



# Poverty and Water Security

**Understanding How Water Affects the Poor**

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## Abbreviations

ADB	Asian Development Bank
DFID	Department for International Development (United Kingdom)
IWRM	integrated water resources management
MDGs	Millennium Development Goals
OECD-DAC	Organisation for Economic Co-operation and Development - Development Assistance Committee
PRS	poverty reduction strategy
PRSP	poverty reduction strategy paper
UNDP	United Nations Development Programme
WSSD	World Summit on Sustainable Development

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# Poverty and Water Security

## Setting the Scene

*The location is Madras. The time: 3.30 a.m., the hour you get up every morning in order to secure a place in the line for the tap on the street corner before the water is shut off at 6.00 a.m. Keene, a 10-year old girl from southern Kenya is staying home from school to help her mother carry water from the river several kilometers away.<sup>1</sup>*

*Rasul Bux has fished from 10:00 a.m. to 3:00 p.m., but has caught nothing at all. "In the past, many varieties of big fish would crowd into our nets as soon as we cast them," he says. "Now we can't even catch enough to meet our own families' most meager needs."<sup>2</sup>*

These quotes show the realities of the lives of the poor, the daily grind of poverty, scarcity, and unmet needs that are their lot. It is these individual experiences of poverty that we need to understand and address. They are the realities that any program on poverty and water security must come to terms with: ill health and hunger, but also lost sleep and education. Problems with water security are part of the overall experience of poverty, including limited opportunities to develop one's potential and little access to life's necessities. Meeting the needs of the poor has too often been seen as simply providing drinking water. Important as this is, it is far from the only challenge facing poor women, men, and children around the world. They also need access to water *for productive use to provide a livelihood*, and water is critical to the ecological services on which many of the poor depend.

This paper aims to stimulate debate on and promote a better understanding of the importance of water security in the lives of the world's poor. The goal is to set out a basic conceptual framework to help explain the relationship between poverty and water security. The paper primarily targets the international water community: water resources experts and policy makers who are part of the ongoing debate on how to sustain and improve our management of water resources and the delivery of the different services these resources provide.

The initial draft was written to begin a series of national and regional consultations and case studies that will culminate in sessions at the 3<sup>rd</sup> World Water Forum in Japan in March 2003. This version takes into account the lessons learned from those consultations and is grounded in real life experiences.

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<sup>1</sup> Ohlsson 1996: 1-2.

<sup>2</sup> Chowdhury 1994: 109.

The ideas set out in this paper reflect the general consensus in the international water 'community' that the importance of water resources as a weapon in the war against global poverty must be demonstrated and highlighted more effectively. Many documents state that 'water is life,' 'water is the basis for development,' or 'water is essential to the poor', but few really explain *why* this is the case.

In particular, few documents clearly set out why the poor lack water security, or discuss possible links between poor people and countries in relation to water insecurity. The concept of water security is closely linked to the question of the extent to which the poor have *access* to water resources and services. To adapt Sen's famous statement on food and famine: *scarcity is caused by people not having access to enough water. It is not caused by there not being enough water.*

Even fewer documents demonstrate in a convincing way that improving water management<sup>3</sup> can make a direct and substantial contribution to the reduction of poverty. Yet a growing body of evidence, including experiences from case studies, suggests that water is indeed a key to sustainable development. One of the objectives of this paper is to demonstrate more effectively how these links exist at all levels—from local communities to international policy and political arenas.

The use of, and problems with, water pervades the lives of the poor. The link between poverty and the familiar issues of health, food security, and environmental integrity are well understood and widely documented. These issues are of tremendous importance, but they are not the only ways that water management affects the lives of the poor. Box 1 gives some examples of the wide range of ways that water affected people in one group of villages in central Bangladesh over a three-year period. Similar stories could be told for communities throughout the world.

## The International Development Context

These localized but very real problems capture the central message of this paper: that poverty and water are inextricably linked in many parts of the world. The details of this connection vary greatly, but their impact on the lives and prospects of the poor are clear. Pro-poor actions in water service provision and resource management for improved health and well-being should be a central element of any program to tackle poverty in most parts of the world.

At the international level, the development goals defined in the UN Millennium Declaration provide a useful reference point where the links between poverty and water security can be established. Table 1 looks at the direct and indirect contribution that improved water management can make to the realization of the Millennium Development Goals (MDGs). As we can see, it is a factor across all of the goals and is of major importance in several of them, including those connected with income poverty, health and food security, and of course, the goal to ensure access to safe drinking water.

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<sup>3</sup> The term "water management" is used throughout this report to denote all aspects of the management and use of water resources. It includes the management of the water resource base as flows through ecosystems, with a basic premise that this should be integrated, preserving the integrity of the ecosystems. It also includes the services that the use of water provides, including the infrastructure and management systems needed to ensure that these services are available where and when needed. These two are closely linked, but distinct aspects of water management, with clear implications for the types of policies and actions needed for targeting the poor.

## Box 1. Water and the Livelihoods of the Poor in Central Bangladesh

Water management is one of the most important features of life in central Bangladesh. It affects all sections of the community and brings a wide range of benefits. There are also problems, reflecting limitations on the access to resources of the poor, conflicts between different uses, and the hazards that unreliable resource flows bring. Far from being a hazard, floodwaters in normal years are essential to agriculture, bringing water and nutrients that make continuous cultivation possible, but changes to climate and hydrology are reducing and changing the timing of these floods. Minor irrigation in the dry season is compensating, and is the motor of rural development, but at a price that can exclude the poor.

When excessive floods do come, they have serious effects. The 1998 floods, the highest on record, had a major impact on local life. The summer crop was all but wiped out, but a bumper dry (boro) season harvest followed this, so that those with land and with the right inputs did well. Most people survived the immediate flood fairly well through a combination of local support and government relief. The post-flood recovery was a different story, with access to credit to replace lost possessions—a major problem for entire communities—and lack of production inputs—a problem for women and the poor in particular. Some people were truly devastated by the floods. A group of 100 families from a traditional weaving community turned up in the middle of the flood to seek help from relatives in the study villages. They came from a riverbank village 40 km away that had been completely eroded by the floodwaters. These people grabbed whatever possessions they could, but for them the floods meant borrowing from local moneylenders to rebuild their lives and livelihoods in a new place.

Many other water management issues affect the lives of the poor. Traditional fishing families have been forced to find alternative means of livelihoods as their fishing grounds disappear and fish stocks have plummeted. Reduced fish catches adversely affect the diet of many poor families. Drinking water comes from hand pumps with good quality water, but waterborne diseases are still endemic throughout the community. These are caused by bathing, washing clothes, and performing other domestic tasks in open water bodies that are extremely polluted.

Previous government investments in water management exhibited minimal consultation of local people. The main target group had been farmers, excluding the landless, women, and other stakeholders. Investments such as flood control schemes have had serious negative impacts on fishing, domestic water availability, and people such as *char* (new lands in river channels) dwellers, all of whom are relatively poor and from marginal sections of the community. A participatory approach to water management that includes all direct stakeholders, including the poor, is slowly taking shape in Bangladesh.

This paper does not set out to be definitive, but rather seeks to clarify basic concepts on poverty and water security and their links. The paper is intended to stimulate debate and to help build a consensus on the types of policies, strategies, and actions that can enhance the role of water management in the battle against poverty. No prescriptions are provided: indeed, no prescriptions exist in what is a rapidly developing field. As we shall see, international approaches to poverty reduction have changed substantially in the recent years and it is only in the past 2 years that a clearer consensus has emerged on what poverty is and what types of actions are needed to reduce it. The ideas and approaches set out here represent an attempt to respond to this new impetus to address poverty reduction in relation to water management.

There is a growing recognition that the links between poverty and water security need to be more overtly and directly addressed. In many ways, this has been a sub-theme of debates on water management for a long time, but too many assumptions have been made about better management of water benefiting the poor, without directly demonstrating how this will happen. This crystallized in the preparations for, discussions at, and reactions to the World Water Forum

and Ministerial Conference held at The Hague in March 2000. Many new and exciting ideas emerged in this process and the World Water Vision (including the thematic papers that contributed to the Vision), the Ministerial Declaration, and the actions proposed in the Framework for Action are of great significance for the poor.

The International Conference on Freshwater, held in Bonn in December 2001, similarly reflected these themes, where the Ministerial Declaration stated that:

Combating poverty is the main challenge for achieving equitable and sustainable development, and water plays a vital role in relation to human health, livelihood, economic growth, as well as sustaining ecosystems.

The World Summit on Sustainable Development (WSSD) was held in Johannesburg in August–September 2002. This 10-year follow up to the Rio Summit focused global efforts to promote sustainable development on the core issue of poverty reduction: “Eradicating poverty is the greatest global challenge facing the world today and an indispensable requirement for sustainable development, particularly for developing countries.” (WSSD Plan of Implementation. 2002: 1). The summit emphasized the importance of partnerships among all stakeholders as the key to achieving this, promoting the idea of *common but differentiated responsibilities* as the key to future development efforts and downplaying the emphasis on the role of governments alone that had characterized Rio.

Great emphasis was placed in Johannesburg on the achievements of the Millennium Development Goals, and significantly, a new target was agreed on sanitation. The section of the Plan of Implementation that defines this is worth quoting at length:

The provision of clean drinking water and adequate sanitation is necessary to protect human health and the environment. In this respect, we agree to halve, by the year 2015, the proportion of people who are unable to reach or to afford safe drinking water (as outlined in the Millennium Declaration) and the proportion of people who do not have access to basic sanitation, which would include actions at all levels to:

- Develop and implement efficient household sanitation systems;
- Improve sanitation in public institutions, especially schools;
- Promote safe hygiene practices;
- Promote education and outreach focused on children as agents of behavioral change;
- Promote affordable and socially and culturally acceptable technologies and practices;
- Develop innovative financing and partnership mechanisms; and
- Integrate sanitation into water resources management strategies.



Water, Poverty, and the Millennium Development Goals

Millennium Goal	Direct Contribution	Indirect Contribution
<p><b>Poverty:</b> to halve, by 2015, the proportion of the world's people whose income is less than \$1/day</p> <p><b>Hunger:</b> to halve, by 2015, the proportion of the world's people who suffer from hunger</p> <p><b>Universal Primary Education:</b> to ensure that by 2015, children everywhere will be able to complete a full course of primary schooling</p> <p><b>Gender Equality:</b> progress toward gender equality and the empowerment of women should be demonstrated by ensuring that girls and boys have equal access to primary and secondary education</p> <p><b>Child Mortality:</b> to reduce by two thirds, between 1990 and 2015, the death rate for children under the age of 5 years</p> <p><b>Maternal Mortality:</b> to reduce by three fourths, between 1990 and 2015, the rate of maternal mortality</p> <p><b>Major Diseases:</b> to halt and begin to reverse, by 2015, the spread of HIV/AIDS, the scourge of malaria, and the scourge of other major diseases that affect humanity</p> <p><b>Environmental Sustainability:</b> to stop the unsustainable exploitation of natural resources and to halve, by 2015, the proportion of people who are unable to reach or to afford safe drinking water</p>	<ul style="list-style-type: none"> <li>• Water as a factor of production in homestead gardening, agriculture, industry, and in many other types of economic activity</li> <li>• Investments in water infrastructure and services as a catalyst for local and regional development</li> <li>• Water as a direct input into irrigation for expanded grain production</li> <li>• Reliable water for subsistence agriculture, home gardens, livestock, tree crops, etc</li> <li>• Sustainable production of fish, tree crops, and other foods gathered in common property resources</li> <li>• Improved quantities and quality of drinking and domestic water and sanitation <i>reduce main morbidity and mortality factor for young children</i></li> <li>• Improved cleanliness, health, and reduced labor burdens from water portage</li> <li>• Reduced mortality risks</li> <li>• Better water management reduces mosquito habitats and malaria incidence</li> <li>• Reduced incidence of a range of diseases where poor water management is a vector</li> <li>• Improved water management, including pollution control and sustainable levels of abstraction—key factors in maintaining ecosystems integrity</li> <li>• Actions to ensure access to adequate and safe water for poor and poorly serviced communities</li> </ul>	<ul style="list-style-type: none"> <li>• Reduced vulnerability to water-related hazards boosts investments, production, and development</li> <li>• Reduced ecosystems degradation boosts sustainable development at the local level</li> <li>• Improved health from better quality water increases productive capacities</li> <li>• Ensured ecosystems integrity to maintain water flows to food production</li> <li>• Reduced urban hunger by cheaper food grains from more reliable water supplies</li> <li>• Improved school attendance from improved health and reduced water-carrying burdens, especially for girls</li> <li>• Having women in community-based organizations for water management improves women's social capital</li> <li>• Reduced time and health burdens from improved water services lead to more time for <i>income earning and saving activities and more balanced gender roles</i></li> <li>• Improved nutrition and food security reduces susceptibility to diseases</li> <li>• Improved health and nutrition reduces susceptibility to anemia and other conditions that affect maternal mortality</li> <li>• Improved health and nutrition reduces susceptibility to HIV/AIDS and other major diseases</li> <li>• Development of integrated management within river basins creates conditions where sustainable ecosystems management is possible and upstream-downstream impacts are mitigated</li> </ul>

## The Basic Picture

In these and other recent pronouncements from the international water community, the full complexity of water resources management and service delivery is clearly reflected, but the equally complex issues surrounding poverty are not. They, not surprisingly, start from a “water” perspective and advance a compelling case for integrated water resources management (IWRM). What they do not do is demonstrate whether or how sustainable water resources development and management solutions will necessarily benefit the poor. It would be a mistake to assume that this will necessarily be the case. Indeed, as many evaluations show, interventions in the management of water resources or delivery of water services could further entrench inequalities and reduce the already lamentable access of the poor to these resources *unless they have an explicit poverty objective*.

This paper starts from a poverty perspective and then examines how water resources relate to poverty. It is intended to complement the many recent innovations in the improved management of water and water services that have resulted from stimulating water managers and policy makers to acknowledge the importance of having an integrated approach, making them aware of what form the approach should take. It also seeks to establish a basis for building better links between water managers and people as well as institutions that are primarily focused on poverty reduction. In particular, this paper seeks to stimulate interventions in water development and management that focus on poverty reduction as their primary goal.

The case for doing this is compelling. Box 2 sets out some basic, inevitably macro, statistics on poverty and water in the modern world. The picture is a stark one. There has been great progress made in past generations, not least in improving health conditions, increasing global food production to more than outstrip population growth, and providing many millions with basic water and sanitation services. But this progress is uneven in its distribution. Large swathes of Africa and South Asia remain largely untouched by the benefits of global economic progress. In fact, the averages result in a generally optimistic picture that hides widening inequalities and the fact that, for the poorest of the poor, things are often getting worse in absolute terms.

John Briscoe of the World Bank recently pointed out, that globally, things have improved at a faster rate than at any time in human history and we should remember that “our glass is half full.” Developments such as the extension of and improvement to irrigation, increased water supply coverage, better primary health care and education systems, and large, hydro power schemes have improved the lives of millions. Nevertheless, the poorest and most vulnerable will remain untouched, however well we make conventional approaches work. As things stand, if we continue to rely solely upon the traditional approaches, the best we can hope for is a glass that is three-quarters full, leaving a significant proportion of the poor with few or no prospects of ever improving their water security.

Above all, there can be little optimism that the approaches of the past century can be replicated to reach the hundreds of millions of the poor who live in societies and environments where large-scale infrastructure investments will not work. For these people, new approaches to water management are needed that more closely reflect their conditions of poverty and the opportunities that exist to reduce this poverty. Identifying such innovative approaches is one of the main

goals of this paper. As we shall see, many of these innovations do not relate only to techniques for the management of water resources and services. They reflect the wider political, institutional, and governance conditions in which this management takes place, at all levels—from the individual and local community, to the national and global levels.

The recognition of the need for and the determination to achieve change is widespread. What is now needed is a process through which this determination can be translated into action relevant to the world's poor. Several hundreds of millions of people depend on this and achieving it is critical to attaining sustained economic growth in many parts of the world.

At the same time, in many cases, there are still opportunities for the further expansion of such traditional investments. These opportunities should be maximized where they are sensible in social, economic, and environmental terms. In particular, such investments must clearly demonstrate their sustainability and their effectiveness in bringing benefits to the poor. Improvements to the management of these systems are needed, as is their extension to those areas where they are a practical proposition, but there is no room for complacency.

## Box 2. Poverty and Water Security: The Basic Picture

In 1998, 1,175 million people (1,183 million in 1987) survived on the equivalent of less than \$1/day, 23.4% of the world's population (28.3% in 1987), while 2,811.5 million (56.1%) survived on less than \$2, up from 2,549 million (61%) in 1987. The poorest of the poor live in East and South Asia as well as Sub-Saharan Africa, where 1090.5 million (93% of the total) of those living on less than \$1/day are found.

There has been progress toward some of the International Development Targets, with significant improvements in infant mortality (59/1,000 in 1998, down from 87/1,000 in 1980) and child mortality (79/1,000 from 135/1,000), and primary education (91% for boys and 86% for girls in 1998, up from 83% and 72% in 1980) in most parts of the world.

Globally, 1.1 billion people lack access to improved water supply and 2.4 billion lack adequate sanitation. Most (84% for water supply and 83% for sanitation) live in rural areas, but the number of urban residents without adequate services is increasing rapidly. The majority (63% for water supply and 80% for sanitation) of those without adequate services live in Asia, but Sub-Saharan Africa has the highest proportion of people without water.

Health hazards where water is a vector are endemic in many regions. There are 4 billion cases of diarrhea each year, causing 2.2 million deaths, mostly of children. Millions more are affected by malaria, dysentery, schistosomiasis, intestinal worms, and other water-related diseases. In some places, cholera, typhoid, and other potentially fatal diseases are rife.

Agriculture represents 70% of all water use, and per capita food production has risen steadily over the last generation in all regions except Sub-Saharan Africa (where it continues to decline). However, several millions are still malnourished. Around 800 million people do not have enough food to meet their basic energy needs, and 2 billion lack a balanced diet.

Floods, droughts, and major storms kill tens of thousands, cause billions of dollars of damage, and affect the lives of several millions each year. And things are only getting worse: the incidence of extreme events continues to increase due to climate change, while the most vulnerable are often the poorest people in the poorest countries. As the most recent impact report from the Intergovernmental Panel on Climate Change (IPCC) stated: "those with the least resources have the least capacity to adapt and are the most vulnerable."

About 1.7 billion people live in countries that are water-stressed. This number will rise to 5 billion unless major changes are made to global water management. Most are poor countries where scarcity is unevenly distributed. It is often concentrated in more fragile, less productive environments, where the poor live and try to make a living. It is again the poor, who are hit the first and the hardest.

## Understanding Poverty and Water Security

Poverty is also a national issue, many countries have become heavily indebted through inappropriate policies and investment decisions, including water infrastructure that do not take sufficient note of the wider economic situation. With an unfavorable external environment, costly borrowing in scarce hard currency and low yields (in local currency) can lead to the impoverishment of the country. This can easily reverse any poverty reduction successes with even the better-off becoming poor. The financial crisis in Asia in the late 1990s and the more recent crash in Argentina demonstrate this problem. These national development issues are part of the basic picture for understanding poverty and water security links. In particular, the increasing importance given to macro development policies (for poorer countries enshrined in the Poverty Reduction Strategy Papers (PRSPs) means that any attempts to promote pro-poor water management or to better realize the potentials of water in reducing poverty must be placed within this context or they will be marginalized.

### Poverty

The days are gone when poverty was generally defined as simply not having enough cash income. New thinking on poverty has emerged in the international community in recent years (Box 3), with many organizations developing specific definitions and approaches that reflect the understanding that poverty is complex and multidimensional. It relates to both the material and the nonmaterial conditions of life—lack of education or human rights is as much part of the poverty experience as not having enough to eat or inadequate shelter. Many of these new approaches to poverty are relatively new, such as the 2000 World Development Report and the 2001 DAC Guideline. This section tries to capture the essence of the new definitions of poverty and outline their implications for how the poor gain access to water resources for *all* of their needs: for health and human dignity, for food security and economic production, for freedom from the threat of disasters, for maintaining the integrity of ecosystems on which they depend, and so many other ways.

This multidimensional view of poverty will provide a basis for the development of integrated approaches that have poverty reduction as an explicit goal, as integrated water resources management does. This reflects a perspective that poverty reduction is not something that happens indirectly or coincidentally. It is something that must be directly targeted, with specific and focused steps to address particular aspects of poverty. The form poverty takes varies greatly in time and place, but there are some basic characteristics that are part of the life experiences of the poor. Based on the different approaches identified in Box 3, the key dimensions of poverty are defined as follows:

### Good Governance

This is an issue that, in different forms, is now seen as fundamental to any poverty reduction strategy. It has many dimensions: improving the effectiveness and transparency of government agencies, ensuring the participation of the poor in decision-making, enhancing the role of civil society, ensuring basic security and political freedoms, and others. It has led to a much stronger focus on

institutional processes in poverty reduction and is based on the premise that sustainable development involves changes to power and participation in society so that the poor are empowered to influence decisions that affect their lives, including in the management of water, the design and operation of water supply schemes, and the choices made over how to best utilize scarce resources.

## Gender

This is a key issue related to the broader theme of governance. Women make up a disproportionate percentage of the world's poor and powerless, having inferior access to opportunities and making it more difficult for them to escape the poverty trap than poor men. Poverty reduction strategies need to create more balanced gender relationships. In no aspect of life is this truer than for water: *"women are the managers of domestic water and of family health ... biases persist, despite all the rhetoric on the importance of women"* (Vision 21: 8).

## Vulnerability

One of the core aspects of all approaches to poverty is that the poor are vulnerable to many factors that disrupt their livelihoods and can bring physical harm. This includes shocks (sudden changes such as natural disasters, war, or collapsing market prices), fluctuations (changes in rainfall patterns and/or employment opportunities), and trends (gradual environmental degradation, oppressive political systems, or deteriorating terms of trade). Improving the resilience of the poor to the impact of these shocks and trends is an essential feature of any poverty reduction strategy: witness the devastation that follows major storms or floods, or the livelihoods undermined by sustained droughts.

## Livelihoods

The emergence of livelihoods approaches has led to new understandings on how poverty, and the ability to move out of poverty reflects the capabilities and assets available to the poor. This includes material assets such as access to land, other natural resources, financial capital and credit, tools and inputs into productive activities, and others. It also reflects human capabilities (e.g., the knowledge and skills of the family), social and political factors (e.g., contact networks and the openness of government institutions), and people's capability to withstand the effects of shocks, (e.g., natural disasters). These capabilities and assets define the sort of activities that make up the livelihoods of the poor, and through strengthening them, form the basis for many actions to reduce poverty. For water resources, it is not just water itself, but also the flows of other resources (such as hydropower or fish) that water resources bring, the investments and knowledge (including traditional knowledge) needed to access these resources, and the social and institutional structures, that define how they are accessed and managed.

### Box 3. Approaches to Poverty

The most widely used indicator of poverty is the **\$1/day** (in terms of 1993 purchasing power parity [PPP]). Based on this, there were 1,174 million poor people in 1998 (23.4% of the world's population, a reduction from 28.5% in 1987). If \$2/day is used, then there were 2,811 million poor in 1998, over 56% of the world's population. This figure is recognized as no more than a crude indicator, however, and key programs such as the World Bank/IMF Poverty Reduction Strategy Papers (PRSPs) call for multidimensional assessments of poverty that reflect specific local conditions. The PRS program itself has no standard definition of poverty or blueprint for poverty reduction.

The **United Nations Development Programme (UNDP)** has been at the forefront of developing new approaches to poverty and produced the "Human Poverty Index" in the 1997 Human Development Report. This sees poverty as a lack of basic human capabilities, with the index consisting of five key indicators: life expectancy, access to safe water and health services, literacy, and the proportion of children underweight aged five and under. Income poverty is also recognized, with extreme poverty defined as the lack of income to satisfy basic food needs and overall poverty as the lack of income to satisfy a range of basic needs including food, shelter, energy, and others.

The **Asian Development Bank (ADB)** published a Poverty Reduction Strategy in 1999 that defined poverty as having the following essential elements: deprivation of essential assets and opportunities, poor access to education and health services, vulnerability to external shocks, and exclusion from key decisions that affect one's life. Governance conditions, gender, and environmental sustainability are all recognized as key. The strategy is based on three core areas: sustainable economic growth, inclusive social development, and improved governance at the policy and institutional levels. This strategy forms the basis of the **Poverty Partnership Agreements** that are negotiated with national governments.

The **World Bank**, through their web site and in the 2000 World Development Report, catalyzed a widespread debate on the meaning of poverty. The conclusions stressed the multidimensional character of poverty, with both the material and nonmaterial aspects being important. Key elements of poverty are given as the inability to satisfy basic needs, lack of control over resources, lack of education and skills, poor health, malnutrition, lack of shelter and access to water supply and sanitation, vulnerability to shocks, and a lack of political freedom and voice. The statement that "poverty is a situation people want to escape" seems self-evident, but reflects the important point that poverty is dynamic and people do move into and out of poverty as the conditions of their lives change.

The **Organisation for Economic Co-operation and Development – Development Assistance Committee (OECD–DAC)** has produced Poverty Guidelines in 2001 that recognize the need for a sharper and more explicit focus on poverty reduction. In these guidelines, "poverty, gender, and environment are mutually reinforcing, complementary, and crosscutting facets of sustainable development", so that any poverty reduction strategy must focus on gender and environmental issues. Poverty itself is defined as being rooted in the lack of economic, human, political, sociocultural, and protective capabilities.

The "livelihoods approach" has been developed by **UNDP, DFID**, and others. A complex and dynamic model, the core of this approach is that poverty reflects poor access to livelihood assets (natural, social, human, financial, and physical capital in the DFID model) and vulnerability to external shocks and trends in society, the economy, and the environment, such as market price movements, natural disasters, and political change.

The **Netherlands Ministry of Foreign Affairs** has published a poverty reduction policy that stresses the multidimensional character of poverty, including both its material and nonmaterial dimensions. The links between the local, national, and international processes that cause poverty as well as the roles of different actors in addressing poverty are stressed.

In a joint contribution to the World Summit on Sustainable Development preparatory process on linking poverty and environmental management, published in January 2002, the Director General for Development of the **European Commission, Department for International Development (DFID), UNDP, and the World Bank** also emphasized the material and nonmaterial aspects of poverty including the lack of income and material means, poor access to services, poor physical security, and the lack of empowerment to engage in political processes and decisions that affect one's life. They focused on livelihoods, health, and vulnerability as the three dimensions of poverty reduction.

The outcomes of the World Summit on Sustainable Development (WSSD) reemphasized both the complex nature of poverty and the centrality of poverty reduction to the achievement of sustainable development. The focus on poverty reduction at the WSSD was stronger than in past sustainable development conferences and was reflected in the emphasis placed on the attainment of the Millennium Development Goals (MDGs) as a shared responsibility of the international community.



## Environment

Linked to poverty, this issue is the core element of sustainable development. The poor are more dependent upon access to natural resources for their livelihoods, have less real control over these resources, and are more severely affected by poor environmental conditions—such as pollution and poor water quality—than the rest of society. The reduction of poverty needs to be linked to the sustainable management of the natural resource base. The context for this in relation to water is to develop approaches that are based on flows of water through ecosystems and that maintain the integrity of these ecosystems. It should also be recognized that poverty can lead to environmental degradation through over-exploitation of resources for short-term survival.

## Economic Growth

While faith in poverty reduction based on economic growth alone (with prosperity ‘trickling down’ through society) has largely disappeared, it is widely accepted that the sustainable eradication of poverty will not be possible without the general growth of the economy. In poverty reduction, both the size of the pie and how it is divided, matter. The quality of growth is important and the more it is targeted to the poor and under their control, the better the poverty reduction impact will be. Indeed, while poverty is not just about material conditions, these conditions are extremely important and any poverty reduction strategy needs to ensure that the access of the poor to goods and services to meet their basic needs and more, improves. The wise use of water resources and effective investments in water management can have a catalytic effect that resonates throughout the wider economy of regions and nations.

These new international approaches to poverty reduction are reflected in the Poverty Reduction Strategy Papers (PRSPs), based on a program established in September 1999 by the World Bank and IMF to develop nationally-owned, participatory poverty reduction strategies that would provide the basis for all concessional lending and debt relief. They are premised on the ideas that: development is a process of social transformation; poverty is multidimensional; faster economic growth is essential; and participation of direct stakeholders will reduce poverty. A number of PRSPs have been produced, but reviews of several of these undertaken by WaterAid indicate that water issues are only poorly, if at all, considered. One goal of the Water and Poverty Initiative must be to ensure the more effective integration of water issues into national-level development processes such as the PRSPs.

## Water Security

Taken together, issues provide a basis for understanding the links between poverty and water security. Through this, changes to the management of these vital resources can be made to ensure that they contribute more effectively to the reduction of poverty. The basic assumption is that water resources are important to the poor. Is this the case? The extent to which it varies from place to place, but poor people depend upon water resources in four key ways:

- Water resources as direct inputs into **production**. Agriculture is the most obvious and the viability of agriculture is closely linked to reliable access to water. However, there are many other areas of production including fishing; tree and garden cultivation around homesteads; livestock; small-scale manufacturing such as pottery, brick making, and tanning; services such as laundering; and others. Water is also vital for many types of manufacturing and other larger economic activities that provide employment for poor people, particularly in cities. The poor often rely on these non-land based production activities to diversify their livelihoods and to overcome their lack of assets, such as land.
- Water resources as a basis for the **health and welfare** of the poor, and especially of vulnerable groups such as children, the elderly, and women in general. Both the quality and quantity of water matter greatly in this regard, and safe as well as adequate quantities of water are recognized as a precondition for an acceptable standard of development. The UN Millennium Declaration defines a target of halving the proportion of people living in extreme poverty and halving the proportion of people who suffer from hunger and are unable to reach or to afford safe drinking water by 2015. A similar target has been agreed for sanitation. This is one of the most obvious areas where gender perspectives are of particular importance as women are the providers of water in the home.
- Water resources are critical for the viability of the **ecosystems** through which the poor access the natural resources where many aspects of their livelihoods are based. Even where water is not a direct input into production, other natural resources (such as forests, fishing, or grazing) that are contingent on the viability of ecosystem processes, depend on the flows of water through these systems. For instance, naturally occurring annual floods provide low-cost protein, an important input into the livelihoods of the poor.
- Water, when there is too much or too little, may also affect the poor, as they are the most vulnerable to **water-related hazards**, such as extreme floods, droughts, major storms, landslides, pollution, and so on. This vulnerability can undermine any effort to break the poverty trap and can even cast the not so poor into poverty, destroying the basis of their livelihoods through a cataclysm. Low resilience to these water-related vulnerabilities is a defining characteristic of poverty where these threats exist.

In all four, the links between poverty, gender, and the environment are obvious, as is the importance of the access of the poor to—and the rights of the poor over—water and other natural resources. This, in turn, is contingent upon the institutional framework and governance conditions that regulate access to these resources. In defining the key objectives of any strategy that seeks to improve poverty-water security, the goals need to be specified in relation to the real needs and uses of the poor for water resources. The objectives then need to define and improve the access conditions that determine whether and how poor people gain access to the resources that they need. The specific forms these take must reflect local conditions, an issue to which we return below.

Before doing so, we need to define more precisely what is meant by water security. The concept of water security was highlighted in the Framework for Action and



in the Ministerial Declaration of The Hague in March 2000 and is seen as the key to addressing the water crisis in the 21<sup>st</sup> Century. It means that people and communities have reliable and adequate access to water to meet their different needs, are able to take advantage of the different opportunities that water resources present, are protected from water-related hazards, and have fair recourse where conflicts over water arise. The concept of water security is based on the creation of mechanisms that ensure the poor have secure and sustainable access to water resources, which in turn means strong links to participation and the governance conditions that dictate this access.

Central to this is the recognition of the needs of all users, as well as the value and potentials of all uses of water resources in decisions about their future. Water resources (including aquatic plants and animals, hydropower, and aesthetic as well as other services) come from many sources (including surface and groundwater) and have many uses: domestic needs, irrigation, fishing, industry, waste disposal, etc. Where scarcity exists, conflicts emerge and the poor and powerless are particularly likely to be marginalized. The idea of water security means that there are mechanisms in place to ensure that this does not happen. However, we should remain realistic in thinking that not all solutions will likely be win-win for all the poor. Conflicts may occur between different poor groups (e.g., rural–urban) and mechanisms need to include compensation where resources are allocated to activities that may benefit a majority, but leave some at a disadvantage.

A key part of this is to ensure that the rights and entitlements of especially the poor people over their access to water resources are protected, and their voices, heard, where decisions over these resources are made. This includes the basic framework of laws and government policies, traditional rights and entitlement systems, an institutional framework through which the poor can realize their rights, and finally, the existence of basic governance conditions that provide for the fair and legitimate representation of the interests of all in water management decisions.

If we are to achieve water security, then water resources must be used sustainably: that is, in a way that does not damage their quality or future availability. For this, the balance between the different uses of water resources across the full range of a catchment is critical: sustainability is not just about one use or one place, but about how different uses can be balanced against each other within the overall hydrological process. This must be examined in the broader context and not solely from a water perspective. Sustainability is also about ensuring that water resources use does not damage the ecosystems through which they pass and that rely upon them. This is crucial both for the maintenance of biodiversity and ecosystems integrity and for the long-term sustainability of water resources, as flows of these resources are contingent upon these ecological processes.

## Poverty and Water Security Links

The basic concepts of poverty and water security should now be clear. How do these different concepts relate to each other? In particular, how do the different elements of poverty identified above, manifest themselves in terms of water resources uses, problems, and potentials experienced by the poor? In many ways,

this is impossible to answer, as the specific forms they take reflect local, environmental, economic, sociocultural, political, and institutional conditions. Despite this, some trends and patterns do exist. Box 4 briefly summarizes these, relating the main themes identified in this section to water issues in major geographical units.

The main issue has already been identified: what factors determine the access by the poor to water resources and services? This is the most fundamental issue that any approach to poverty and water security must address, for, to reiterate the point made above, the key issue in almost all circumstances is not whether there is enough water: it is the factors that determine and limit whether the poor can gain access to the benefits that water resources provide.

Black and Hall (2003) show that the issue of access to water resources is concerned with far more than just the issue of drinking water, arguing that the “water poor” includes:

- Those whose livelihood base is persistently threatened by severe drought or flood;
- Those whose livelihood depends on cultivation of food and natural products and whose water source is not dependable;
- Those whose livelihood base is subject to erosion, degradation, or confiscation (e.g., for construction of major infrastructure) without due compensation;
- Those living far (more than 1 km) from a year-round supply of safe drinking water;
- Those obliged to expend a high percentage (more than 5%) of household income on water, and slum dwellers obliged to pay for water at well above market rates;
- Those whose water supply is contaminated bacteriologically or chemically, and who either cannot afford to use, or have no access to an alternative source;
- Women and girls who daily spend hours collecting water and whose security, education, productivity, and nutritional status is thereby at risk;
- Those living in areas with high levels of water-related disease (bilharzia, malaria, trachoma, cholera, typhoid, etc.) without means of protection.

Many of the problems stem from the **governance conditions** through which water resources are controlled. The starting point is the **legal and policy framework**, which defines both the basic rights (including customary rights) and entitlements to water resources and national priorities for their management. Governance is above all about the **institutions** through which water is managed, (e.g., government agencies such as irrigation or public health departments, civil society institutions such as NGOs, political parties, farmers’ organizations, and women’s groups).

These institutions are crucial in deciding matters of water allocation, infrastructural investment, conflict resolution, water cost and pricing, etc. A priority goal for these institutions must be to understand the specific needs of the poor for access to water resources and take the steps needed to ensure they have this secure and sustainable access. Developing improved governance

## Box 4. Water and Poverty Issues in Different Geographical Areas

**Large cities** are increasingly important in both poverty and water management terms. The poor metropolitan and peri-urban areas face severe hardships in accessing water supplies and especially sanitation, suffering acutely from pollution and flooding hazards. Many work in the informal sector, where water supplies and waste disposal are important constraints. The urban poor often pay more for water than any other section of society and possess the assets and capabilities to pay for and run services within their communities. Community-based organizations can (and in some cases do) play a key role in interacting with supply utilities, health services, and municipal authorities.

**Other urban areas** including towns and secondary cities, face even greater service and institutional constraints. Local governments are mostly weak and infrastructure is very limited. Lower densities and less industry means less pollution, but sanitation is typically almost nonexistent in poor districts. Poor communities are often weak in terms of institutions and assets available to them. Ensuring basic service provision is typically a high priority (especially for the many rapidly growing towns).

**Coastal zones** are often very dynamic in development terms, but can be extremely vulnerable to water-related disasters and environmental deterioration. Conflicts between different users of water resources (often around developments such as tourism and shrimp production) are common. Resource rights are often unclear or trampled on by development pressures, which also often fail to take advantage of traditional knowledge and capabilities in areas such as fishing and mangrove management.

**Floodplains** and deltas are often densely settled in high production agricultural areas. Water is a major determinant of productivity and excessive floods are a constant threat. Social (including gender) inequalities can be great and environmental deterioration (especially from land pressures) is common. The key challenge in these areas is to maximize opportunities for the poor while mitigating vulnerabilities and ensuring representative institutions.

**Arid/semiarid areas** are where many of the most acute problems are found. Water resources are scarce, overexploited, (both ground and surface waters) and erratic in availability. Incidence of poverty is high and both services and institutions are poorly-developed. Conflicts between water users (e.g., farmers and pastoralists) are becoming common as pressures grow, and traditional knowledge and management systems are marginalized. This often reflects hazy rights and entitlements to water resources.

**Mountainous and hilly areas** are sparsely populated (often with minority communities) but very poorly developed. Institutions are weak and service provision ranges from poor to nonexistent. Environmental degradation (often reflecting external pressures) is widespread in many areas and local communities are weak in terms of their assets and capabilities to arrest it.

**Small island states** have distinctive water problems, often with severe difficulties in obtaining sustainable freshwater supplies, multiple and competing uses for both fresh and coastal water resource, and small populations that mitigate against economies of scale in investments.

**Other rural areas** vary greatly in character, but often suffer from resource pressures, institutional weaknesses, and limited service provision. The efficiency of irrigation, access to water resources and services, as well as environmental degradation are all issues in many areas.

conditions for the poor in the water sector should be placed within the wider governance trends found in individual countries, including the key themes of **decentralization** and **civil service reform** that aim at reducing the size and increasing the efficiency of government agencies.

That **gender** is a key issue in any analysis of poverty and water should be self-evident. Women disproportionately make up the poor and are the main managers of many water resources. Women face the burden of fetching water for use in the home, coping when there is not enough water for domestic needs, and caring for those made sick by poor quality water. Women are also often the main actors in productive activities around the home that rely on water (e.g., vegetable gardens, livestock, handicrafts, and services). These activities are often neglected, but are vitally important in the livelihoods of the poor. Finally, women head many of

the poorest families in rain-fed farming areas, where scarcities are at their worst and people are often least able to cope. Empowering women is critical to more focused and effective water management. Empowering women in relation to water, which has such a high priority for poor women, will engage their interest and will create an improved social and institutional framework for women that generate benefits for other aspects of life. As the Gender and Water Alliance (2003) argues:

A gender-sensitive approach to water management should not just facilitate an understanding of the different roles of men and women, but also an understanding of when and how these roles need to change in order to facilitate equal participation in decision-making by men and women; and in order to ensure equal access to the benefits of water.

The **services** provided by water resources, and the infrastructure and delivery systems needed to make these services available, are fundamental to understanding the poverty-water security relationship. The management of water resources must be based on a balance between the different values that these resources have. In particular, there are key decisions to be made in priorities for investments and resource allocations over meeting **basic needs** for water supplies (including sanitation) and stimulating **economic growth**. These decisions need to balance the needs and interests of different stakeholders, immediate priorities against long-term goals, efficient resource and investment utilization against maintaining ecosystems integrity, and desired technological specifications against capacities to afford and maintain them.

Meeting the most **basic needs** of poor people makes a good prerequisite for taking them out of poverty. This is also often essential for sustainable water management, as poverty itself can be the root cause of many water problems. As Vision 21 points out: "there is an immensely powerful link between human development and water, sanitation, and hygiene. Practice shows that they often form an entry-point to human development and poverty elimination." Although formidable challenges remain, much work has been done in this field in recent decades in both rural and urban areas.

Economic growth without ensuring that it is pro-poor does little to reduce poverty, while without growth, there is nothing for the poor to benefit from. Although water is less recognized than health and education as a critical factor in economic development, no business is likely to invest in areas where water services are inadequate. The ability to harness water resources for power production, irrigation, or industrialization has contributed to these developments. These in turn have depended upon large-scale infrastructure development which bring many benefits, but which too often have also brought unacceptable financial, social, and environmental costs. Huge infrastructure investments are still needed throughout the developing world, but these must be based on how this will directly contribute to poverty reduction. Future large-scale investments must conform to the highest international standards of environmental and social mitigation, ensuring that nobody is worse off from the intervention.

Defining economic opportunities associated with water resources is not just a macro issue. The small-scale management of water resources can give the poor a chance of a higher, more diverse, and more secure income base. Vegetable

production, milk selling, handicrafts, services, fishing, and many others show potential. Their viability depends on many factors, including access to credit, inputs and markets, equipment and skills, a local organizational base, and others, including secure access to water resources.

The poor are vulnerable to water-related problems in many ways. These affect their health, productivity, and physical safety. Water resources also have the potential to improve the resilience of the poor to other forms of vulnerability, (e.g., providing opportunities for more secure or more diversified livelihood opportunities or creating a focal point for the development of institutional capabilities that can serve the community for many other purposes).

Natural disasters such as floods and droughts take lives and devastate livelihoods. Priorities for pro-poor management systems include: enhancing the protective capabilities of the poor to cope with disasters and improving actions to reduce risks, supporting the coping and adaptation strategies of the poor, and ensuring effective relief and recovery systems are in place.

Vulnerability to ill health caused by waterborne diseases or pollution is similarly a feature of life for too many poor people. This vulnerability will only be removed when the environmental conditions that cause the problems are improved through preventing pollution, improving water quality, or providing secure water supplies.

Many poor communities depend on rain-fed farming in areas where rainfall is variable and the green revolution, including irrigation, has not reached. Actions that reduce these vulnerabilities, such as rainwater harvesting or alternative cropping patterns, can have widespread impacts upon these communities.

There are many other forms of vulnerability: erratic water supplies in low-income urban areas, declining fish stocks, limited control over water for small-scale industries, and others. The specific form they take will reflect local conditions, but the goal is the same in all cases: to reduce the vulnerability of the poor by creating better water security based on, wherever possible, local control over resources.

Improving governance and reducing vulnerabilities will create opportunities, but realizing them will depend upon the assets they possess and their capabilities to use these assets for different livelihood opportunities, (e.g., Do the poor own or have access to a well, an irrigation pump, a boat, irrigation channels, or a fishing net? Do they have the skills, knowledge, and labor available to use these assets? Can they afford the costs associated with using assets such as fuel? Do they own irrigable land? Can they afford inputs such as seeds and fertilizers? Do they have access to markets to sell crops, fish, or other products? Do they have the proper skills to be good farmers, fishermen, or boatmen? Is credit available for investments and securing inputs?). These concerns reflect the complex inter-linkages between water and the rest of the livelihoods of the poor. A pro-poor approach to water management will emphasize **capacity development and empowerment** ensuring that where such assets and capabilities are lacking, opportunities for the poor to access them are developed.

Sustainable water management both depends on and is essential for the wise management of the ecosystems through which water flows. As the Vision for Water and Nature argues so cogently, the alternatives are unthinkable: "The

inevitable result of further human abstraction on this scale will be the degradation or complete destruction of the terrestrial, freshwater, and coastal ecosystems that are vital to life itself" (xi). These ecosystems are often the key to the meager income and little security that the poor, and especially the rural poor, have. Anything that lowers their access to these resources, whether through limiting their rights or by degrading the quality of the resources, has a direct negative impact upon the poor.

We can consequently identify a wide range of direct and important links between water security and poverty. The key goal of water management should be to ensure that the conditions in which the problems affecting the poor in these areas are mitigated and the potentials the poor possess are realized.

## Steps Toward Water Security for the Poor

### The Way Forward

The discussion so far has identified the main characteristics of poverty, water security, and their interrelationships. This final section provides some first steps toward an approach that can assist policy makers, planners, and others to identify the types of actions that can improve the access of poor people and communities to the many benefits that water can bring, particularly to enhance the contribution of water management to poverty reduction. There are many different ways that this could be approached and the one advanced here is no more than a preliminary suggestion that needs to be critically reviewed and developed through extensive consultations, discussions, and learning from on-the-ground experiences. This approach is based on a process that improves the conditions of the poor in three aspects of life: to **reduce the vulnerabilities** that they face, to **improve access** to high quality water services, and to move toward **more sustainable management** of water resources.

To achieve this, it is possible to recognize a broad array of water-related actions, but it is also important to always bear in mind that the effectiveness of these actions is influenced by a wide range of forces beyond water management. For instance, the goal of reducing vulnerability to food insecurity can be significantly advanced by the poor's access to investments in irrigation systems and their more effective management, but the impact of these investments is seriously affected by many external factors (access to agricultural inputs or credit, crop markets, government subsidies, land tenure relations, etc). Despite these caveats, actions to achieve these goals can be grouped into six key areas:

- Pro-poor water governance;
- Improved access to quality water services;
- Improvements to livelihoods and pro-poor economic growth;
- Community capacity building and empowerment;
- Disaster prevention and mitigation; and
- Ecosystems management.

## Pro-Poor Water Governance

Governance has been stressed as a key issue throughout this paper. Three main elements to the governance context can be identified:

- The wider economy and society, including the structure of society and the nature of participation and strength of civil society, the strength of institutions at the different levels of society (from the local to the national), the form and effectiveness of government institutions and political participation, the structure and dynamism of the economy (including the private sector), the availability of different skills, services (such as health), and infrastructure (e.g., transport, power supply, and communications), as well as education and media services.
- Water laws, policies, and institutions that set the context within which water management and the access of the poor to water resources takes place. This can be seen as the immediate national-level governance context for water, and its character will reflect the wider economy and society. This should include the *de jure* system (the framework of rights, policies, and institutional mandates that exist on paper) and the *de facto* situation: what actually happens on the ground, which may differ greatly to the system on paper, (including customary rights that are often not formally recognized, but are of key importance in the management of water). One key goal here is to mainstream gender issues as a central feature of the decision-making process at different levels within the sector.
- The local, social, and institutional structure, both directly related to water management and in the wider setting of social, gender, and political relations at the local level. These are critical in three senses: they in many ways define (and limit) the extent to which the poor can be empowered, they are the existing capacities on which new institutional processes for participation and management should be built, and they are the channel through which the poor interact with the external world, including policy makers, and institutions seeking to improve their water security and their livelihoods.

Any approach to improving water management must understand all three components of the governance context. Too many approaches concentrate on just one (e.g., improving government institutions or mobilizing local-level participation) or, at best, two. The wider economy and society is rarely acknowledged despite being critically important in defining the basic approach and potentials to change at the local and institutional levels.

Good governance also depends upon the knowledge and understanding of the different stakeholders involved in decisions. The availability of accurate statistics on water and poverty, information on the needs and interests of stakeholders, knowledge of existing laws, policies, and programs, (and of the rights and entitlements that underpin them) as well as the of potential options for change, are all needed if effective consensus is to be established and good decisions reached. Shared knowledge (and the process of sharing knowledge) is also the basis of mutual trust—the basis of negotiations and conflict mitigation. Good governance depends on stakeholders (particularly in local communities) having the knowledge and skills needed in areas such as water management, infrastructure maintenance, and administration, if they are to fulfill the roles that are assigned

to them. Finally, there is a need to make laws and policies more coherent and consistent, particularly ensuring that state agencies are better equipped to respond to the needs of poor people and meet their needs as well as ensure that intentions of more transparent and participatory approaches are carried through into practice.

Black and Hall (2003) for the Global Water Partnership, argue that creating more pro-poor water governance needs a move from a sectoral approach toward more integrated, demand-led approaches based on IWRM. They identify five specific areas wherein pro-poor water governance can be developed, with, in all cases, a need to combine improvements to governance with the attainment of concrete improvements to the poor's access to water:

- Watershed protection and regeneration;
- Community water supplies and sanitation;
- IWRM at the macro level;
- Absorbing equity considerations into IWRM policies and mechanisms; and
- Management and institutional systems.

Although IWRM must not be assumed as a prerequisite for improving pro-poor water governance, there can be little doubt that the integrated framework it provides is far likely to create a context within which equity can be improved and the position of the poor, advanced, so long as poverty reduction is the explicit rationale for the development of IWRM.

### Improved Access to Quality Water Services

In all but the most exceptional circumstances, enough water exists. However, the main problem facing the poor is not the scarcity of the supply, but the inadequate access to the services that the resource provides. This includes water for all the needs of the poor, with domestic water and sanitation as well as water for food production being critically important. The quality of service provision includes both sufficient quantities and good quality water (with the latter especially important for domestic water). Access is determined by a wide range of factors:

- The **rights and entitlements** of poor communities to use particular resources. This reflects laws and policies as well as traditional rights, social customs, and barriers. These are part of the extended framework of legal rights and social relations that are recognized as part of the poverty experience. It is necessary to ensure that specific steps guaranteeing the rights of women are included within the legal and policy framework.
- The availability of **infrastructure and technology**: This refers to whether the poor can afford and have access to hand pumps, nets, irrigation canals, tube-wells, latrines, storage facilities, and/or any other devices needed to render the services that the available water resources can potentially provide.
- The **ability to pay**: This pertains to whether the poor can afford to pay for the initial investment and other water charges, including operation and maintenance, when property rights are well-defined and the necessary infrastructure and technology are available to them.



- The possession of the necessary **knowledge and skills**: Awareness of hygiene practices, effective irrigation, and suitable fishing sites, allows the poor to utilize the water services available to them.
- **Institutions** that are accessible to the poor: These must effectively manage water resources, operate and maintain services, and where necessary, develop infrastructure and manage conflicts.

One of the key goals of any pro-poor approach to water management is to understand what constrains the poor's access to water services and what types of policies and programs will overcome these barriers. This critically includes, but is not restricted to, infrastructure such as irrigation or water supply systems, and for these systems, both the original investments (what system does the poor prefer, what is the most effective and cost-efficient design, how is it paid for, what quality of service is needed, etc.) and their subsequent operation and maintenance (which has been familiar as the root cause of the failure of many infrastructure schemes).

There are two linked sets of issues here: how to increase the total value (however measured) of the services delivered and how to ensure more equitable access for the poor to those services that are available. There can be little doubt that many poor people around the world have very poor access to these services, including poor quality water that directly impacts upon their health and welfare. Investments in improved services such as more reliable, better quality, and better located domestic water or more reliable and higher flow irrigation can quickly and effectively contribute to significant improvements to the lives of the poor.

These improvements to water services are frequently identified by poor people as one of their highest priority needs, and indeed, their development can act as an effective 'entry point' to catalyze wider community participation in water management or other activities. The process can also provide a basis for developing better institutional links between government agencies and local communities.

One of the key challenges is to ensure that the investments made can be operated and maintained by the direct stakeholders in an effective and sustainable manner. This can require levels of skill development and organization within communities that are challenging, but that, again, can catalyze wider processes of community development. Equity, especially gender equity, is a central issue in all aspects of increasing the access of poor people to quality water services. This is particularly true when, as is often the case, the needs and interests of men and women differ, even if only in emphasis. The key conclusion from this is that it is essential to **mainstream gender** in all aspects of the development and management of water services, for without this, there will be a constant danger that the most vulnerable and disadvantaged will be marginalized when there is competition between different water uses or a number of calls upon resources that are essential for the construction and operation of water infrastructure.

## Improvements to Livelihoods and Pro-Poor Economic Growth

Eradicating poverty is ultimately about creating an environment that will allow the poor to utilize their potential to develop better and more secure livelihoods,

which in turn is contingent upon the wider process of economic development and on focused measures to support and develop the livelihoods of the poor. Three essential components of livelihoods need to be considered if improved water management is to contribute to sustainable livelihoods development:

- People draw on a set of **capital assets** as a basis for their livelihoods. We can identify five: human, natural, financial, physical, and social (including political). The capital available to individual households reflects their ability to gain access to systems (the resource base, the financial system, and society) through which these capitals are produced.
- Based on the choices made, household members will undertake a series of **livelihood activities** (e.g., growing crops, fishing in a lake, paid labor, or making pots). Some activities may be dominant, but it is rare for a poor household to rely exclusively on one source of livelihood. Most combine complex sets of activities to augment their income.
- The **livelihood outcome** covers the set of material and nonmaterial conditions that define the specific forms of individual and communal poverty. This ultimately is what any pro-poor strategy is trying to improve and the nature of poverty in different settings needs to be better understood.

Water management plays a key role in many aspects of the livelihood process, and in particular is essential to many livelihood activities: both productive such as agriculture and manufacturing as well as household maintenance activities. Focused efforts to meet the needs of the poor must reflect an understanding of the different roles that water security plays in their livelihoods. Prescriptive assumptions must be avoided as these roles vary from community to community.

Water management is also key for ensuring the sustainability of many types of new economic ventures that provide investment or employment opportunities for poor people and that contribute to the wider process of national economic development. Ensuring that water is available in the right quantities and quality for these pro-poor forms of economic growth is itself a key focus for water investments and management activities. To achieve this, poverty reduction will have to be the top priority, even when that means accepting lower initial economic cost-benefit ratios.

Hussain et al (2003) demonstrate the link between the secure availability of widespread irrigation and the overall development of countries and regions. There can be little doubt that sustained agricultural development is critical to the economic growth and development in poor countries. Not all places are suitable for the development of large irrigation systems in hydrological terms, while the economics mitigate their development in other places. But where such systems are viable, they can make a major contribution to levels of growth that are essential for the sustained reduction of widespread poverty.

## Empowerment and Capacity Development

The importance of ensuring the participation of poor people in water management has been stressed throughout this paper, and indeed is hardly a contentious issue. There are three key issues in turning this principle into practice:

- Is the participation based on a process that gives poor people clear rights and the means to access these rights? Participation can all too often be a token gesture in which there is no real strengthening of the position of poor people. At its worst, it can be a new form of exploitation in which the poor are expected to contribute free labor or relieve the state of the burden of operation and maintenance. Full participation is found where poor communities have a real voice in all aspects of the planning and management process.
- Do the poor have the capacity to undertake their new roles? In particular, are there effective and representative organizations at the community level and do the individuals involved have the appropriate skills and knowledge as well as other means (including transport, buildings, etc.) to undertake the new tasks in the water management process that is the purpose of engendering participation?
- Do the funding agencies and implementing agencies, government as well as nongovernment organizations, have the procedures and capacity to facilitate participatory, pro-poor interventions? Traditionally, funding agencies have relied on purely economic project selection criteria and on predetermined disbursement schedules to monitor progress. These are often not helpful when it comes to pro-poor and participatory approaches. Similarly, governmental departments are often used to a top-down approach in which all decision-making power is in their hands. Far reaching changes will be needed in procedures as well as in staff composition, attitudes, and skills for these agencies to effectively implement pro-poor water resource interventions.

Where these capacities do not exist, actions to create or improve them are an essential precondition for improving the water security of the poor. These actions need to ensure that all sections of society are fairly and equally represented, specifically targeting those previously excluded. These are typically women, the young, and (in some places) the old as well as social or ethnic minorities. Participation is essentially about the redistribution of power toward the powerless, giving it a political dimension that cannot and should not be avoided.

## Disaster Prevention and Mitigation

Overnight, disasters—whether natural or man-made—can devastate long-term efforts to reduce poverty and build sustainable improvements to the livelihoods of the poor. The number of poor people affected by such disasters is increasing rapidly, and trends such as increased resource pressures and climate change suggest that these risks will continue to grow. It is increasingly recognized that disaster management, both prevention and mitigation, needs to be established as a mainstream component of water management systems. In most cases, a range of both structural and non-structural measures will be needed. The point of departure will be to understand and strengthen the existing coping and adaptation strategies of poor and vulnerable communities. On its own, however, this will rarely be enough, and concerted actions by government agencies and others to improve forecasting systems, disaster relief capabilities, and post-disaster recovery systems should be an integral part of any pro-poor strategy for water management.

We have seen that one of the key dimensions of poverty is vulnerability to a wide range of forces that disrupt livelihoods and undermine the integrity of the resource base. Many local and external factors influence livelihoods including markets, the physical environment, and the social and political environment. These features are themselves inherently dynamic and livelihoods are vulnerable to the shocks and trends in these factors. The impact of these external shocks and trends will vary from household to household. Some are more sensitive to their influence, while others are better able to absorb their impact or respond to the opportunities they may offer. The character of these external forces represents the **vulnerability context** within which the livelihood systems of different households develop, while the ability of households to cope is their **resilience** in light of these vulnerabilities. For water, this is a two-way street:

- The poor are directly vulnerable to water-related hazards (floods, droughts, pollution, etc.), the effects of environmental degradation that reduces resource availability (quantity and quality of water, fish and aquatic plants, etc.), the influence of shocks and trends in market prices that reduce the value of water-based production, social and political developments that further oppress them, and many other forms of vulnerability that directly and indirectly affect their access to water resources and impact upon their livelihoods.
- Conversely, better water management can reduce vulnerabilities. It can do so directly by decreasing the impact of variability in water availability (e.g., through better water storage) or protecting from hazards (e.g., flood protection or pollution control). It can also work indirectly, through providing more secure livelihoods and helping build social institutions that are important in creating resilience to wider vulnerabilities.

Understanding and working effectively to reduce these vulnerabilities through interventions to improve water management, secure livelihoods, establish more effective governance conditions, build direct stakeholder capacities, etc. is a key component of a pro-poor approach to water security.

## Sustainable Management of Ecosystems and Water Resources

The management of water resources takes place within ecosystems, and actions at any one place should be based on understanding the flows of water resources within river basins. This should account for all aspects of water resources (such as surface water and groundwater; soil moisture; water quality and waste absorption capacities; fish, plants, and other aquatic animals; and recreational, power, aesthetic, and transport potentials). It should also account for all water uses, including actual and potential conflicts among different uses. There is an emerging consensus that the basis for this should, as far as possible, be integrated water resource management (IWRM) within river basins, although how these interfere with political and administrative boundaries is still a challenging issue.

Sustainability is the key, as the availability of the future flows of resource values and water services is severely compromised in settings where unsustainable management damages the quantity or quality of water flowing through the system, increasing

scarcities and vulnerabilities, eroding the position of the poor, and threatening the integrity of the ecosystems through which the water flows. Sustainability should be an objective of water resources management, and for this, an understanding of what levels of exploitation are or are not sustainable is needed.

The importance of the environment is critical in defining the limits of water resources exploitation. Water management needs to consider the variability of water flows through ecosystems and the minimum flows needed to maintain the integrity of these ecosystems to avoid disrupting service flows and to maintain the sustainability of the ecosystems and the availability of water.

Water management, consequently, cannot be separated from the wider process of natural resource management, and has particularly strong and important links to land management. Critical trade-offs have to be made where ecosystems are sensitive to variations in water flows (wetlands, mangroves, etc.) or where they have biodiversity values and are under stress. In these cases, water management needs to meet the needs of poor people, but must do so in ways that do not further degrade ecosystems viability. These include actions to reverse unsustainable management practices by poor people where they are found.

## Developing an Initiative on Poverty and Water Security

The forgoing issues interact to determine the character of the relationship between poverty and water security. They define the conditions through which the poor can access water resources and services as well as determine the nature of vulnerabilities the poor face. They provide a structure through which the specifics of different people and places can be understood and identify the steps needed at different levels for improving the water security of the poor.

For instance, are new laws and policies needed? Do existing organizations have the capacity to achieve desired changes to their mandate? Will new investments in water management improve the sustainable access of the poor to water services? Will flows of water for new uses be sustainable and environmentally benign? Will improved access to water produce livelihood benefits for the poor that justify investments made? What sorts of social, economic, and political barriers exist to the participation of the poor in water management? Will new forms of water management in one place have negative impacts on the poor upstream and downstream? What forms of conflicts over water resources exist and how do they affect the access of the poor to these resources?

These and many other questions can potentially be understood through the analysis of specific situations through the conceptual framework. The ideas presented in this paper provide a basic conceptual framework for analyzing the complexity of poverty-water security relationships. This in itself is useful, but these ideas need to be fleshed out in relation to real places and real policies. Indeed, meeting the challenges that poor people and poor nations face in reducing vulnerabilities and improving access to water resources and services needs to be based on clear and prioritized steps. There is no blueprint for this, but there is a need for a process that catalyses awareness of and focuses attention on these issues, and that leads to immediate and long-term improvement of the water security of the poor. The scope for sharing experiences and understanding is also great.

The Water and Poverty Initiative will be taken forward from these starting points. The Asian Development Bank, with the aim of ensuring that water and poverty is a major theme at the 3<sup>rd</sup> World Water Forum in Kyoto, in March, has coordinated it. The idea of developing new water and poverty partnerships emerged during the initiative, particularly in response to the strong calls to stop talking and start acting that came out of the WSSD in Johannesburg. These partnerships will focus on developing a water and poverty action program whose goal is to help reduce poverty by improving the water security of poor people, by improving access to water, promoting pro-poor water governance, reducing vulnerabilities, and sustaining the resource base.

The objective will be to create partnerships that will help increase pro-poor water investments and improve their effectiveness. The partnerships will help to achieve the Millennium Development Goals through a participatory and demand-led approach combining capacity building, community empowerment, and investment. These programs will be poverty-targeted, demand-led, action-oriented and based on partnerships that build on the principle of common but differentiated responsibilities. They will be implemented through national-level programs, in which partnerships between governments, civil society, and national-level knowledge institutions will work together to target pro-poor actions to enhance the water security of poor people.

The idea of these new partnerships reflects the theme that runs through this paper: that "business as usual" and conventional approaches are on their own not enough to reach the poor, especially the poorest of the poor (Frans and Soussan. 2003). A new approach is needed. This paper has, it is hoped, outlined a conceptual framework on which these innovations can be based. There are no easy prescriptions, no panaceas, or universally applicable solutions. But there are some fundamentals that apply everywhere, including the need to create fair and representative governance conditions and means of participation for all, ensuring efficient and sustainable levels of service provision. There is also the need to ensure that water is mainstreamed into wider national and international development approaches, such as the PRSPs. Water can (and often does) make a major contribution to poverty reduction, but water management alone will not solve poverty problems, and poverty will not be reduced without improved water security.

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