regional Integration and Co-operation, in Social Sector Programmes, and in Rural Development and Food Security. Water is an important aspect in Trade and Development and Transport. Water needs also to be mainstreamed into work on Institutional Capacity Building and Good Governance and when working on cross-cutting themes such as Gender balance and Environment and sustainable development. Thus, *Water is and should be crucial aspect of EC Development Policy where the overarching objective is poverty alleviation.*

Integrated Water Resources Management, applied in a river basin approach, is recognised as a pre-requisite for any water-related intervention. The EC Water and Development policy should therefor be based in such an approach and include the following:

- Ensuring the access to safe water and sanitation systems and to hygiene to meet basic human needs;
- Supporting improved governance structure to secure best possible use of water and an enhanced cooperation in Integrated Water Resources Management of shared, including transboundary, water systems, taking into account all relevant interests; and
- Providing for Cross-sectoral coordination of different water uses, including ensuring water for food security, in rural as well as urban areas, water for the environment, energy, industry, transport, tourism etc.

The reciprocal impact between water and climate change is another area where EC support might be needed.

The EC Water and Development policy needs to be based in the EC Development policy but to focus on assisting partner countries to make certain that adequate supplies of water of good quality be made available for all people, the ones living today and future generations, while preserving required quantity and quality of water to sustain crucial functions of ecosystems.

## **1. INTRODUCTION: WATER RESOURCES CHALLENGES**

### **1.1 The freshwater situation in developing countries**

Freshwater is a finite and precious resource that is essential for sustaining life. Water is needed in all aspects of life. A general goal is to make certain that adequate supplies of water of good quality be made available for all people, the ones living today and future generations, while preserving required quantity and quality of water flow to sustain crucial functions of ecosystems.

As demand increases, water resources are becoming increasingly scarce. Population growth, economic development and changing trade policies are the main driving forces behind increasing demand and need for water. Water use has been growing at more than twice the rate of the population increase during this century. By 2025, as much as two thirds of the World's population could be living in countries subject to water stress a majority of them in developing countries<sup>1</sup>. In many developing countries water availability is subject to large seasonal or inter-annual fluctuations.

Water is essential for health and necessary for the production of food, economic growth and the support of the environment Water is used in households, industries and agriculture but also for energy, transport and recreation. The World's by far largest water using sector is agriculture. In developing countries irrigation accounts for approximately 80%, compared with 10 % for domestic uses. Although the trends are no longer in favour of large scale irrigated agriculture; water for food provision is crucial.

The fulfilment of poor people's water-related needs is fundamental to the elimination of poverty. Access to water and sanitation is a fundamental need for the poor, vital for their health and dignity and a key factor in improving economic productivity, therefore an essential component of efforts to alleviate poverty. At the beginning of 2000, 1.1 billion people (17% of the world's population) were without access to safe water supply and 2.4 billion people (40% of the world's population) lacked access to adequate sanitation. The majority of these people live in Africa and Asia. The poor are often the ones who have to pay the highest price for accessing water of lower quality. Poverty eradication is central in EC Development Policy<sup>2</sup> and within the Cotonou Agreement<sup>3</sup>, and a strong focus on water issues is needed.

Growing urbanisation, in particularly in developing countries, is increasing demand for water. Only 18 % of the low-income residents in the developing world have a household connected water supply. Those without access to safe water supply must buy from vendors at much higher costs than the piped city supply<sup>4</sup>. It is also estimated that only 8 % of the low-income dwellers have a house sewer connection. The main parts of those low-income dwellers are living in sub-urban areas.

In the developing world more than 90 % of sewage water is discharged directly into rivers, lakes and coastal waters without any kind of treatment. The ongoing depletion of water quality is having consequences not only on human but also on environmental health. The environmental

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<sup>1</sup> (E/CN.17/1997/9) UN/SEI: Comprehensive Assessment of the Freshwater Resources of the World.

<sup>2</sup> Communication (Programme of Action to Strengthen the Commission's Capacity to Address the Objective of Poverty Reduction in the EC Development Policy). Draft/6 February 2001.

<sup>3</sup> APC/EU Partnership Agreement, signed at Cotonou on 23 June 2000.

<sup>4</sup> World Resources 1996-97. The Urban Environment.

concern for water is a pre-requisite for sustainable use, which was recognised in Agenda 21<sup>5</sup>. Degraded water quality is also decreasing the amount of safe water; there is a clear linkage between water quantity and water quality. Water quantity and water quality would thus need to be managed together. In such management *water pollution abatement* is to be a pre-requisite.

In all countries water resources are shared between different uses or populations groups within a country or between countries. The upstream - downstream water sharing challenge is growing and in several regions it is increasingly necessary to include conflict prevention measures. In many semi-arid or arid countries the main water source is a transboundary resource, a river system, a lake or a groundwater aquifer. Today there are 261 river basins crossing the political boundaries of two or more countries. They cover 45.3% of the land surface of the earth, account for approximately 80% of global river run off, and affect about 40% of the population on earth.<sup>6</sup> Water resources development and pollution of these river basins together with disparities between the riparian countries in economic development, institutional and infrastructural capacity or political orientation is often creating a tension.

An EC water and development strategy needs to take all these aspects into account - within an Integrated Water Resources Management framework.

## 1.2 The international debate

The value of water and water management have been central issues in the international debate throughout the last two decades. Meeting basic needs for water and sanitation was an important target during the International Drinking Water Supply and Sanitation Decade 1980-90, although still far from being achieved. At the Dublin Conference in 1992 it was recognised that managing water as an economic good is important to achieve efficient and equitable use of water<sup>7</sup>. This issue is still debated, in particularly with respect to valuing competing uses of water, sectoral or national as well as transboundary competition.

Guiding Principles adopted at International Conference on Water and Environment, Dublin, 1992

1. Freshwater is a finite and vulnerable resource, essential to sustain life, development and the environment.
2. Water development and management should be based on a participatory approach, involving users, planners and policy-makers at all levels.
3. Women play a central part in the provision, management and safeguarding of water.
4. Water has an economic value in all its competing uses and should be recognised as an economic good.

At the Dublin Conference as well in the Rio-process, women's participation in water management as well as the principle that water should be managed at the lowest appropriate

<sup>5</sup> Communication (COM(2000)212)

<sup>6</sup> Aaron T Wolf: Criteria for equitable allocations: the hearth of international water conflict. *Natural Resources Forum* 23 No 1(1999) p 3-30

<sup>7</sup> International Conference on Water and the Environment, Dublin, January 1992.

level were recognised. In Rio the satisfaction of basic (human) needs and safeguarding of ecosystems were considered as priorities in developing and using water resources. The necessity of applying an integrated approach to water resources management and the need for strategies of environmentally sound management of freshwater, including improvement of water quality was recognised at the Rio-conference<sup>8</sup> and was also addressed at the 2nd World Water Forum<sup>9</sup>.

The main challenges to achieve Water Security as recognised in the Ministerial Declaration at The Hague World Water Forum are:

**Meeting basic needs:** to recognise that access to safe and sufficient water and sanitation are basic human needs and essential to health and well-being, and to empower people, especially women, through a participatory process of water management.

**Securing the Food supply:** to enhance food security, particularly of the poor and vulnerable, through the more efficient mobilisation and use, and the more equitable allocation of water for food production.

**Protecting Ecosystems:** to ensure the integrity of ecosystems through sustainable water resources management.

**Sharing Water Resources:** to promote peaceful co-operation and develop synergies between different uses of water at all levels, whenever possible, within and, in the case of boundary and trans-boundary water resources, between states concerned, through sustainable river basin management or other appropriate approaches.

**Managing risks:** to provide security from floods, droughts, pollution and other water-related hazards.

**Valuing Water:** to manage water in a way that reflects its economic, social, environmental and cultural values for all its uses, and to move towards pricing services to reflect the cost of their provision. This approach should take into account the need for equity and the basic needs of the poor and the vulnerable.

**Governing Water Wisely:** to ensure good governance, so that the involvement of the public and the interests of all stakeholders are included in the management of water resources.

It is recognised in the ministerial declaration of The Hague conference as one of the main challenges to achieve water security<sup>10</sup>. A Vision for Water Life and the Environment, and a Framework for Action were also presented in The Hague.

The Water Supply and Sanitation Collaborative Council<sup>11</sup> raised, at the Iguacu Forum in November 2000, the importance of advocacy and communication and of building alliances amongst people and institutions and promoted to put a special focus on the basic need for Hygiene and Environmental Sanitation.

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<sup>8</sup> Agenda 21. Paragraph 18.38.f

<sup>9</sup> 2nd World Water Forum, The Hague, March 2000.

<sup>10</sup> 2nd World Water Forum, The Hague, March 2000.

<sup>11</sup> Action Programme agreed at the Fifth Global Forum of the Water Supply and Sanitation Collaborative Council, Iguacu, Brazil, November 2000.

Innovative Strategies for Water and Sanitation for the Poor is one of the Themes at the International Conference on Freshwater, to be held in Bonn, December 2001. Other themes at the Bonn-meeting concern Competing Water Uses: Water for Food/Agriculture and Water for Nature, Transboundary Water Issues and Prevention and Management of Floods and Droughts. And all of them are crucial parts of an integrated approach to water.

## 2. EC DEVELOPMENT COOPERATION IN WATER RESOURCES

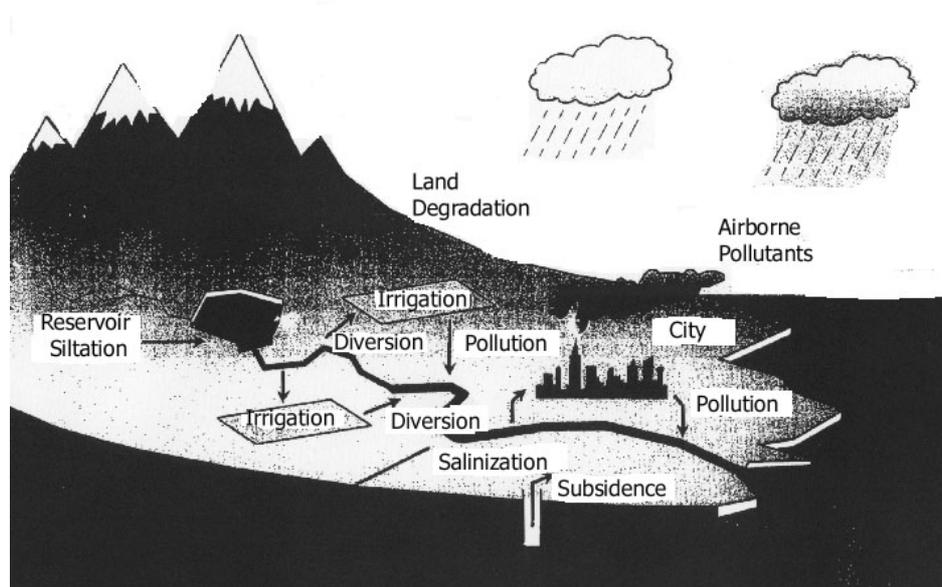
### 2.1 The framework for EC Development Cooperation

#### 2.1.1 Focus areas and guiding principles

The focus of EC support to water issues in developing countries has evolved during the last few years, to a large extent as a consequence of the international debate leading to a change in approaches taken by partner developing countries for management of their water resources and services.

The overall assistance to water related projects was earlier concentrated in water supply, in particular through technical solutions. Since the Rio- and Dublin-processes a more integrated approach towards sustainable water resources management began to be applied. This evolution is clearly visible in the Guidelines for Water Resources Development Co-operation published by the EC in 1998<sup>12</sup>. The centrepiece of these guidelines is a "strategic approach for the equitable, efficient and sustainable management of water resources".

Projects are progressively applying much more of a "water-cycle" perspective. Instead of large technical supply-based projects, projects of today have stronger environmental as well as social concerns. And the "river basin"- or "aquifer"- approach is increasingly being applied in particular in projects in water scarce areas with shared water resources. Support has also increased for education, training and capacity building, including in water management, for support to institution strengthening and for political involvement and commitment.



**Fig 1:** Human stresses on the land and water resources. Published in the Comprehensive Assessment of the Freshwater Resources of the World (UN E/CN.17/1997/9)

<sup>12</sup> The EC Guidelines for water resources development co-operation: Towards sustainable water resources management. A Strategic Approach. Published 1998 by DG Development and DG External Relations and North-South Co-operation.

### *Water resources management*

*IWRM - Cross sectoral coordination with other development sectors:* In addition to its importance for human survival and well-being, water is a basic ingredient in many productive and non-productive activities. As already outlined, there are many cross-sectoral considerations to be taken into account, and there is a need to apply an integrated approach when indicating the policy priorities to focus on. When growing and incompatible sectoral demands claim for more water, choices will have to be made in terms of how should the water withdrawn be allocated between different sectoral uses, including for food security, industries and energy, environment etc. Such allocation challenge is particularly pertinent in areas where the overall availability is poor. It could be choices between major urban centres including the peri-urban areas and the surrounding agricultural lands and wetland ecosystems. It must be handled through a combination of regulatory measures and managing principles.<sup>13</sup> This implies in particular moving towards pricing water services to reflect the cost of their provision. Effective systems to assess the value of water are necessary, in order to balance economic efficiency against social equity or environmental sustainability.

### *Water resources management- a tool for conflict prevention, including the transboundary context*

Competition over shared resources, in particular water, can be a root cause to social, economic and political tension. This is particularly true in a water scarce region, whether within a country where sectors or different population groups may have competing interest, or between countries in an upstream/downstream position. Surface water resources are derived from rivers, which may originate outside national and state boundaries; even within countries, river basins rarely correspond to existing administrative boundaries. Similarly, groundwater extraction does not occur tidily: its beneath- and aboveground impacts are not confined to particular administrative localities.

Activities are mainly designed to develop and support a co-ordinated strategy on the use of water resources, with the main purpose to ensure sustainable development in all water-related sectors within a country and in a transboundary context, and in so doing, help to avoid or resolve conflicts of interest over allocations of water between stakeholders.

As part of cross-sectoral coordination *Agricultural water use and management* has to be addressed. Management system needs to integrate land and water management - '*a land use decision is also a water decision*' - to ensure long-term food security for the poor.

Water-related implications for conservation and sustainable management of the *environment* need to be integrated in the cross-sectoral coordination. The protection of environmental or ecological needs, often remote from project locations, can be neglected unless an overall perspective is applied.

### *Water supply and sanitation*

Activities dealing with the provision of water supply and sanitation services may be divided in two categories, allowing

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<sup>13</sup> Ibid.

programming and activities with similar social, economic and technological characteristics to be grouped together.

*Basic water supply and sanitation* covers programmes and projects which have to do with the extension of water supply and excreta disposal services to unserved and underserved populations in low-income communities, including both rural and poor urban settings where small-scale installations are managed and operated on a local basis. Although rural areas have also suffered from neglect, activities launched during and since the International Water Decade of the 1980s have produced a significant improvement in coverage rates, at least as far as drinking water supplies are concerned. Despite a lot of efforts, the sanitation coverage has declined and as a result more policy attention is now being given to waste disposal, especially in densely-settled low-income areas. The importance of gaining community participation and ownership to ensure O&M and cost recovery has led to innovatory approaches for management of community-based service schemes.

As urbanisation, in particular migration to peri-urban regions of the big cities and to small towns, is growing in ACP and ALA-MED regions, urban water supply and sanitation is a growing problem that needs to be addressed: *Municipal water and wastewater services* covers major urban and industrial installations and systems, including water supplies, wastewater treatment and sewerage, undertaken within the municipal area, usually under the auspices of the Municipal Authorities.

A special attention needs to be given to the *peri-urban context*: As a population group, the urban poor are the fastest growing in the world. The risks to their own health, and of the spread of communicable disease to other neighborhoods, posed by their crowded, insanitary habitat is extremely high. The major public works with which municipal authorities are mainly pre-occupied in the water; sewerage and urban drainage context rarely provide service outreach to slum and shantytown areas. Thus, even where levels of urban coverage appear high, the figures may mask the fact that coverage in marginal communities is inadequate or non-existent.

### 2.1.2. Guiding Principles, Water as part of regional working policies

With the EC Communication on Water and Development, Guiding Principles as previously developed in consultation between EC and the member states are included. A section on regional working policies and allocation of financial resources is also included. These sections are mainly a result of EC "in-house" work and is only to a minor degree building on early versions of SIWI input.

## **2.2 Water as a component of EC Development priorities**

The treaty establishing the European Community states that the Community policy in the sphere of development cooperation shall foster "the sustainable economic and social development of the developing countries, and more particularly the most disadvantaged among them; the smooth and gradual integration of the developing countries into the world economy; the campaign against poverty in the developing countries."<sup>14</sup> This sets the framework for the EC development cooperation policy, which shall be coordinated with that of the Member states. EC co-operation has evolved over the 30 years since the Treaty of Rome embodied the principle of co-operation through partnership with Sub-Saharan African, Caribbean and Pacific (ACP) countries.

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<sup>14</sup> Treaty establishing the European Community, Title XX, Development Cooperation, Article 177, paragraph 1.

EC Development Policy is grounded on the principle of sustainable, equitable and participatory human and social development, its main objective being to reduce poverty, which entails support for sustainable economic, social and environmental development, promotion of the gradual integration of the developing countries into the world economy and a determination to combat inequality.

Poverty is defined as "the lack of access to education, health, natural resources, employment, land and credit, political participation, services and infrastructure"<sup>15</sup>. Poverty is defined not simply as the lack of income and financial resources but also as encompassing the notion of vulnerability and such factors as no access to adequate food supplies, education and health, natural resources and drinking water, land, employment and credit facilities, information and political involvement, services and infrastructure. All of these are needed to enable disadvantaged peoples to have control over their development, enjoy equality of opportunity and live in a safer environment. EC development policy must, therefore, support poverty reduction strategies which embrace these various dimensions and are aimed at consolidating the democratic process, peace and the prevention of conflict, the development of social policies, the integration of social and environmental aims in macro-economic reform programmes, respect for equality between men and women, the reform or introduction of an appropriate institutional framework, the strengthening of public and private sector capabilities and natural disaster preparedness.

This introduction from the EC Development Policy Statement shows how many poverty-related problems in developing countries are complex and multidimensional. As access to water plays a fundamental role in most of those dimensions, potential synergies between poverty reduction and sustained access to safe water are to be highlighted. Management of water could also play a key role in the integrated approach that is needed in a development policy that fosters poverty reduction. Water as a social, economic and environmental good, all important aspects in a poverty reduction strategy should thus be seen as a *cross-sectoral issue to be mainstreamed into most development activities*.

Water is in many ways relevant to the thematic priorities and cross-cutting issues of the EC Development Policy<sup>16</sup>. As freshwater is a key resource for human survival and development, it is important to recognise where and how the Water and Development Policy is and should be integrated into these EC priorities.

### **2.3 Regional Integration and Co-operation.**

Regional integration and cooperation is more than a political and trade issue. It provides opportunities to improve the sustainable management of natural resources on which poor people, including indigenous people, may be particularly dependent for their sustainable development. Transboundary cooperation over scarce water resources, whether a river system, a lake or a groundwater aquifer are increasingly important in many developing regions of the world with growing population and changing consumption patterns. Water use is also resulting in degraded water quality and in tense situations, particularly in the upstream-downstream perspective.

A challenge in sharing water resources is to *prevent conflict* and to promote peaceful co-operation between different interests, be it in a region within a country or in a transboundary context. As was recognised by the ministers at the World Water Forum in The Hague this would

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<sup>15</sup> Ibid

<sup>16</sup> COM(2000)212

entail the need to "develop synergies between different uses of water at all levels, whenever possible, within and, in the case of transboundary water resources, between states concerned, through sustainable river basin management or other appropriate approaches"<sup>17</sup>.

The Communication on conflict prevention (11 April 2001) recommends EC support, "where a clear commitment to regional collaboration exists, to regional actions aiming at a fair management of shared water resources".

## **2.4 Social Sector Programmes.**

The EC Development Policy recognises that "the development of social policies such as health, food security, education and training as well as *access to and sustainable management of water resources*, are of utmost importance"<sup>18</sup> and that social sector policies must aim at widening that access.

Macroeconomic reform must be designed in a comprehensive fashion to ensure sustainable and accessible social services, and to ensure that the benefits of growth policies are distributed equitably and that resources are managed sustainably, avoiding adverse social and environmental impacts.

Access to safe water and sanitation is a key issue for human survival and health. The concept of "water security", in which meeting basic needs is an essential factor, was emphasised by the World Water Forum in The Hague<sup>19</sup>. Access to safe drinking water and sanitation, at an affordable price, and the reduction of water contamination entails basic questions of equity and social justice as well as responsibilities for all users. In pursuing the poverty eradication aspect linked to improved access to safe water and sanitation, the EC could make substantial contributions in its development programmes.

Water supply and sanitation are closely inter-related with health and education. Poverty leads to poor health outcomes<sup>20</sup>. Key factors associated with poverty are determinants of ill health and malnutrition, such as lack of access to clean water and sanitation, food insecurity and poor household caring practices; all of them linked to water management. Health projects would benefit substantially from more attention to sanitation and hygiene, in complement to water supply, as prerequisites for a healthy life. However, there is no simple relationship between water quality and disease burden since also other factors such as general environmental conditions, nutritional level, and individuals' susceptibility are of importance.

Safe water supply and sanitation, and child nutrition are important issues in improved education for the poor. Awareness building and education on water use and management are important including at the school level.

If the rural context is specifically addressed as a thematic priority, it is important to highlight the growing numbers of urban inhabitants living in absolute poverty and lacking basic services. Poor sanitation together with inadequate access to water of safe quality poses severe health hazards to people and to the environment. The effects are particularly detrimental to the poor strata of the urban population, living mostly in sub-urban areas.

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<sup>17</sup> 2nd World Water Forum, The Hague, March 2000. Ministerial Declaration on Water Security in the 21st Century.

<sup>18</sup> COM(2000)212

<sup>19</sup> Second World Water Forum, The Hague, March 2000.

<sup>20</sup> EC/DG Development: Health, Aids and Population Programming Guidelines (draft)

## **2.5 Rural development and food security.**

Integrated Water (and Land) Resources Management is key to water (and food) security, particularly in areas with competing interests in water resources. As food production remains the main economic activity of a large part of the population of developing countries, mainly undertaken within the rural areas, the instability of the natural and economic environment is a permanent threat to the livelihood of rural dwellers; the poor in the rural areas are more at risk of being unable to meet their vital needs, and rural areas are particularly sensitive to lack of water and of water of acceptable quality<sup>21</sup>. In most developing countries rural economic growth is a critical precondition for overall economic growth and the products that will give economic yield are mainly natural resource-based goods, e.g. agricultural, animal husbandry or fishery products, which all require a sustainable management of the water resources.

An integrated land and water resources management at national level implies developing local pattern for providing for food to local population; or it could imply to secure economic preconditions to import food. The EC Development Policy<sup>22</sup> recognises that food security often needs to be ensured through a regional rather than a national framework for production and distribution, which can be seen as a transition from food self-reliance to a regional food security. From a water perspective this may entail imported, "virtual" water. (The high value cash crops that are exported are requiring less water than the - larger quantity of -low value staple food that is imported in exchange. "Virtual" water is thus imported.)

Food production as part of integrated land and water resources management perspective calls for improved water use efficiency in agriculture, which can reduce the pressure on freshwater resources. Water use efficiency could also in small scale farming systems be achieved through different technologies such as rain-water harvesting or small scale drip irrigation systems, particularly suitable in poor water scarce areas.

These different perspectives on water and food security in a rural environment are relevant for the EC Development Policies for Rural Development and Food Security.

## **2.6 Institutional Capacity Building, Good Governance and the Rule of Law.**

*Institutional support and capacity building* are needed in applying an integrated water management approach, particularly in a long-term perspective. The need is recognised for coherent national, regional and international policies to overcome fragmentation, and for transparent and accountable institutions at all levels to be able to achieve Integrated Water Resources Management.

Examples of institutions where support could promote water access within an integrated perspective, as well as contribute to poverty reduction and to conflict prevention, are River Basin Organisations. At local level, water users' associations or informal institutions, working towards making better use of water contribute to water security and to poverty alleviation. In low-income areas this is likely to be through community-based organisations.

*Political responsibility and good governance.* It is an important challenge "to ensure good governance, so that the involvement of the public and the interest of all stakeholders are

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<sup>21</sup> European Policy to Support Rural Development. Policy Orientation Paper. DG Development - Rural Development and Food Security, February 2000.

<sup>22</sup> COM (2000) 212 p 27.

included in the management of water resources"<sup>23</sup>. Strategies for ensuring poverty reduction must, to be truly effective, be fully "owned" by the governments and civil society and based on a commitment for good governance. Part of such strategies needs to be equitable allocation of water and the safe-guarding of health and well-being through access to acceptable sanitation.

As part of the thematic priorities, water should also be seen in the context of:

*Trade and Development:* Many of the poor countries are also water scarce countries. These countries may no longer find it feasible or at all possible to mobilise a sufficient amount of water needed for growing an increasing amount of food, and may instead turn to importing food.

However, in a water and development context, the sustainability of relying on food imports will depend on socio-economic capabilities at all levels of society. For resource poor rural communities in water scarce areas food security may be best promoted in strategically shifting or diversifying production systems; a shift which generally does not entail an increase in water requirements (per cropped land unit).

*Transport:* is an important sector for EC support in particular in ACP countries, where the major focus is on roads. In the NIS regions, however, investments have been directed towards maritime co-operation<sup>24</sup>. In low delta areas or coastal zones, or riverine forested areas, waterborne transport systems may be the best or only solution.

It is necessary to integrate waterway transport into an integrated water resources management, and sustainable transport policies must include land and water use planning.

## 2.7 Cross-Cutting Issues

*Gender balance.* "Gender inequality hinders growth, poverty reduction and progress in health and education"<sup>25</sup>. As women in many developing countries are the ones providing for household water and food security, it is particularly important to involve them at all decision-making levels, to build participatory structures and gender equity. The central role that women play in the provision, management and safeguarding of water was recognised in one of the Dublin principles<sup>26</sup>. The EC programme of action on mainstreaming gender equity should include water security when addressing the root causes of gender inequality.

*Environment and sustainable development.* Water plays a central role in ecosystem maintenance, and it is an essential natural resource. The first Dublin principle<sup>27</sup> recognised that water is a finite resource. It is also recognised that environmental investments, such as improved land and water management, investments in sanitation, waste management and clean air, often yield high rates of economic and social return as well as being examples of a sustainable use of resources. Neglect of environmental threats may in the medium- and long-term not only undermine the efforts to reduce poverty but even lead to increased poverty.<sup>28</sup> Improved

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<sup>23</sup> 2nd World Water Forum, The Hague, March 2001. Ministerial Declaration on Water Security in the 21st Century.

<sup>24</sup> COM(2000)422.

<sup>25</sup> COM(2000)212

<sup>26</sup> International Conference on Water and Environment, January 1992, Dublin.

<sup>27</sup> International Conference on Water and Environment, January 1992, Dublin

<sup>28</sup> Communication: Integrating the Environment into EC Economic and Development Co-operation

environmental management can minimise negative environmental impacts from economic development; in particular if the poor participate in decision-making<sup>29</sup>.

Access to *energy* services is of importance to poor people and could imply a pressure on water quantity and quality. On the other hand, energy is important for water pumping, as well as desalination, with a growing use of renewable sources of energy, such as solar energy. Hydropower installations often require development of damming systems for which a water resources management system needs to be developed. Due to socio-environmental impact, the tendency is to move away from large dams, but small and medium hydropower systems are often offering a sustainable solution to energy needs.

In relation with *industrial* water use, a pollution prevention and abatement policy needs to be developed within the country or region.

*Research* needs sustained attention in contributing towards poverty alleviation including water security. Such policy would need to foster co-operation and an integrated and inter-disciplinary approach. It should support inter-state, inter-regional and cross-border co-operation. This may include promotion of networks and environmental cooperation, and be targeted towards long-range sustainable development in a region.

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<sup>29</sup> See also UNDP/EC Poverty and Environment Initiative: Attacking Poverty while Improving the Environment: Towards Win-Win Policy Options. New York. 2000.

### **3. WATER IN THE DEVELOPMENT POLICIES OF EU MEMBER STATES AND INTERNATIONAL ORGANISATIONS**

#### **3.1 EU Member States**

Not all the EU Member States are active in development cooperation directed towards water issues. For some water may be an integral part of country cooperation, where no specific water related policy exists, such as the *Portuguese* development cooperation towards Mozambique. For other EU countries, such as *Finland*, it may come in under the sector budget for health assistance or for education. Several of the EU Member States are though putting an emphasis on water related issues in their development cooperation. These include to various extents *Austria, Denmark, France, Germany, Ireland, The Netherlands, Sweden and United Kingdom*. Of course, the different Member States have their own strategy founded in their respectively agreed policy. But the similarities in the policy frameworks are important.

Even though meeting basic need in securing access to safe drinking water and secure sanitation is still a priority in the countries' development policy this is mainly seen within an integrated water resources management perspective. And the tendency in the different strategies has changed direction from technical solutions towards much more management directed ones with an emphasis towards long-term sustainable development. This is for all the Member States seen as a very important component in eradicating poverty, poverty being not just lack of financial means but lack of means for a sustainable livelihood. Integrated Water Resources Management is thus a key framework for most of the EU Member States in their water development assistance. In that several of them are recognising the shifting roles and want to recognise cooperation of all stakeholders in a public-private-partnership. In such partnership the member states want to recognise the gender aspect.

An other aspect that is common to the different Member States water policies is the strong emphasis on awareness raising and capacity building, again a trend shift from technical capacity development towards a more inclusive managerial capacity development. Some countries are favouring new and alternative technologies such as rain-water harvesting and ecological sanitation. There is still, however, a tendency to concentrate on managing water quantity and less concentration on water quality, and on end-of-pipe solutions such as water treatment instead of pollution abatement.

#### **3.2 International organisations and new partners**

The EC is co-operating with several international organisations and it is important that the EC is making use of the complementarity they can offer, particularly when that can have synergetic effects.

There are many *international organisations* active in water-related development cooperation, most of them being interesting partners for the EC in this field; some have a broad mandate, many have a more specialised focus<sup>30</sup>. The Commission is now acting towards a closer collaboration and a partnership with the UN system in the field of development<sup>31</sup>. In this, water issues should play a role.

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<sup>30</sup> See compilation by G. Björklund: UN and freshwater resources, a brief survey of facts and links. (<http://www.gwpforum.org/UNSYNOPSIS.htm>) 1999. Published by the Global Water Partnership.

<sup>31</sup> Communication from the Commission on "Building an effective partnership with the United Nations in the field of Development and Humanitarian Affairs" (2 May 2001).

- UNDP carries out strategic work in linking water poverty, governance, environment and gender as well as in capacity building.
- UNICEF and WHO are both working in water supply and sanitation.
- Within the agriculture sector, FAO has a water division whose goal is to promote efficient use and conservation of water resources to achieve food security, sustainable agriculture and rural development. The organisation has a focus on 'more crop for the drop' - irrigation methods for higher water productivity.
- UNCHS (Habitat) is a key organisation in Urban Management. For instance, they have launched a programme "Managing Water for African Cities, directed to mega-cities and their peri-urban areas.
- WMO (managing HYCOS - Hydrological Cycle Observing System), and UNEP are other UN organisations dealing with water issues.
- The World Bank has redirected its focus towards poverty eradicating. Co-operation between EC and World Bank is mainly based on the country owned PRSPs, where water should in many cases be a major issue.

World Bank is most active in dealing with international, transboundary waters from the perspective of conflict prevention. A regional example is the Nile Basin Initiative.

- The Global Environment Facility, GEF, is a World Bank/UNDP/UNEP supported facility, where one of the focal areas is International Waters. Example of a large GEF-project, where EC is a co-operating partner is the Aral Sea project.

#### Other partners

The Water Supply and Sanitation Collaborative Council, where several EU members states are active members, is the main international forum addressing issues of water, sanitation and hygiene. The Water Supply and Sanitation Programme is also a key partner in this sector. An African initiative that the EC is supporting is the Water Utility Partnership.

The Global Water Partnership, GWP, was initiated in 1996 to respond to the necessity for coordination in applying an integrated approach to water resources management<sup>32</sup>. The GWP is an international network open to all organisations involved in water resources management and works mainly through associated programmes and regional networks. The World Water Council is behind the organisation of the successive World Water Fora.

Partnership needs also to include NGOs, private sector, professional associations and research institutes.

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<sup>32</sup> Global Water Partnership, GWP, is an international network open to all organisations involved in water resources management, including developed and developing country government institutions, professional associations, NGOs and the private sector. Among the partners are several belonging to EU member states and APC, ALA and MED/MENA countries. The network is contributing towards pulling together resources.

### **3.3 Coordination and complementarity**

In accordance with the EC Treaty, coordination and complementarity of EC and EU Member States development policies and activities are an important element aiming to make the contribution of EU development cooperation to the progress of partner countries more effective. Overall aid coordination is the primary task and responsibility of partner governments. Clear strategies elaborated by partner countries are the ideal framework for reaching complementarity. Their capacity must therefore be strengthened to perform this leading role.

Enhanced co-ordination and complementarity aims at a more sustainable use of limited resources by avoiding unnecessary duplication and make use of a synergistic effect in different areas of expertise. By sharing lessons, unnecessary mistakes may be avoided. Collaboration and enhanced cooperation between the EC and other international actors could also result in enhanced confidence building between stakeholders or riparians in projects on transboundary rivers, lakes or aquifers.

Coordination takes place at country level, between the Commission, EU Member States and other donors. At headquarters level, channels have been developed for regular dialogue with EU Member States, as well as the World Bank, UN agencies and specialized institutions and networks.

Regular Expert Group meetings are held with Member States, to share policy, practice and operational guidelines, to determine a coordinated European approach, linked to achievement of the international development goals.

International coordination in the water sector takes place in particular for water supply and sanitation in the framework of the Collaborative Council; for cross-sectoral water resources management issues the Global Water Partnership has progressively taken a prominent role, particularly in its networking in development regions, and with civil society and the private sector. Events such as successive World Water Fora and water components of the work of the Commission on Sustainable Development constitute additional opportunities for coordination at the global level.

### **3.4. Role of the EC, its comparative advantages**

The EC is a major donor in grant financing. It has thus in collaboration with the EU Member States the remit and resources to make a significant contribution to global efforts to water security.

The Community has three principle means of action to pursue its objectives in the field of development - political dialogue, development cooperation and trade<sup>33</sup>. The application of these means are mutually reinforcing and should be used to pursue the water policy of the Commission and strengthen its work towards water security with its partners in developing countries. Within the EC's policy mandate for poverty eradication an improved water (and food) security for the poor plays a major role.

As it was the case for the development of the "EC Water Guidelines", the Commission's water policy work is undertaken in close collaboration with the Member States, thereby increasing coherence and complementarity of policies and priorities and co-ordination of activities.

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<sup>33</sup> COM(2000)212.

Regional cooperation is a main focus of EC development aid. Taking account of relevant expertise in developing water management policies within the EU, it could make a significant impact in supporting IWRM at the regional level, including in cases where it also addresses conflict prevention concerns.

## 4. THE WAY FORWARD

### 4.1 Political message to guide the way forward

The goal for an EC water and development policy is to promote strategies directed towards sustainable management of water resources, within the overarching objective of poverty alleviation. Such strategies need to take their point of departure in *integrated management of different demands and supply*. A question that requires particular attention is the need for strategic activities aiming at *pollution abatement*.<sup>34</sup> Declining water quality and increasing water pollution exacerbates the need in urban as well as rural areas to address the causes, not just mitigate the effects, thus support should be directed towards pollution abatement and not towards curing measures. These are key issues in an integrated management.

The EC Guidelines for water resources development cooperation had identified a number of actions implied by adopting the strategic approach developed in the Guidelines: institutional development and capacity building; participatory approaches and gender equity; expansion of the knowledge base; demand management and pricing; awareness-building and communication.

The Framework for Action presented at the World Water Forum of The Hague highlighted several areas where further action is required, in mobilising political will, in making water governance effective, in generating water wisdom and in tackling urgent water priorities: protecting and restoring water resources and ecosystems; achieving water-food security; extending sanitation coverage and hygiene education; meeting the challenge of urbanisation; improving the management of floods.

All these priority themes, including priorities at regional and global level, are addressed in this chapter by developing key messages on the way forward in relation with cross-cutting aspects and for every focal area of activity. There is a need for **political commitment** for the EC and partner governments to be able to adopt such a strategy and policy, and for **Endorsement of Guiding Principles** based on those established in the EC Guidelines and the "Dublin-principles". These principles would guide the development assistance directed towards water and development based on this EC water and development policy.

#### 4.1.1. Emphasis and coherence is required for water in EC development priorities.

The EC Development priorities include several aspects where water is a key factor and would need to be emphasised, such as:

- Transboundary water management is a crucial part in the context of *regional integration and cooperation*, with the objective to foster conflict prevention and promote peaceful cooperation between different interest.
  
- Access to water supply and sanitation as a *basic social service* and a key element in *poverty alleviation*

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<sup>34</sup> *Pollution abatement* will secure continued use of water sources. Society is to return used water of at least the same quality as it originally had. Industries may recycle water and use it more efficiently. Leakage of nutrients and pesticides from agricultural fields can be reduced dramatically by changed agriculture methods etc. The precautionary and polluters pay principles should be applied. Legal frameworks should institute incentives that make the environmental degradation costs or debts visible (Discussions at Stockholm Water Symposium, 2000).

- *Rural development and food security* require stronger coordination to ensure development of products that will give higher economic yield. Such development as well as development of different small-scale farming systems would require a sustainable management of the water resources.

- *Capacity building, including institutional capacity* are key issues in the water sector.

- There is a need to integrate water and development issues including their environmental effects in *trade and development* issues. Import of "virtual" water may be crucial in water scarce areas in order to ensure food security.

#### 4.1.2. Integrated Water Resources Management, applied in a river basin approach, is a pre-requisite for any water-related intervention.

An **Integrated Water Resources Management** needs to be the framework for successful application of EC development policies. Applying an integrated approach to water resources management implies collaboration and partnerships at all levels. Coherent policies need to overcome fragmentation, whether at regional, national or local and at cross-sectoral levels. "Integrated water resources management, including the integration of land- and water-related aspects, should be carried out at the level of catchment basin or sub-basin"<sup>35</sup> as was indicated at UNCED. At a minimum in countries where water is key, the EC should ensure river basin or catchment based management plans are developed. Water projects should be consistent with these plans, or include assistance for their establishment if they do not exist, to ensure best use of social, financial and water resources. The policy would foster possibilities to reach *water security*<sup>36</sup> by supporting the developing countries to develop their own strategy. Crucial in the integrated framework is the approach to freshwater and groundwater, to water quality and quantity within river basins that is presented in the EU Water Framework Directive, agreed in 2000. Identifying and implementing the right combination of supply-based and demand-based measures (e.g. pricing) for achieving policy objectives in the most cost-effective manner is very important.

#### 4.1.3. An effective and transparent process is required for developing and implementing water related interventions.

Such a process would aim at improved "water governance" and should be based on the following:

1. *Awareness raising* of all stakeholders participating in programmes has to ensure that they recognise the values of water and economic, social, cultural, health and environmental benefits of managing water effectively and the measures needed to achieve better

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<sup>35</sup> UNCED, Agenda 21, paragraph 18.9.

<sup>36</sup> "*Water security*" should according to the Working paper on "Water and Development in the Developing Countries. European Parliament DEVE 100 EN" be translated as: "to *secure water* for drinking and for food production, to *overcome vulnerability* to droughts and floods and to depletion, and to *overcome threats* from pollution, salinisation, economic driving forces, globalisation and from conflicting interests that may be expressed by stakeholders/riparians - all in harmony with nature and the demand of vital ecosystems".

At The Hague Conference, March 2000 "*Water security*" was identified as "at any level from the household to the global, means that every person has access to enough water at affordable cost to lead a clean healthy and productive life, while ensuring that the natural environment is protected and enhanced."

An integrated water resources framework policy should include the following pillars:

1. Ensuring the supply to the public, especially the poorest, of sufficient *drinking water of good quality and adequate sanitation*, with the general objective of improving people's quality of life and particularly their health and hygiene,
2. The regional perspective of sustainable and equitable *transboundary water resources management* taking into account all relevant interests and integrating the various uses including that of different riparians
3. *Cross-sectoral coordination of different water uses*, including to ensure water for food security particularly for the poor and vulnerable, in rural as well as urban areas, water for the environment, energy, industry, transport, tourism etc., while addressing provisions for a gender balance.

management. The people affected, as well as decision-makers, need to understand the threats to freshwater resources and the consequences of irresponsible and unsafe water

2. behaviour to water users and custodians. Creation of societal norms supporting sustainable water management is vital in order to socially adapt to a changing situation. Users need to understand that a right to use water does also imply responsibilities for its sustainable use as well as its reuse<sup>37</sup>. Policy makers should be made aware of the need to give priority to water demand management as supply driven management and service provision tend to enhance inequity, and thus exacerbate the adverse situation for the poor. There is a need to target messages, to share information and to provide education and training including at schools. Such information, education and training need to include knowledge of the processes governing the system. Communication of experience should therefore be favoured, including through different kinds of networks, gender groups, resource centra etc. This is also a prerequisite for transboundary collaboration
3. *Balanced partnership*. All stakeholders, including women, need to participate in project development and implementation and to commit themselves to poverty reduction strategies, including ensuring water security, in a framework of balanced partnership. Ownership of strategies by the partner countries is key to the success of development policies. In that context, the most wide-ranging participation of all segments of society, including economic and social actors, civil society and private sector is needed.
4. *Coordination with bi-lateral and multilateral donors and international organisations* on water programmes both regional and international programmes.
  - Continuing informal EC/EU Member States Water Expert Group inter alia on integrating water into EC development policy and cooperation with developing countries. Sharing of analytical work, including on lessons learnt in the interface of poverty and all aspects of water and development.
  - Strengthening co-ordination in cooperation with the developing country partners in integrating water priorities into the preparation of the PRSPs and other country and sectoral strategies

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<sup>37</sup> This is in accordance with Principle 4 of the Rio declaration, 1992: " In order to achieve sustainable development, environmental protection shall constitute an integral part of the development process and can not be seen in isolation from it."

- Continue work with UNDP, WHO, UNICEF, Water Supply and Sanitation Collaborative Council and other partners on drinking water supply and sanitation.
- Intensify work with FAO, the World Bank, and International Fund for Agricultural Development, IFAD and other partners on water and food security.
- Examine collaboration with the World Bank, and other donors to support riparian countries in their work to collaborate on managing of shared waters. This could be done within the framework of regional River Basin Organisations.
- Enhance work in collaboration with other parties to support Integrated Water Resources Management, such as the Global Water Partnership, particularly in its networking in development country regions and with civil society and the private sector.
- Explore new possibilities for enhanced cooperation with professional associations and NGOs by a continuous dialogue to ensure the participatory approach.
- To enhance cooperation and its synergistic effects the EC should play an active role and strengthen the role of EU water development experts in the work towards the World Summit on Sustainable Development, 2002, including in its preparatory process, in the work of the Commission on Sustainable Development, and in the 3rd World Water Forum 2003 process.

#### 4.1.4. Institutional strengthening and management

As it is the case for most development activities, the success of policies, programmes, projects and services depends heavily on the capacity, resources and expertise of responsible institutions. The institution can be formal such as a river basin organisation, at international or national level or a local government or at lower level more informal ones such as water users' associations and "river parliaments". Whether or not the institution is functioning efficiently may be dependent on its administrative and regulatory or where appropriate, legislative framework. In such framework should Best Possible Use of water be ensured that is efficient, equitable and environmentally sustainable, while also meeting with the objective to ensure better living conditions for the poor. The capacity of such institutions may need to be enhanced by means of human resources development and training and improvement of capacity for networking etc.

Key areas where support is needed in order for partner countries to translate their water related policies and strategies into practices include capabilities to apply appropriate management strategies at all management levels and to link management and actions for all the different EC focal areas at national, regional and global level.

*Expansion of management capability* should include strategies to manage water in a way that reflects economic, social, environmental and cultural values for all its uses, while taking into account the need for equity and the basic needs of the poor and the vulnerable. It should also ensure good governance, so that the involvement of the public and the interests of all stakeholders, including both women and men, are included in the management of water resources.

*The need for management at the lowest appropriate level is being increasingly recognised and needs to be supported.* Real participation only takes place when stakeholders are part of the decision-making process, and when the roles of the different actors are defined. Participation is more than information or consultation, it includes taking responsibility, realising that all parties

Capacity building in water resources management, building on EU experience, would include:

- Related to transboundary issues, integrated water resources management and integrated river basin planning but also for cross-sectoral water resources planning and management there is a need to strengthen exchange of experiences and links between European actors and developing countries actors. In this sharing of experiences on the EC Water Framework Directives with developing countries in specific fora needs to be ensured.

- The EC could use its experience by promoting regional "support-groups" where relevant knowledge in a region exists or be promoted through EC experience. Such "support-groups" could serve as a platform where, upon request, exchange of experience could assist countries including towards an improved governance system. In the transboundary perspective development of centres of excellence in Integrated Water Resources Management could be developed, supported by EC.

may have to sacrifice some desires for the common good. Participation and management at the lowest appropriate level implies pursuing an appropriate balance between a top-down and a

bottom-up approach. Some decisions should be taken at the household or village level while other needs to be taken at an international river-basin level.

#### 4.1.5 In a situation where increasing demand is exceeding existing supply, demand management, accompanied by water pricing strategies needs to be applied.

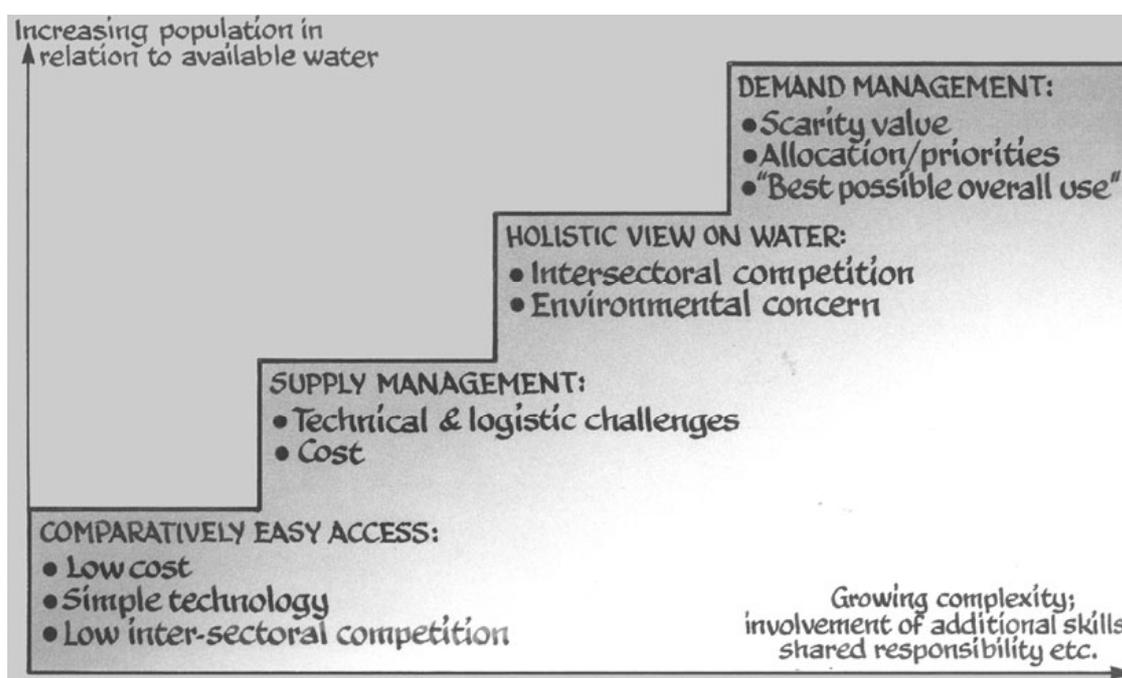
In this situation it is an important and challenging task to reduce the demand while increasing output per unit of water, to produce more out of comparatively less. This include valuing water for all its uses, and to move towards pricing water services and pricing of degradation of water quality to reflect the cost of their provision and reclamation. Appropriate solutions have to be developed for a developing country to adopt demand management and at the same time meet the basic needs of the poor and vulnerable groups of the society. Today, pricing in development projects is considered mainly in its financial dimension only, i.e. which price level is required for covering the costs. Pricing for water services that better account for the environment should be promoted and build on: (i) a wider application of pricing structures that provide incentives to reduce water use/limit pollution; (ii) a more systematic promotion of water meters; (iii) the assessment of major environmental costs resulting from current uses, and whenever possible the integration of these costs into prices; (iv) a transparent policy development process with the participation of users/consumers; (v) a phased implementation of new pricing policies.

Countries should concentrate on improving effective and efficient use of existing water sources and reuse of used water. New solutions will be emerging when the starting point is changed from searching for virgin sources to taking care of the water we already command. Environmental security can be ensured by not returning polluted water. Rain-fed agriculture may face inevitable water shortage, while industry and households usually encounter man-made water shortage due to discharge without reuse of the used water. The same applies to nutrients. The emerging water-demand approach needs to be complemented by a reuse approach.

From management in a situation of comparatively easy access to water resources towards complex management of increasing demand. As a result of democratic trends and a general desire for improvements in living conditions, the demand for water is on increase practically all over the world. Many countries - if not all - would thus try to climb a "management ladder".

1. When the demand and competition is low, i.e. when access is comparatively easy, the cost is low and the technical and institutional system is comparatively simple.
2. Higher demand (more people per flow unit) will initially result in technical arrangements to augment supply, i.e. a supply management stage.
3. Still further increases in demand would lead to inter-sectoral competition and an environmental concern. These management challenges can not be handled through technical means alone. In most countries demand management strategy needs to be applied.
4. Gradually a "best possible use" of water becomes inevitable where institutional arrangements are fundamental in addition to the technical, supply oriented management.

Many of the developing countries are now climbing the "management ladder" in attempts to develop an integrated approach. The need for capacity support to be able to develop and apply to this situation is obvious. In this there is a need to develop expertise on analysing factors that influence the demand for water and the consequences of degraded water quality by pollution.



**Figure 2.** Development under conditions of growing water scarcity must be based on a strategy where the best possible use of available resources will be stimulated, probably alongside with a scrutiny of the need for additional withdrawals. A combination of supply side and demand side management will be natural as countries climb "the management ladder".

4.1.6. In the long term expanded knowledge base through research needs to be better focused on key priorities for development.

- The knowledge base has to be expanded so that all stakeholders will gain what is needed for him or her to conduct his/her role in a sustainable management of the water resources, from farm and household-level to transboundary basin level.

- There is a need for an integrated approach to be applied when extending the knowledge base and decide the research priorities. Such approach should be the framework for research programmes and would foster poverty alleviation.

- Expanded knowledge base and basic research of relevance should be transformed into applied research in developing countries. Such research should include research in order to expand the knowledge base on

- water resources availability: surface and groundwater including water to be reused;
- soil water and evaporating losses, water use by vegetation;
- water pollution and its impact on users and the organisms and the ecosystems that they make up;
- water use and services by ecosystems;
- water needs and demands for domestic use, agriculture and for other productive sectors, such as energy and industry, for urban use, etc.;
- performance by water-related services including different types of sanitary services;
- water values for its different uses and the role of economics in the development of river basins; and the processes behind and implications of floods and droughts.

Expanded knowledge should be ensured through policy research, systems research and technology research.

- There is a need to strengthen networks of researchers and policy makers from both EU and developing countries.

## 4.2 Linking political message and EC Water and Development Focal Areas

### 4.2.1 Linking management and actions - the national perspective: Water supply and sanitation, water for food, water for the environment, etc.

Any kind of actions taken to meet the challenges in reaching water security, be it on national or local level, must be based within a sustainable management framework. For such a framework, and the actions within it, to be effective and to meet the objectives, of which poverty eradication is a key one, collaboration is crucial. Such collaboration should be based on partnerships and synergies among the governments, citizens and other stakeholders, including both men and women. In collaborative management Public-Private Partnership may be an option, particularly in making water supply and sanitation services more efficient and cost-effective. Various models for such partnership are outlined in the EC Guidelines for water resources development cooperation.<sup>38</sup>

An expansion of the capacity for an integrated water resources management is needed in order to

- secure water for people and secure safe sanitation systems and hygiene;
  - secure water for food production;
  - protect vital ecosystems to secure their survival and ecosystem services;
  - ensure pollution abatement;
  - meet the challenges of an increasing urbanisation;
  - develop other job creating activities for instance by securing water for industry and energy purposes;
  - deal with variability of water in time and space including managing floods and droughts and mitigating their effects;
  - manage the continuum between river basins and the coastal and marine systems;
- This should be done including by forging the political will to act; and ensuring collaboration across sectors and boundaries.

These challenges are recognised in the GWP TAC report No 4 and most of them are also included in the Ministerial declaration from the 2nd World Water Forum, The Hague, March 2000.

*Water for people: ensuring access to safe water and sanitation systems and to hygiene is fulfilling basic human needs.*

The Water Decade was a universal manifestation to link policies in meeting basic human needs for water with actions, but the targets are still far from reached. Managing water to meet human basic needs should include measures to minimise unaccounted-for water, increase water saving devices, reuse of water and also to ensure a fair pricing of water services. Such water pricing policy should ensure meeting the needs of poor people, who are often the ones paying the highest prices for water.

Access to water and sanitation must be seen as a prerequisite to health programmes. General hygienic conditions are usually as or more crucial to health as water quality. Incentives should be introduced to improve sanitary and water supply conditions, such as protecting wells and water-storage. Authorities should promote changed societal norms in support of localised

<sup>38</sup> EC Guidelines for water resources development co-operation, 1998, p241-245.

solutions, which is crucial in a development process where new partnerships between civil society, including private business, and public sector are developed<sup>39</sup>.

In a water-stressed world any extension of sanitation coverage has to be innovative. In every specific situation, alternative methods for sanitation should be assessed. Sustainable sanitation actions require an unbiased evaluation of e.g. health risks from sewerage, cesspools, dug latrines, dry toilet systems, etc. Leaking or overflowing sewers may be a health hazard to poor sections of society; while mismanaged dry toilets can have health consequences for individual families. Understanding root-causes of mismanagement is vital for practicable policies. Indirect causes, such as lack of legal deed to the plot making the owner unwilling to invest in sanitation and should be rectified in order to open up for local activities. Extension of sanitation coverage will involve actions of various kinds, such as town planning, change of societal norms and expectations, relaxed regulations, etc.

A recent, promising development deals with *ecological sanitation*. The leading idea is that water and nutrients are circulated in (as short as possible) loops back to productive use. At household level, this means that the urine and faecal material is sanitised and returned to the soil as nutrients. In centralised water and sanitation systems it means that wastewater and sludge are treated well enough to be returned to nature without causing long-term harm. An inherent benefit of small re-circulation systems compared to piped systems is that the level of sophistication can be adjusted to affordability and available management. The community would benefit from an improved environment, while saving water resources.

*Ensuring water for food security in a rural development context includes addressing water management for irrigation (on small and medium scale) and development of rainfed agriculture systems.*

Today the wider concept of human security is integrating food security concerns<sup>40</sup>. The challenge is to integrate long term food security objectives into long term poverty eradication policies that are providing a coherent framework for national development strategies. Trying to achieve food security would entail addressing concepts such as household subsistence, investment choices, vulnerability to drought and famine, and trade in agricultural products versus self-sufficiency. Ensuring food security, within cross-sectoral coordination, would need either improved management of smaller-scale water-efficient irrigated areas or increased promotion of upgraded rain-fed agriculture. Food security for the rural poor has very little to do with large-scale irrigation. The recent recognition of importance of urban food production also needs to be incorporated into policies and practices. In irrigated agriculture, capacity to enhance resolving of water-food security and improving crop productivity per drop (of water evaporated) and crop productivity per unit of investment are particularly important. In areas where water is abundant rainfed agriculture traditionally has been practised but environmental concerns, such as heavy use of fertilisers and pesticides, and changes in policy often have slowed the growth in production; there is often a need for increased management capacity. In areas where rainfall is low or very erratic the need for an upgrading of rainfed agriculture may require enhanced capacity in water harvesting for crop and livestock production, integrated water and soil-fertility management or in development of drought-resistant crops. There is increasing evidence showing that the reason behind low yielding rainfed farming systems, is not necessarily a lack of water (even in the most drought prone areas of sedentary farming), but rather caused by the interlinked effects of poor water and soil management. Added to this is the character of tropical hydro-climates with extremely unreliable rainfall (leading to erratic distribution of rainfall over

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<sup>39</sup> COM(2001)53, p 20.

<sup>40</sup> EC DG Development. Rural Development and Food Security. Agriculture Sub-Sector Strategy Paper. October 2000.

time and in space), high intensity storms, and high atmospheric thirst for water (high potential evapotranspiration).

One way of providing food security in poor rural areas would also be to meeting the challenge of livelihood diversification. This would ensure alternative income generating opportunities for the poorest people. Together with water saving methodologies and more sustainable management systems, livelihood diversification might also decrease the pressure on scarce water resources. Increased capacity to develop diversified livelihood systems in poor rural and urban areas should be provided for.

*Protecting, restoring and sustainably use water resources and ecosystem would ensure conservation of vital ecosystems to secure their survival and to ensure ecosystem services.*

Any actions taken would need to ensure that key ecological systems are kept operational to secure the ecological goods and services that they deliver. Loss of species and habitat will reduce the biological diversity and result in a decline in fish production and further exacerbate demands for protein from livestock production and agriculture. In protection and sustainable use of ecosystems actions to secure a sufficient amount of water as well as actions to secure water of acceptable quality need to be undertaken, often simultaneously. It is essential for countries to find a proper balance between human needs and the intrinsic value of ecosystems at all levels of water management.

*Water to meet increasing urbanisation, sustainable industry and energy production.*

Meeting the challenge of *urbanisation*, including in peri-urban areas, requires water for domestic use, promotion of adequate sanitation but also water for peri-urban agriculture. Contrary to the case of conventional piped systems, the new arrangements can provide options that fit the local management systems and financial capacity. For the long term development and sustainability of a city the catchment of its water sources needs to be seen as an asset for development to be protected from upstream over-exploitation and water quality degradation.

*Industries*, not just large scale industries, are contributing to the pollution of surface as well as groundwater. Small-scale industries, including among poverty stricken communities, are needed to be developed, which would imply a pressure on water quality and quantity. Capabilities to undertake and to develop cost-effective and ecologically suitable technologies for waste disposal is a key issue, since still most of the waste is discharged untreated. There is also a need to invest in collaborative solutions and in governance systems for pollution management.

In the *energy* context, the interest from donors in large hydro-power projects requiring large dams is declining, except for uniquely competitive low-cost sites and sites where environmental impacts are acceptable, and small and medium hydropower in mountainous areas with few other energy resources<sup>41</sup>. There is also a need to invest in the use of renewable energy for water pumping, for waste water treatment and for desalination, where it is feasible.

Provide security from *water related hazards* would imply dealing with variability of water in time and space including managing floods and droughts and mitigating their effects. Management of floods depends on the river basin, including upstream and downstream areas whether in a national or regional surrounding. It may have severe effects both nationally and regionally including in the coastal zone and adjacent marine areas. Flood preparedness and mitigating of the flood effects should include flood warning systems, structural flood mitigation

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<sup>41</sup> World Commission on Dams: Final Report, November 2000.

measures such as flood protection and creation of storage capacity. It should further include non-structural measures i.e. land-use planning.

Within development cooperation measures to mitigate the effects of droughts - long periods when the potential evapotranspiration has exceeded precipitation and adversely affected land production systems - could be undertaken. Such measures may include: early warning and response capacity systems, efficiently managed emergency relief and food aid, improved food stocking systems, and alternatively livelihoods for drought prone areas.

Mismanagement, excessive withdrawal or pollution of water resources would have an impact in the discharging area, a delta area, *and a coastal zone area or associated marine ecosystem*. EC should therefore promote an Integrated Water Resources Management approach within a river basin, which includes management of the coastal zone.

#### 4.2.2 Linking management and action - the regional perspective: Transboundary water management and conflict prevention

Prevention of conflicts over water, whether based on a legal treaty or not, needs to build on cooperation and on the sharing of benefits rather than the sharing of the resource. EC should support an improved governance structure to secure best possible use of water and an enhanced cooperation in Integrated Water Resources Management of shared, including transboundary, water systems.

The issues within emerging cooperation over transboundary water resources include new partnerships and an increasing openness among the partners including within an upstream/downstream relationship. The EC support in transboundary waters situation should also include provisions aiming at conflict prevention. Damage caused in response to driving forces, such as rapid population increase may cause threats to long-term sustainability of river basin agreements. The need for an application of an Integrated Water Resources Management is increasingly recognised and within that innovations in institutional arrangements; increased decentralisation; the recognition of the environmental demand for water etc. In developing cooperative arrangements there will be a need for assistance and funding for coordination and cooperation over quality, quantity, groundwater, surface water, local socio-political and economic relationship. The EC should provide support to reach water security in such situations where those suffering often are the poorest people. The EC could also promote dialogue on basin-wide cooperation in such areas as information-sharing, capacity building and technology transfers as well as help focusing on achievable goals - out of a "basket of benefits" - instead of focusing on rights and allocation issues.

Cooperation between riparians on flood preparedness or mitigating the effects of hazardous floods should be promoted.

#### 4.2.3 Linking management and actions - a global perspective: Mitigating the implications of climate change on access to water for the poor

Climate change is a driving force in terms of freshwater availability and quality and thus directly impacting water and food security, settlement patterns etc.

In a world with a global mean temperature rise of 1-6°C within the next 100 years there will be an intensification of the hydrological cycle, with changes in intensity and patterns of precipitation and evapotranspiration. This will of course have an impact on the living conditions for human beings as well as for the environment. The climate change will exacerbate periodic and chronic shortfalls of water as well as flooding. According to the models predictions in some areas point to more severe rainstorms, while in others rain events will happen less often, thus resulting in droughts and problems of water access. According to the report by the IPCC<sup>42</sup> most important changes will occur at the lower latitudes i.e. where population growth is most rapid. The conditions will be even more arid in those areas where the climate of today is arid, which will exacerbate the difficult conditions for the poorest people living in water scarce areas. The effects of floods are particularly severe in low-lying areas, including within several of the Small Island Developing States. The effects of climate change will exacerbate the effect.

These countries will need assistance to increase their capability to cope with the emerging situation and to mitigate the effects of climate change, e.g. by applying improved water management.

The EC should support efforts by developing countries to mitigate effects of climate change on accessible water quantity and quality. Such support could include for improved capacity in water management, including in irrigated areas, swamp areas and other wetlands, and to improve equitable access to clean water in areas where water is becoming increasingly scarce.

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<sup>42</sup> The latest report from the Intergovernmental Panel of Climate Change, Working Group I, 3rd Assessment Report, Summary for Policy Makers, IPCC, 2001.

## 5. CONCLUSIONS

Achieving the overall goal of securing access to food to and adequate supplies of water of good quality to all people, the ones living today and future generations while preserving the crucial functions of ecosystems, is a universal challenge. No freshwater security, which is an important part in the EC poverty eradication strategy, will be achieved without major shift in thinking.

- **Firstly**, such thinking is founded in that *all water users have a responsibility* concerning the water used. Water is a finite resource and water pollution has to be abated by all means so that water can be re-used for other purposes, by other users, downstream in a river basin area or a groundwater recharge area. *'Prevention (of pollution) is better than cure.'* User responsibility, thus, calls for a *hydro-solidarity*, a solidarity with other users so that they can access water of acceptable quality.
- **Secondly**, such a shift in thinking includes an emphasis on *long-term* solutions where people concerned, both women and men, are involved, a *participatory approach*. This has been argued repeatedly but humanitarian aid is the fastest growing sector for the EU development assistance. A long-term solution in a short-term perspective often demands non-conventional systems change approaches, or more expensive investments, but will in a long-term perspective save both money and water - and lives. Long-term solutions call for continuity among the actors, long-term mandates, and *sustainable water agreements*.
- **Thirdly**, there is a need to apply a real *integrated approach* in which all actors *cooperate* as partners. The management system needs to integrate land and water management - *'a land use decision is also a water decision'* - to ensure long-term food security also for the poor. There is also a need for integrated water resources management to secure safe drinking water and acceptable sanitation, including ecological sanitation, at the same time as water for agriculture, including for small-scale food production, in rural as well as urban and peri-urban areas of the expanding cities. Water users at all levels of society need to be involved, including women who often are the custodians of the households. A cooperative approach shall be adopted in areas with a shared water resource, be it shared between different groups within a country or a transboundary water resource. Cooperation over a shared water resource aims at conflict prevention.
- **Fourthly**, there is a need to shift towards new *societal norms* - about water-related acting - implying not just an increased awareness of the complex water interrelations but also to promote responsible actions. Such water responsibility and responsible action would also need to be governed by valuing water, not primarily with a price tag per litre but mentally that access to water of acceptable quality to meet different water needs is precious and shall be reflected in all water related activities.

Such shift in thinking should be reflected in the EC development cooperation; in capacity building and in management development. It needs to be reflected in projects for securing water for basic needs and sanitation, in projects related to food security, and in water management projects, including in projects concerning cooperation over transboundary waters. The shift in thinking is necessary in a poverty reduction strategy, where sustainable water behaviour is a key component.

This Communication outlines the essential steps that the Commission needs to take to integrate water related strategies into its overall development policy and poverty eradication strategy.

## **ANNEX 1: Member States water policies and activities**

**Austria.** The new Austrian water policy is applying an holistic approach but is mainly focusing on water supply and sanitation with the following goals: water supply and sanitation in adequate quantity, quality and availability for all people in the region; protection of the water sources in the region; ensuring that the supply is secure; and that the water supply and sanitation is affordable and cost effective. The Austrian policy is also favouring Private-Public-Partnership and new and alternative technologies such as solar energy for water supply, rain-water harvesting and ecological sanitation.

**Denmark.** The new Danish development policy approved in year 2000 has a strong focus on poverty alleviation.<sup>43</sup> Danish bilateral assistance is mainly provided as sector programme support to 20 programme countries, two-thirds of them in Sub-Saharan Africa. In 9 countries Danida is presently engaged in providing assistance in water supply and sanitation. Water resources management complements in most cases the engagement in water supply and sanitation. The sector water policy includes assistance to both rural and urban areas "with a focus on meeting basic demands of the un-served and under-served poor people living in rural communities, small towns and slum areas". Fast growing urbanisation has become a priority. Links to health and education are mostly parts of the project unit.

From management perspective issues such as user ownership, functioning of public and private sectors and of organisations and institutions, the participatory approach and the question of full cost recovery are important issues.

**France.** France over-all water policy has a broad approach as the Ministries of Agriculture and Environment have a strong influence on water policies. Focus is therefor on; management of water, especially on institution building at watershed level; water use in agriculture; links with health and with environment; and on training, information and research. Bilaterally, France is focussing on the poorest countries with a traditional relationship to France, mainly in West Africa. The bilateral cooperation is to be reoriented and concentrated on fewer items and larger projects. France also wants to strengthen the co-ordination between French stakeholders in the development assistance as well as multilateral co-operation. They do support the Global Water Partnership, as a global water network.

**Germany.** Germany is the world's second largest donor in the water sector and is applying a global approach to the water development policy. The focal areas for German water development cooperation are: Water sector reforms; Conflict prevention at transboundary water courses; International sector dialogue; Urban water supply and sanitation; Rural water supply and sanitation; and Irrigated agriculture. All German supported water projects should be socially and environmentally appropriate and sustainable. They need to alert to the following principles: that water should be considered a scarce economic good; that the country should confine itself to economic policy and framework planning of the sector; that Integrated Water Resources Management should take place within the watershed and not within customary administrative boundaries; and that the ones operating the water supply and sanitation facilities must be accountable first and foremost to their customers and owners. The functionality and cost-recovery aspects of the projects are important.

Germany is also focussing on water conflict prevention within the framework of a combination of development policy instruments with both security and foreign policy and with environment

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<sup>43</sup> "Partnership 2000", Danish Development Policy. "Water Supply and Sanitation, Danida Sector Policy", 2000. "Water Resources Management, Danida Sector Policies", 2000.

policy measures. This has been demonstrated in international dialogues on Cooperation for Transboundary Water Management<sup>44</sup>.

**Ireland.** The Irish water development cooperation is directed mainly towards 8 countries in Sub-Saharan Africa. The programme is focused towards supporting the development of water supply and sanitation in a manner that conforms to national policies and that facilitates access to those resources by those who are disadvantaged. The assistance should promote the development of structure processes, strengthen the capacity within the government to support communities in water supply and sanitation development; strengthen the awareness on the environmental impact of water supply and sanitation and waste water; support communities in establishing priorities; promote changes in hygiene behaviour; and promote operation and maintenance systems.

**The Netherlands.** The Netherlands attaches a strong priority towards water and water-related projects. Achieving water security is a key priority in Dutch development cooperation. The cooperation is focused on securing availability of adequate water of good quality "not only for health (drinking water supply and sanitation) but also for productive activities such as agriculture, fishing, industry, shipping and energy... and for the preservation of ecosystems and biological diversity."<sup>45</sup> The water supply and sanitation sector, particularly to the poor is important but programmes do also include projects within sustainable irrigated agriculture<sup>46</sup>, and the preservation of Freshwater wetlands<sup>47</sup>. A strong importance is attached to Integrated Water Resources Management<sup>48</sup>. Women's participation in water-related issues<sup>49</sup> is another key priority. The approach is shifting from project directed towards sector directed. The regional coverage includes also Asian countries although the tendency is to concentrate to fewer countries. As a consequence of the attention resulting from the 2nd World Water Forum in The Hague, March 2000, the budget for the water sector has increased.

**Sweden.** Water is a priority issue within the Swedish Development Policy. The overall objective is support within the Integrated Water Resources Management framework; "to promote a sustainable management and equitable use of water resources to benefit people, especially resource poor women, men and children, while safeguarding the environment"<sup>50</sup>. Within the framework of IWRM Sida will attach high priority to interventions such as cooperation on shared water resources to prevent conflicts and promote security; application of demand management principles; measures to prevent and control pollution of water resources; rural and urban water supply integrated with health perspectives and environmental sanitation; ecological sanitation in rural and peri-urban areas; measures to conserve water in agriculture; and conservation and sustainable use of wetlands and coastal environments. Sweden attaches high priority to the strengthening of capacity in all the areas mentioned and to the ensuring that

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<sup>44</sup> 1st Petersberg Round Table: Global Water Politics. Cooperation for Transboundary Water Management, Petersberg/Bonn, 3-5 March, 1998. International Round Table: Transboundary Water Management. Experience of International River and Lake Commissions, Berlin, 27-30 September 1998.

<sup>45</sup> NEDA, Ministry of Foreign Affairs, the Netherlands: Water Supply and Sanitation in Developing Countries. Sector Policy Document of Development Cooperation no 12. March 1998.

<sup>46</sup> NEDA, Ministry of Foreign Affairs, the Netherlands: Sustainable Irrigated Agriculture, Policy and best practice document of Development Cooperation no 1, February 1998.

<sup>47</sup> Ministry of Foreign Affairs, Development Cooperation, the Netherlands: Freshwater wetlands. Policy and best practice document of Development Cooperation no 6. September 2000.

<sup>48</sup> NEDA, Ministry of Foreign Affairs, the Netherlands: Water for the Future, Integrated Water Resources Management. Policy and best practice document of Development Cooperation no 2, July 1998.

<sup>49</sup> Ministry of Foreign Affairs, Directorate General for International Cooperation, the Netherlands: Women, Water and Sanitation; Sector Papers Women and Development, March 1989.

<sup>50</sup> Management and Use of Water Resources. A Summary of Sida's Experiences and Priorities. Position Paper. Sida, May 1999.

women as well as men have increased potential to influence, participate in and benefit from water sector development.

**United Kingdom.** The United Kingdom has just released a strategy "Addressing the Water Crisis - Healthier and More Productive Lives for Poor People"<sup>51</sup>. This is the UK water strategy within the framework of the development policy targeting to reduce poverty, provide basic health care and universal access to primary education. The main challenges to be address through this strategy are to improve the management of water resources and the environment; to avoid conflicts over water resources; to improve the allocation of water between different users; to deliver sustainable water services and sanitation services to meet needs; and to improve co-ordination among the international players. In doing this DFID sees it important to put the people at the centre, to respond to demand, and to recognise water as an economic good. Activities to meet the challenges will be in form of activities to transform institutions for them to be able to meet with the challenges; to promote best practices such as support the integration of hygiene promotion into water and sanitation programmes or support governments to plan prevention and mitigation of disasters from flooding and drought; and activities to generate and share knowledge such as appropriate ideas relating to the water sector or ensure that information is provided to those who need it.

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<sup>51</sup> Strategies for Achieving the International Development Targets. Addressing the Water Crisis - Healthier and More Productive Lives for Poor People. DFID, UK March 2001.